BUILDING PERFORMANCE EVALUATION OF INTENSIVE CARE UNITS STAFF BREAK ROOMS

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ABSTRACT

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Kocabaş, Burcu

Master's Program in Architecture

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In recent years, advances in intensive care units and medical technology have accelerated and gained importance. An increase in the number of patients and variety of diseases has also led to a rise in the requirements of intensive care units for their physical characteristics and infrastructure. In addition, as seen during the pandemic period, ICUs have reached full occupancy and overflowed their usage capacity. This occupancy caused the need for staff and increased working hours. It can be predicted that the workplace comfort of ICU staff will also affect their working performance. In this process, information about the use of the space was obtained and analyzed. This framework will serve as an infrastructure for determining the spatial settlement problems faced by the intensive care staff during the pandemic processes and in general, and for evaluating the linear relationship between the space and the user. In the study, the performance of ICU staff break rooms was examined within the scope

of post-occupancy evaluation. In terms of POE evaluation, based on Ulrich's research (Ulrich, 2000), evidence-based design (EBD) was examined. At the same time, a survey was conducted with the third level ICU staff, which contributed to the evaluations. In this way, together with the observation made, ideas and suggestions about the area were obtained in line with the opinions about the staff break rooms. Thus, the study was carried out to increase the quality of the interior of the intensive care staff break rooms and thus the user satisfaction with space.

Keywords: Post-Occupancy Evaluation, POE, Evidence-Based Design, EBD, Healthcare, Intensive Care Unit, ICU, Staff Rest Areas

ÖZET

YOĞUN BAKIM ÜNİTELERİ PERSONEL DİNLENME ALANLARININ BİNA PERFORMANS DEĞERLENDİRMESİ

Kocabaş, Burcu

Mimarlık Yüksek Lisans Programı

Tez Danışmanı: Dr. Öğr. Üyesi Lâle Başarır

Ağustos, 2021

Son yıllarda yoğun bakım üniteleri ve tıp teknolojisindeki gelişmeler hızlanmış ve önem kazanmıştır. Hasta sayısındaki ve hastalık çeşitliliğindeki artış, yoğun bakım ünitelerinin fiziki özellikleri ve altyapı gereksinimlerinin de artmasına neden olmuştur. Ayrıca pandemi döneminde de görüldüğü gibi yoğun bakım üniteleri tam doluluğa ulaşmış ve kullanım kapasitelerini aşmıştır. Bu doluluk, personel ihtiyacına ve çalışma saatlerinin artmasına neden olmuştur. Amaç, mekânın yaşayanlar tarafından nasıl kullanıldığını anlamak ve mekânsal kaliteyi değerlendirmektir. Bu süreçte mekânın kullanımına ilişkin bilgiler elde edilmiş ve analiz edilmiştir. Bu çalışma, yoğun bakım personelinin pandemi süreçlerinde ve genel olarak karşılaştığı mekânsal yerleşim sorunlarının belirlenmesi ve mekân ile kullanıcı arasındaki doğrusal ilişkinin değerlendirilmesi için bir altyapı görevi görecektir. Çalışmada, doluluk sonrası değerlendirme kapsamında yoğun bakım personeli dinlenme odalarının performansı değerlendirilmiştir. KSD değerlendirmesi açısından Ulrich'in

araştırmasına (Ulrich, 2000) dayalı olarak kanıta dayalı tasarım (KDT) incelenmiştir. Aynı zamanda üçüncü seviye yoğun bakım personeli ile değerlendirmelere katkı sağlayan anket çalışması yapılmıştır. Bu şekilde yapılan gözlem ile birlikte personel dinlenme odaları ile ilgili görüşler doğrultusunda alanla ilgili fikir ve öneriler elde edilmiştir. Bu araştırma kapsamında yoğun bakım personeli dinlenme odalarının iç mekan kalitesinin ve dolayısıyla mekandan kullanıcı memnuniyetinin artırılmasına yönelik çalışma yapılmıştır.

Anahtar Kelimeler: Kullanım Sonrası Değerlendirme, Kanıta Dayalı Tasarım, Yoğun Bakım Ünitesi, Personel Dinlenme Alanları

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CHAPTER 1: INTRODUCTION

1.1. Research Objective and Problem Statement of the Research

'Right to health' is one of the most important rights of people contained in international law and the constitutions of countries. We achieve our health rights within the framework of the health system established in our constitutions (Çetintaş, 2016). Therefore, health systems are always up-to-date and regulated in the direction of improvement. Personnel involved in health systems also play an important role in this formation. Their motivation and work performance will affect the recovery rate of patients, resulting in a healthier society.

Intensive care units (ICUs) are specifically working and equipped area of health systems used for the treatment of life-threatening diseases, seriously injured or difficult-to-heal patients (Hawker, 2015). Currently, with increasing population and disease rates, the pandemic process also has shown the importance of health systems and especially the importance of intensive care units. In this sense, it is aimed that the intensive care units, which play an important role in health structures, contribute to architectural development by evaluating the interaction of personnel and space.

Studies focusing on the psychology of users indicate the importance of the effect of stress on user performance. At the same time, hospital and health care environments affect both the healing process of patients and the satisfaction of hospital staff (Ulrich, 1991). However, many studies are investigating the relationship between stress and the interior of health care settings. Only a few of these relate to healthcare personnel, meaning that personnel-centered design is not covered much in healthcare research (Çetinkaya, et al., 2019). This indicates that little attention is to paid to staff experiences and staff-specific design factors.

In addition, in studies that question spatial satisfaction in physical, psychological and sociological aspects, patient perception is kept in the foreground. Analyzes of interior elements and personnel needs in staff break rooms are generally ignored.

Likewise, healthcare environments with more appropriate resting area design increase staff satisfaction. These environments not only increase their satisfaction but also increase their well-being and productivity. Focusing on staff satisfaction, Ulrich states that a good physical environment design in the health facility promotes better

clinical outcomes and contributes to the recovery rate by reducing stress on staff (Ulrich, 2006).

Another missing and important issue in this regard is the regulations. When the regulations published by the Ministry of Health in our country are examined, it has been observed that there is no detailed data on personnel rest areas. The fact that the researches are generally not user-oriented in the field of health and that there is not enough information in the regulation for these areas has led to the goal of improving the staff resting areas that will affect the satisfaction of the ICU staff, who have a busy and busy working life. For this reason, in this thesis, resting areas, which are a more important area where ICU doctors and nurses should be during working hours, are examined.

In the light of these problems, the thesis is to convey the current situation and increase awareness to increase the quality of the ICU staff break rooms, the quality of the space and the satisfaction with the place. In this context, the data required to improve the indoor quality of the resting areas arranged for the employees in ICUs was obtained through Post-Occupancy Evaluation (POE) and analyzed in the light of Evidence Based-Design (EBD). This study, which focuses on the ICU staff rest areas in the hospital interiors, aimed to have an impact on the perception of staff spaces in hospitals.

This study aims to investigate the resting areas of the intensive care units according to the principles of user-oriented building performance and after-use evaluation and to contribute to the design process in this direction and to search for the answers to the following questions:

- When the ICU staff resting areas are examined from a spatial, physical and psychological point of view, are they satisfactory, efficient and sufficient for health workers?
- Is there necessary data for ICU staff resting areas in the regulations published by the Ministry of Health? Is the information sufficient to organize these fields?

The questions will help to determine the basic needs of ICU staff rest areas of hospitals in terms of spatial layouts.

1.2. The Motivation of the Research

Correct spatial designs in intensive care units provide comfort and safety to patients and staff. This increases the success of the treatment. It also contributes to the renewal of the intensive care infrastructure according to current conditions by preventing deficiencies that cannot be eliminated later. The starting point and motivation of this study are to make these working networks, which have gained importance recently, more useful both for today and for the future. Apart from the patient comfort considered in these areas, it is an important point to provide useful areas for the staff. For this reason, examining the arrangements in the resting areas and searching for the right design criteria will contribute to the motivation and comfort of the staff.

The main subject of the study is how the intensive care unit rest areas can be made efficient in terms of personnel use and how their success can be increased. It is aimed to lead the formation of free and innovative ideas on the basic subjects that will facilitate the architecture by examining the personnel-space relations according to the POE and EBD criteria in the spatial design of the spaces.

1.3. The Aim of the Research

The main subject of the study is to determine how the staff rest areas in the intensive care units can work more comfortably for the users while examining the building performance evaluation. According to the building performance evaluation, it has also been observed how the health workers are affected by the spatial layout. At the beginning of the study, intensive care units personnel rest areas were observed and examined according to the determined criteria. According to the analysis, a user-oriented survey was conducted to understand and evaluate the space from the user's point of view. In doing so, the users' situation and complexity of their location will be taken into account. Thanks to the measurements and analysis to be made, insufficient and irregular points were determined and evaluated. As a result of the parameters arising from the performance of the building, it is aimed to approach the ICU staff resting areas with a different perspective. In addition, the need and function of personnel rest areas in intensive care units increase even more during pandemic processes. For this reason, it is aimed to create spatial arrangements that are ready for every situation and increase user satisfaction.

1.4. The Methodology of the Research

Space arrangements and employee relations should be determined to design intensive care units personnel resting areas, taking into account the comfort and needs of the user. These approaches can be evaluated in line with the determined design criteria. Within the scope of the project, the satisfaction of health personnel was questioned according to this approach.

Scope of work;

1. Preliminary study: Data collection; literature review, obtaining written permissions.
2. Observation and photographing.
3. Survey application with ICU staff in a selected hospital.
4. Analysis of data.

In terms of research content, the literature study section of the thesis primarily includes general information about intensive care units, reviewing the layout and planning of intensive care units in hospitals, examining the rules of regulation and intensive care design. In terms of user-oriented architectural plan arrangements, a literature review was conducted regarding general design principles in hospital interiors and including perception and design issues in both hospital interiors and space in general. General information on POE and EBD, including the methods to be applied, hospital-based studies and its relationship with intensive care were examined.

After the literature review, hospital visits were made for observation, photographing and preliminary determinations. In addition, a survey was conducted with the ICU staff of Kanuni Sultan Süleyman Training and Research Hospital, which provides intensive and third-level service in Istanbul, to get their opinions and give direction. The results are intended to shed light on current and future processes for the spatial arrangement of these spaces.

So, this study explores means of creating supportive environments for healthcare staff in the intensive care unit during a pandemic or under generic conditions. It is aimed to illuminate the user-oriented preferences of intensive care units, which are an intense architectural component of the hospital.

1.5.The Structure of the Research

This thesis consists of five chapters. In the introduction, the importance of intensive care personnel rest areas for users and the spatial improvement of these areas for employees are mentioned. First section consists of the motivation, purpose and methodology of the study.

The second section discusses general information about intensive care units and the user-centered approach to design. In this section, intensive care units are examined in-depth and the importance of space arrangements for the user is discussed. It gives an overview of the Post Occupancy Evaluations (POE) and Evidence-Based Design (EBD) sections, which are the methods used during space arrangements.

The third part includes the examination of the intensive care staff rest areas in accordance with the determined design criteria. In this section, information is examined in line with the researches on the spatial arrangement of spatial, physical and psychological factors. The studies of these approaches in health structures and especially in intensive care areas were examined and user-oriented results were obtained.

The fourth chapter is the case study. Observational studies were carried out in selected hospitals and supported by photo shoots. The values that should be in the spatial arrangements were used for the resting areas according to the data obtained and the scoring system created. In addition, a survey was conducted with the ICU staff in a selected hospital. According to the results obtained, user-oriented space analyzes were made.

In the last section, the results obtained on the subject are stated. In addition, it has been tried to shed light on future research on similar issues.

CHAPTER 2: INTENSIVE CARE UNIT AND POST OCCUPANCY EVALUATION

The main purpose of the health system is to improve the health of the population they serve. According to these policies developed for people, people are protected against legal expectations and disease costs. In addition, it covers all activities whose main intention is to improve health, and therefore everything in the direction of improving health and this system will contribute to society (Çetintaş, 2016).

A good health system provides quality services to all people in need. Services may vary from country to country. But in any case it should have a strong funding mechanism. It must provide adequate facilities and logistics to employ well-trained and adequate workforce, provide reliable information to the base of decisions and policies, and provide good quality medicines and technologies. Intensive care units are hospital units that are included in the health system, closely follow technology and development, and have vital functions.

2.1. Intensive Care Units

Healthcare structures are building groups that are built on the purpose of healing sick people and serve for a healthier society. These structures have a priority place in society as they produce health services to which people are rather sensitive. In addition, it is included in the complex functional buildings group consisting of different space types in terms of space organization (Özgen, 2017).

In this multi-functional system, intensive care units are among the vital parts. Intensive care units are special units that provide patient care at the same standard, 24 hours a day, seven days a week and 365 days a year, where intensive monitoring, monitoring and organ support treatments can be applied to patients who have lost their physiological balance (İskit, 2005). ICU is the well-equipped sections of the hospital that undertake the management of life-threatening diseases, injuries, complications and patients in critical condition, and monitor patients whose vital conditions are in danger. It is a privately run, separate and independent area of the hospital. It provides special expertise and facilities to support life-threatening patients. For this, it needs medical, nursing and other personnel experienced in the management of problems (Marshall et al., 2016). In many units, apart from ICU

staff, it also provides services such as emergency response and social assistance services. It offers expert practitioners and assistant health personnel in the system the opportunity to practice their skills. Where appropriate, the hospital should provide adequate resources and use and rest areas for these activities and staff satisfaction (Özgen, 2017).

The working environment includes more than just physical structure. A healthy work environment requires interpersonal relationships, adequate communication, correct cooperation, effective decision-making, appropriate personnel, and leadership. Intensive care clinics in hospitals are highly stressful environments due to the constant expectation of emergency, high technical complexity, and sudden follow-up of the patients' general health status. Such stressful work environments are mentally risky for healthcare professionals (Preto, 2009).

The correct design of ICU ensures that deficiencies that cannot be addressed later are prevented. In this way, it allows the design of the infrastructure to be easily improved according to the conditions of the day, increasing the comfort of the employees and success in treatment. In this way, it will also ensure the safety and protection of patients and staff and also help to create user-oriented areas.

In our country, due to the high working hours and workload of the staff working in the intensive care units, the physical environment they are in should not impose an additional responsibility on them. On the contrary, it is important for making their lives easier and making a positive contribution to the staff and therefore the patients. On the other hand, the spatial solutions made in order to provide the physical and psychological comfort of the staff in the working and resting places of the health buildings remain at the level of architectural planning (Reiling et al., 2008). For this reason, this study aimed to provide a solution for user satisfaction by examining the importance of priority ICU in the hospital and based on users, by reducing it to the ICU staff break rooms.

2.1.1. The Development and The Importance of ICU in Hospital Services

Especially in recent years, the facilities and use of intensive care units have shown rapid improvement and change in terms of staff and patient density. In addition to the developed facilities, developments in the variety and number of patients have also created requirements for the physical characteristics and infrastructure of ICUs. As in

the world, ICUs with different disciplines have been identified and their use has become widespread in our country.

Developments continue in parallel with these developments in intensive care units. In the past, patients who needed special care were taken to a separate corner in their wards, and their treatment continued. The process that started in this way has led to the establishment of parts of intensive care units, where these patients are grouped and cared for, with the development of technology, relevant devices and the architecture arranged according to the needs (Taş, 2002).

Intensive care units are generally located at the center of acute care services of healthcare facilities. It gathers all medical specialties together with healthcare professionals and support units. Positioning the ICU in relation with other branches in healthcare structures in the face of medical interventions and emergencies will further increase the level of treatment, because they need to provide the best environment for both patients and staff to maximize treatments and minimize risks. So, its location in the hospitals is also important for staff access. The organization of space required determines the level of support and staff required to care for a patient (Johnson, 2018). So, intensive care units should be interchangeable according to the demands of a healthcare professional and increase their capacity when necessary.

Intensive care units have been developing in parallel with the techniques and technological devices designed to provide acute and long-term support of the deficiencies involving many organs and diseases in recent years. In the standards issued by the American Thoracic Society (ATS) on Intensive Care, three objectives of Intensive Care Science are defined (Taş, 2002);

1. To protect patients whose life functions are threatened as a result of any acute critical illness, injury or medical or surgical treatment, to provide these patients with care that will enable them to lead a meaningful and quality life,
2. To provide rehabilitation during the recovery period of critical illness or injury,
3. To provide a service in a way that will relieve the pain of patients and their relatives in cases where success cannot be achieved with the applied treatment and in line with the patient's wishes.

ICU works with defined policies and procedures. It has its own programs of quality improvement, continuing education and research. The intensive care department provides an integrated service to the hospital through its care and social assistance activities for critically ill patients in the ICU. Without these units, many programs (e.g. heart surgery, trauma, transplantation) cannot work properly. Defining the roles of hospitals in a region is essential to rationalize services and optimize the use of resources. Likewise, every ICU should have a role in its field (Hawker, 2015).

Although ICU is a unit on its own, they also need other units (Laboratory, Imaging center, Emergency service, Surgery branches, operating room, etc.) in order to perform their services fully. Since the condition of the intensive care patient is critical and irregular, all these services should be easily accessible to each other. The organization and integration of the unit should be such that they do not interfere with or disrupt each other (Oktay, 1997).

In this developing density, the need for staff working and the use of space are also increasing. More than a hundred specialists, nurses and experienced technicians take part in the intensive care application and post-care treatment process for a patient. For this reason, the planning organization of these units, which have many staff, should be arranged to this extent.

ICU areas should be flexible and compatible with the demands of a hospital. It should meet adequate capacity and staffing requirements when necessary. Considering the impact of Ulrich's staff satisfaction on the patient recovery rate (Ulrich, 2004), the satisfaction of the staff working actively in the ICU is important. One way is to contribute to the arrangement of staff rest areas during and after the planning of intensive care units.

2.1.2 The Intensive Care Unit Types

ICU is for the treatment of patients whose lives are in danger. Different types of ICUs are designed to serve a specific patient subgroup in a customized way. These units carry out the admission of patients by placing them in the intensive care unit at the appropriate treatment level in a way that provides the most convenient care to the patient in cases requiring intensive care (www.lecturi.com, 2020).

ICU team is large, so it requires intensive work space and plan layout. Each member of the ICU team has unique and specific duties and responsibilities to ensure the care of patients. Because of this, the intensive care unit must provide the necessary level of functioning to its purpose and the department it should serve, otherwise this can lead to inefficient operation of the system (Taş, 2002). For this reason, when designing ICU, the main purpose of the units to be installed should be determined. Devices, tools and personnel that will benefit their purposes optimally should be selected and installed according to the type of units within the framework of the most appropriate architectural design.

On the other hand, in order to plan the physical characteristics and infrastructure of the intensive care unit appropriately, the patients to be taken are divided according to the situation. This distinction depends on the devices, applications and condition of the patient to be used in the treatment. It is necessary to thoroughly identify the personnel to work, determine the purpose and content of each unit. The ICU may not be able to provide intensive care services to all sub-specialties. However, the institute can divide the beds in the ICU into various units connected to different administrations under a single specialty (Ünal, 2001).

In our country, the health system has divided intensive care units into three main parts according to their care and needs: General Intensive Care, Coronary Intensive Care and Newborn Intensive Care Units. But looking around the world, the units are also more broadly divided. In this study, general intensive care units, which are more comprehensive and intensive, will be examined.

Intensive care complexes that need well-organized organization are classified as in the table 1 (Universiti Sains Malaysia Department of Anaesthesiology and Intensive Care, 2020):

Table 1. Types of ICU (Source: Universiti Sains Malaysia Department of Anaesthesiology and Intensive Care, 2020)

TYPES OF INTENSIVE CARE UNIT (ICU)				
NO	**NAME OF ICU**	**DEPARTMENT**	**LEVELS**	**BEDS**
1	Mutiara 1(ICU)	Anaesthesiology	3	10
2	Surgical ICU(SICU)	Anaesthesiology	3	6
3	2 Delima (Neeuro ICU)	Neuroscience/Anaesthesiology	3	12
4	Trauma ICU	Emergency/Anaesthesiology	2	5
5	Coronary Care Unit(CCU)	Medical/Anaesthesiology	2	6
6	Cardiac ICU(CICU) Kristal1	Cardiothoracic/Anaesthesiology	3	3
7	Burn ICU	Plastic Rec./Anaesthesiology	2	2
8	Cardiac HDU Kristal2	Surgery	1	6
9	Surgical HDU	Surgery/Anaesthesiology	1	6
10	Trauma HDU	Emergency	1	7
11	Medical HDU	Medical/Anaesthesiology	1	6
12	NICU Nilam1	Pediatric	3	20
13	NICU Nilam2	Pediatric	2	15
14	Pediatric HDU	Pediatric	2	6

As can be seen, intensive care units are established in hospitals for various purposes. The aim is to continuously monitor multiple life-threatened patients in the most reliable way. In situations that cause danger, necessary interventions are made by notifying the health staff about the existing devices and system. For intensive care personnel with a busy work pace, comfort areas with a regular plan, far from chaos, reduce the busy work pace a little bit. Apart from the general or specific types of intensive care units, they are also classified according to the needs of the patient served. These classifications are:

2.1.3. The Intensive Care Unit Levels

Patients requiring critical care in intensive care units are monitored by an expert team at all hours of the day. ICUs are units that have a special team, special equipment and can meet their basic needs. Regardless of the reasons for the patients hospitalized in ICUs, basic care processes are based on certain principles and doctors and nurses equipped with specialized knowledge about their field work. Therefore, there is a high level of functional dependence and specialization (Kaya, 2009). The levels of care and treatment requirements of each patient also differ in this specialization area. Depending on the disease level, expert staff, necessary technological equipment and

maintenance needs may change. Due to this requirement, intensive care units are also divided according to their levels.

ICU includes intensive and specialized medical and nursing care. It also provides enhanced monitoring capability and support for multiple physiological organs to sustain life in a life-threatening organ system period. ICUs are located in a specific geographic area of hospitals. Its activities usually include the emergency room, hospital ward, and follow-up clinic. This process is also divided into stages according to their systems and levels of follow-up (Marshall et al., 2016).

There are three different ICU levels defined according to their criteria. These levels are determined by the structure of the facility, the maintenance process, clinical standards and staffing requirements. All ICU levels and types should be separate and independent facilities in hospitals. According to Nickson, the ICU level distinction is as follows (Nickson, 2020);

LEVEL I:

It should be able to provide emergency resuscitation and short-term cardiorespiratory support for critically ill patients. It also plays an important role in monitoring and preventing complications in medical and surgical patients at risk. It should be able to provide mechanical ventilation and simple invasive cardiovascular monitoring for at least a few hours.

LEVEL II:

It should support the hospital's defined responsibilities. It must be able to provide a high standard of general intensive care, including complex multi-system life support. There must be a minimum of 6 beds.

LEVEL III:

Tertiary intensive care units should be able to provide comprehensive critical care for dispatched intensive care patients, including complex multi-system life support for an indefinite period of time. All patients admitted to the unit should be followed up by an intensive care specialist for treatment. It should have more than 50 beds and contain 8-15 bed compartments.

2.1.4. General Structure of ICU

Another definition of an intensive care unit is that they acknowledge the already existing international variability in the healthcare system's capacity to care for the most severely ill patients. The elements that make care intensive are identified and grouped by stratification according to their capacity to provide this care. It should be noted that intensive care is not an absolute concept, but rather a specific health system that may change depending on available resources and care approaches (Nickson, 2020).

The intensive care unit fully meets its functionality. They are planned according to special spatial rules and architectural design criteria. These are the treatment units that require very close and intensive monitoring of patients and their treatment to be changed frequently. Therefore, there should be treatment units in good working conditions, in an area that provides the necessary and appropriate physical and psychological conditions, with trained and motivated personnel and experienced managers. So, it has a general structure that makes up this dense and complex system.

At the same time, the coordination of a large interdisciplinary team requires a well thought-out administrative structure that will coordinate staff and care needs and set policies and priorities for ongoing patient care (Marshall et al., 2016).

The intensive care unit must have a medical manager trained in intensive care science. The intensive care team under the chairmanship of the manager should be responsible for the patient admission and discharge decisions and the final decisions made on the patients. This system is called closed management. This system has been shown to reduce the length of stay and mortality in intensive care. Intensive care managers should also be involved in the structuring of the intensive care unit. This restructuring can be in the form of a new construction or the renewal of an existing unit. The experience of the intensive care team should be used in the structuring. There are regulations regarding the physical structuring of hospitals or health units in developed countries and guidelines published by scientific associations (İskit, 2005).

However, intensive care indications should not be limited to the specified situations. Different concerns may develop at different times. Intensive care areas should be

changeable over time, and should not create difficulties in terms of planning and organization. For this reason, it may not always be possible to separate intensive care application areas with sharp lines that comply with the intensive care description. The future should be varied according to the patient and the care, equipment and healthcare personnel needed.

2.1.5. The Staffing of ICUs

The intensive care team plays an increasingly large role in the management of patients in hospital wards or in the emergency room. After discharge from the hospital, it not only ensures continuity of care after devastating illness. It also provides an important insight into the long-term periods of this disease. Outreach teams provide consultancy services at services. It assists medical and surgical teams in managing clinical situations where more intense, timely and coordinated interventions can prevent deterioration and the need for ICU admission (Varon, 2010). In other words, intensive care has a complex interrelated structure.

It should have a medical director who carries out general responsibility for the operation of the Intensive Care Units. Although these requirements cannot always be met at Level I ICUs, they must still have a full-time commitment. In intensive care medicine, there should be sufficient specialist staff to provide patient management, teaching, research, supervision and activities outside the ICU as required. In positions outside the ICU, there should be additional staff to those required to manage intensive care patients. It should not endanger the care of patients in the ICU. According to Australia and New Zealand Minimum Standards for intensive care units, IC-1, 2011;

- At least one specialist should always be assigned to intensive care units. In larger ICUs, more than one specialist should be assigned to the unit (one specialist per 8-15-bed capsule). In all cases, there must be at least one registered medical practitioner with an appropriate level of experience. These medical practitioners should have appropriate direction and training. They must be competent in providing advanced life support.
- Patient ratio and total number of nursing staff required by each unit, total number of patients; patients' disease severity depends on many variables, such as assignment methods as well as individual policies for support and

monitoring. The Australian College of Critical Care Nurses (ACCCN) guidelines require a minimum of 1 for ventilated and other critically ill patients and a 1 to 2 nursing staff (clinically designated) for low acuity patients. Larger proportions are required for patients requiring complex treatment. All registered nurses must be competent in providing advanced life support.

- In addition, depending on the needs of the unit, physical therapists, radiographers, dieticians, technicians (including biomedical engineering and scientists), social workers, occupational therapists and cleaning staff are also required. There are secretarial services to support educational and administrative activities. In addition, there should be service officers. Larger ICUs have an equipment officer to coordinate and supervise the selection, purchase, and maintenance of equipment and disposables. There should be a research coordinator to coordinate research activities and to collect and store research data.

According to the research by Marshall et al (Marshall et al., 2016); the clinical team providing care in the ICU is particularly qualified, interdisciplinary and professional. The care it provides is more intense and different from that provided elsewhere in the hospital, as it is more intense and rapid between members of the team and the critically ill patient. In addition to doctors and nurses, team members can include nurse practitioners, respiratory therapists managing mechanical ventilators, physiotherapists who support mobility and rehabilitation, a nutritionist skilled in the enteral and parenteral nutrition needs of complex patient populations, and a pharmacist with special expertise. Drug interactions and optimal dosing in critically ill patients should be a social worker who can support the needs of both the patient and the family, and microbiologists to assist in the diagnosis and management of the infection, and spiritual care staff to support patients and families in times of crisis.

According to the Circular on Standards of Intensive Care Units published by the Ministry of Health in our country:

1. ICU Specialist Anesthesiology and Reanimation, Internal Medicine, Chest Diseases, General Surgery specialists, specialists in the branches of intensive care or other people with intensive care experience. It could be one of the experts.

Since continuity is essential in the ICU, it is not correct to appoint specialists who are very busy due to their main task and who do not have any other physicians to do the same job in the relevant field. In case of necessity, responsibility can be rotated. In the case of shifts, if the hospital facilities are suitable, it should be ensured that a specialist from the same field of specialization with the specialist physician responsible for intensive care, if not, from the other specialties listed above, who can perform the same task.

2. In ICUs, chief physicians are provided with the basic information of the responsible doctors who will serve in these units in a hospital with a tertiary intensive care unit.

3. Staff status of the hospital in the table of minimum standards according to the steps of intensive care units, at least one nurse for four beds in each shift.

4. Staff status of the hospital in the table of minimum standards according to the steps of intensive care units, at least one nurse for three beds in each shift.

As stated, the work in ICU continues 24 hours a day, every day of the week. ICUs need not only doctors and nurses, but also a very comprehensive team. Accordingly, the need for staff also varies according to the level of intensive care and patient needs. According to the situation, it is seen that the number of health staff using these areas has increased. In addition to the patient-oriented design and plan work, the satisfaction and comfort of the staff working intensively should also be considered. Therefore, the plan and design of these areas should be done before and after the construction in a way that will expand the capacity and increase comfort in possible situations.

2.1.6. Technology in ICUs

The modern ICU uses sophisticated technology weapons to monitor, support and modify human physiology, as well as to organize and view collected data. For the constantly evolving technology, new devices are developed or adapted for use in the intensive care unit from other areas of the hospital. For example, SCCM (Sustainable Supply Chain Management) divides critical maintenance services into three levels. It makes specific recommendations for the technology that should be available to provide a certain level of care. One unit includes comprehensive monitoring capability, intracranial pressure monitoring, in-house computed tomography (CT) scanning, Doppler, and echocardiography. For this reason, technology has great

importance on the organization and maintenance process in the intensive care unit (Rubenfeld, 2002).

The quality and degree of equipment varies according to the type and task of ICU. For example, one-two channel bedside monitor is sufficient for a tertiary intensive care unit. However, for the first levels, at least four monitors showing physiological data are required (Taş, 2002). Therefore, second and third level intensive care units will require less equipment and devices than the first level. The devices in the ICU are as follows;

- Tracing
- Imaging
- Respiratory Therapy
- Cardiovascular therapy
- Dialysis Treatment
- Laboratory Services Required for Emergency Diagnosis and Diagnosis
- It should have materials, devices and equipment that will correspond to all functions needed in the care of patients.

Figure 1. General Device System in ICU (Source: Folmer, 2020)

However, adequate placement areas should be considered for each patient, which will not disrupt the flow of work for the necessary devices according to their level. Each device size and the area it occupies may vary. In the meantime, work areas where staff can conveniently use these monitors during the workflow should be taken into account when creating plan layouts.

2.2 *The Design of ICU*

Especially in recent years, there have been rapid improvements in the facilities of intensive care units. Along with these facilities, improvements in the diversity and number of patients have led to an increase in the physical conditions and infrastructure needs of ICU. Therefore, when a new ICU will be established, these architectural plans and infrastructure must be planned systematically. According to Ünal's research, ICUs are designed in this way (Ünal, 2001);

- Prevention of later deficiencies
- Infrastructure can change and develop in the future
- **Comfort of staffs and thus increase their success in treatment**
- It will increase patients ' health guarantees.

This plan arrangement is related to these factors;

- Number of ICU beds needed
- Characteristics of patients and severity of disease
- Treatment Methods
- Device technical specifications and necessary infrastructure
- Placement of beds and devices in such a way as not to confuse in the area of use
- Use Flow Plan of the unit
- Number and characteristics of personnel working in the unit
- **Comfort of ICU staff**
- Characteristics of required support units
- Requirements of other branch Physicians for support
- Cleaning, safety, etc. details should be considered.

Therefore, to plan and establish a new ICU, in addition to the relevant staff in this department, it is necessary to use knowledgeable and experienced teams that will consist of different medical branches and professions.

According to another study, the goal of planning is the idea of creating a physical environment in which functions can be performed most shortly and effectively way (Taş, 2002). Planning stages accordingly;

- Determination of treatment methods and standard patient care plans

- Determination of functional relations with other departments
- **There are sections to ensure the comfort of the staff on duty and to increase their concentration**
- Creation of a physical environment that will provide appropriate
- Defining managerial policies in the unit are the desired conditions.

In general, a committee is established from the individuals and persons responsible for each service unit when designing the unit. Each member must express his or her opinion in planning the physical environment related to his or her department.

In intensive care (ICU) design, architects interested in health have experience, but many health professionals do not have experience in this regard. Therefore, the design of these areas should be done systematically by teams. At the same time, the design of the ICU affects the patient's recovery outcomes. For this reason, design and construction guidelines and regulations should be used, accompanied by experienced people (Bor, 2020).

The intensive care provider should also take part in the structuring of the intensive care unit. This restructuring can be in the form of a new construction or the renewal of an existing unit. The experience of the intensive care team should be used in the structuring. There are regulations regarding the physical structuring of hospitals or health units in developed countries and guidelines published by scientific associations (İskit, 2005).

During the preparation of the ICU plan layouts, the estimated supply-demand ratio of the intensive care unit, patient population, admission-exit criteria, estimated occupancy rate, the service provided in other hospitals, the level of service to be provided, the staff and visitor traffic, the need for other support units (warehouses, secretariat, archive, training, positive and negative pressure isolation rooms) should also be considered (Thompson et al., 2012). Considering the recovery rate of patients and the contribution of healthcare professionals to this improvement, planning arrangements are important in terms of user satisfaction of these areas. User satisfaction and patient recovery rate should also affect design and planning. Therefore, the resting areas, which are important for the employees, should also be

taken into account while designing the general ICU. Details on the subject will be explained in the study.

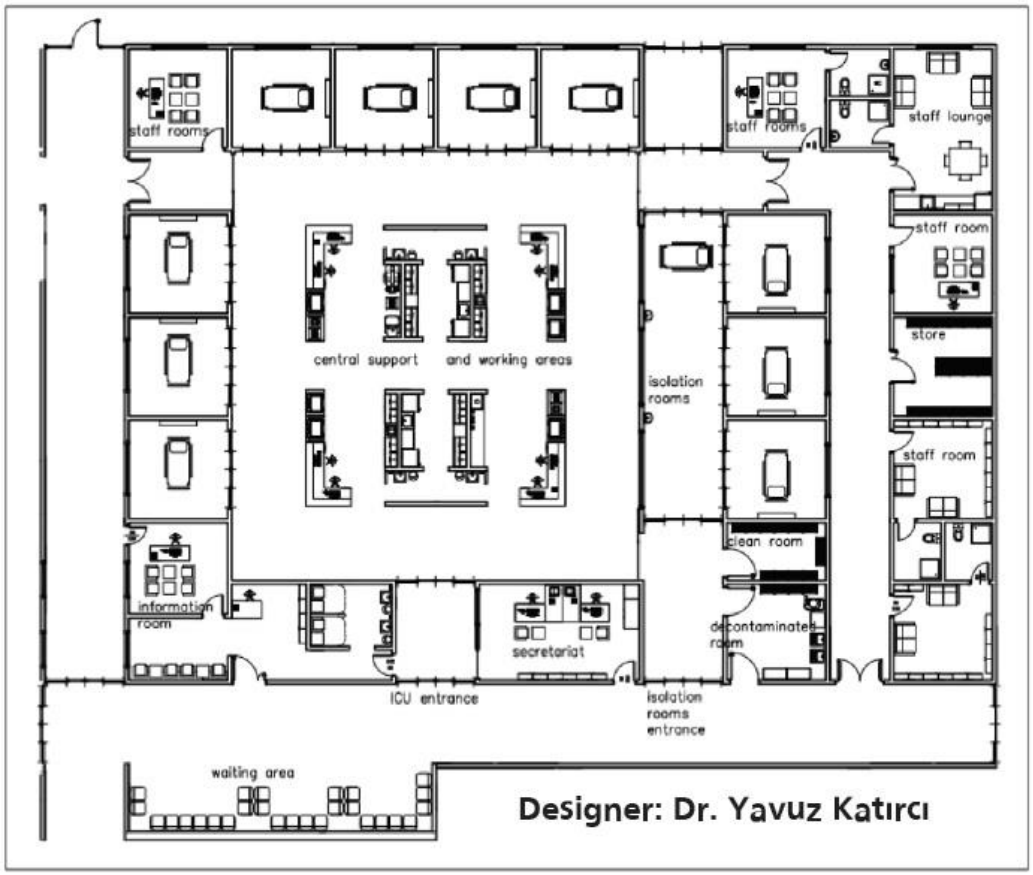

Figure 2. Possible space solution created for the ICU Plan system (Katırcı et al., 2019).

2.2.1. The Planning of the Place and Relationship of ICUs with Other Departments

Convenient design of intensive care units ensures that deficiencies that cannot be remedied later are prevented. This design allows the infrastructure to be developed in a way that can be developed later, to increase the comfort of the employees and the success in treatment, and to ensure and protect the safety of patients and employees.

Generally, Intensive Care Units should be located in the center of the hospital. The ICU should be placed in the relevant acute areas i.e. operating rooms, emergency room, CCU, maternity and acute departments, research departments (eg radiology department, cardiac catheterization laboratory), laboratory, and radiology department. Safe transport of critical patients to and from the ICU should be

facilitated by a sufficient number of elevators. These should be wide enough to allow easy passage of doors and corridors, beds and equipment. The unit should have a single entry and exit point used by the receptionist. Crossing into other hospital areas by goods or persons should never be allowed. ICUs should have spaces / rooms for public admission, patient management and support services. It is appropriate that the entire unit is 2.5-3 times the specific patient care areas (Hawker, 2015).

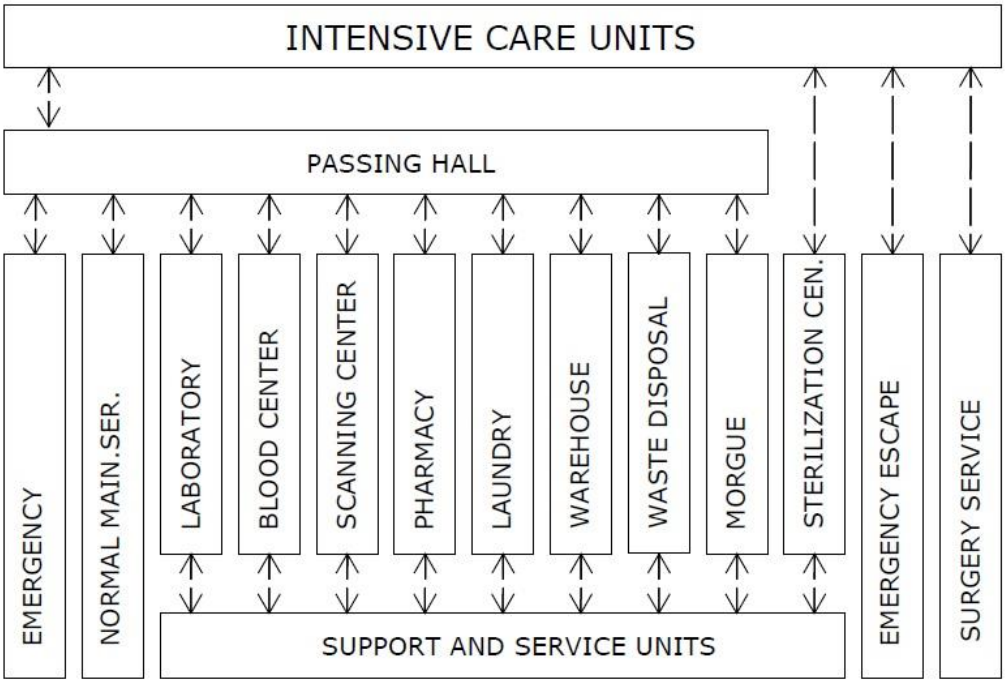

Figure 3.The Planning and Relationship of ICUs with Other Departments (Taş, 2002)

In addition, it should be away from inpatient service visitors and other staff. It should ensure that patients can do internships, medical or surgical treatments easily for patients and staff. In order to reach the morgue and medical waste unit easily, there should be roads inside the hospital that do not interfere with traffic. If there is more than one ICU in the hospital, these ICUs should be arranged as horizontal or vertical placement together. This ensures that construction and planning costs are minimized. And it also ensures that resources such as equipment, infrastructure, laboratories and personnel are used effectively (Katırcı et al., 2019).

2.2.2. The Regulations of ICU

The design of hospitals is among the most heavily regulated types of facilities. Rules and standards governing health facilities play a key role in keeping patients, staffs

and visitors safe. During the design of the project, it is very important to keep a large number and variety of local, regional and national standards and regulations in mind. The design of healthcare buildings and renovations and renewed or made new plugin, design, construction, maintenance and repair, must meet the requirements of the standard in question, because these standards provides the best practice way and a balance between minimum standards and the appropriate design of spaces (Inspedia, 2019).

The perceptions of the buildings providing health services are directly proportional to the dimensions of the architectural areas of the building. What makes the building convenient and useful is that the corridors with entrance and transition areas are wide, the rooms are large and spacious, the ceilings are high, and the arrangement of the space is planned. In addition, excessive size will increase the distances, slow down the service delivery, cause disruption in operation, and decrease employee and patient satisfaction. In short, it will cause a decrease in service quality. Also, if the spaces are too large, the costs will increase. Therefore, determining the minimum standards of healthcare structures is of great importance (Ministry of Health Guide, 2010).

In the field of health in our country; World Health Organization (WHO) health programs, EU programs within the framework of the European Union (EU) adaptation process and our country's health legislation are implemented. Our health system is shaped within this framework. Our country's health legislation consists of laws, regulations, circulars, guidelines, charters and communiques. Intensive care unit departments within the health system also have regulations related to physical conditions and personnel group (Çetintaş, 2016).

Health facilities throughout Turkey are designed based on the" Minimum Design Standards of Turkish Health Structures 2010 Guide" (Inspedia, 2019). The aim of this guide is to increase the service quality in this area by setting the minimum design standards in public and private healthcare structures. It reduces the costs of healthcare buildings by anticipating the needs and reducing the need for renovation and additional buildings. It ensures that health service delivery is more effective, efficient and qualified.

The design guide should not be used as a standard design in a healthcare facility project. A design program should also be prepared for each project that will create a functional, physical and psychological effect. Intensive care units are also areas that require special design, because these spaces are heavily used and with high staff traffic flow.

In our country, there is the following Circular (2008/53) published by the Ministry of Health and in addition to this, the Health Buildings Minimum Design Standards Guide 2010. All kinds of planning, equipment and functioning in intensive care units should be in accordance with the issues of the "Circular on Standards of Intensive Care Units" dated 03.04.2008 and numbered 113958 (2008/25). Other matters should have the following features in the Health Buildings Minimum Design Standards Guide 2010 (Ministry of Health Guide, 2010):

Service areas that should be in Intensive Care,

-Clean Room

-Dirty Room

-Clean Drape Cabinet

-Floor Kitchen

-Floor Services / Cleaning Equipment Room

-Writing / Reporting Works Room

-Patient Files Cabinet

-Archive

-Personal Dressing Room

- Driver's Room

- Warehouse (The storage room of this unit cannot be used for other units)

Together with the service areas, there should be the areas listed below. These spaces should be placed outside the unit, provided they are available or easily accessible.

─ A visitor waiting room should be provided with easy access to telephones and toilets. A waiting room should be able to serve for more than one intensive care unit.

─ For the medication and care management of ICU, a sufficiently large management area should be provided adjacent to the unit. The management area/rooms should be large enough to allow consultation

with members and visitors of the intensive care team. Offices can be connected to the unit by telephone or internal communication system.

– **Staff lounges** should be positioned for patients in emergencies so that they can get there quickly when they are called. The hall should have telephone or internal communication system and emergency code alarm connections with the intensive care unit it serves. Halls next to intensive care areas can provide this service.

– If deemed necessary, a special procedure (patient-related) room should be provided.

– There should be an area where patient relatives and visitors can get information about their patients and wait before they enter the ICU.

The principles in these guidelines should not limit innovations and improvements in design or construction. In the health facility architectural design, new solutions should be found to anticipate and meet the spatial and user needs in each facility. In this direction, in order to be efficient in the architectural design of healthcare facilities in many design standards, pre-design scientific studies and researches when necessary will contribute positively to each project. During the planning and design, the data in the regulation should be taken into account. When the regulation on ICU is examined, there is not enough data about the resting areas, which have an important place for staff satisfaction. The starting point of the study is the efficiency of the staff rest areas and what the design criteria should be. Therefore, within the scope of this thesis, it will be questioned whether the intensive care units staff rest areas, which should be arranged according to a certain standard, are useful / suitable / comfortable for the users and ideas for the positive development of these space plan layouts will be presented.

Table 2. The Adult Intensive Care Standards (Source: Ministry of Health Guide, 2010)

ADULT INTENSIVE CARE SERVICES, THE MINIMUM HARDWARE, PERSONNEL, AND SERVICE STANDARDS			
DESCRIPTION	**LEVEL I**	**LEVEL II**	**LEVEL III**
	Medical conditions that may cause vital risks are closely monitored, non-invasive monitoring methods, basic supportive therapies and initial stabilization can be provided, and can also be configured in relevant clinics when necessary, II. or III. units that can transfer patients to intensive care units.	In addition to basic monitoring and basic support treatments, invasive monitoring and treatment can also be performed, III. These are intensive care services that can transfer patients to level intensive care units.	They are intensive care services where all complicated patients such as multi-organ dysfunction are accepted, supportive treatments such as respiratory support, renal replacement therapy, plasmapheresis can be provided, and provide the highest level of medical care and treatment.
PATIENT CHARACTERISTICS	1- Uncomplicated, acute developing, single organ failure other than respiratory failure, (acute renal failure not requiring dialysis, stable chronic renal failure, heart failure, mild hepatic failure, bleeding not requiring transfusion, etc.) 2- Routine methods are not sufficient for their follow-up and treatment, the possibility of sudden deterioration of vital functions and continuous observation patients who need it, 3- II. or III. Patients who are removed from the level intensive care units and who cannot be discharged yet, 4- Patients with uncomplicated myocardial ischemia and arrhythmias, 5- Patients who need close follow-up after surgery, 6- Uncomplicated psychiatric and neurological emergencies.	In addition to the level I intensive care patient characteristics; 1- Patients who need short-term, detailed and qualified observation, intervention (invasive monitoring) and vital support, 2- Patients who are released from Level III intensive care units but cannot be discharged yet, 3- Patients with medical conditions that require urgent treatment of single organ failure (dialysis, hemofiltration, plasmapheresis, mechanical ventilation, etc.), 5- Risky patients who need intensive preparation and support before surgery, 6- Unrecoverable physiological or metabolic disorders, 7- Life-threatening poisoning and bleeding, 8- Severe infections (peritonitis etc.) 9- Neuromuscular diseases requiring respiratory support, patients requiring non-invasive mechanical ventilation, 10- Life-threatening complications of pregnancy (preeclampsia etc.) 11- Hemothorax, empyema, severe malnutrition, 12- Central nervous system pathology and surgery. (minimal epidural, subdural hematoma, posterior fossa pathologies, cranial fractures, spinal lumbar drainage, etc.)	1- Long-term qualified observation and intervention, long-term vital support patients who need it or who have developed multiple organ failure, 2- Patients who require invasive or noninvasive mechanical ventilation and advanced respiratory monitoring, 3- Patients whose chronic organ disorder progresses in a way that disrupts daily activities, 4- HELLP syndrome, severe sepsis, septic shock, ARDS, severe preeclampsia and acute problems requiring close follow-up and treatment such as eclampsia, 5- Uncontrollable bleeding that requires massive transfusion, 3- Intoxications causing organ disorders, 4- Internal complications after surgery (coronary syndromes, sepsis, kidney or liver failure, etc.) 5- Acute problems of systemic diseases involving more than one organ, 6- Patients who need isolation in intensive care, (resistant infections, immunosuppressed patients) 7- Serious central nervous system pathology and surgery (such as bleeding on the sinus, collapse fracture, severe cerebral edema, subarachnoid hemorrhage, diffuse axonal injury, spinal shock, cord edema) 8-Patients with a Glaskow score of 8 or less, 9- Patients who have undergone cardiac surgery, 10- Multiple trauma patients.
NUMBER OF BEDS	Minimum 4 beds *	Minimum 4 beds	Minimum 4 beds
THE ISOLATION ROOM	Not required	Not required	Not required

Table 3 (continued). The Adult Intensive Care Standards (Source: Ministry of Health Guide, 2010)

GRANTING REQUIRED HEALTH SERVICE		1- Orotracheal intubation, 2- Thoracentesis, 3- Respiratory drug administration, 4- Defibrillation, 5- Blood gas interpretation, 6- ECG interpretation, 7- Cardiopulmonary resuscitation.	In addition to the first level; 1- Internal jugular vein catheterization and / or subclavian vein catheterization and / or femoral vein catheterization, 2- Placement of hemodialysis catheter, 3- Arterial catheterization, 4- Lumbar puncture, 5- Feeding tube attachment, 6- Mechanical ventilation. (Invasive or non-invasive).	II. In addition to the level; 1- Performing advanced airway applications, 2- Percutaneous surgery or tracheotomy, 3- Performing continuous or intermittent hemodialysis or hemofiltration in the service, 4- Temporary pacemaker, 5- Gastroesophageal tube (Blackmoore tube).
MEDICAL DEVICES AND HARDWARE		1- One monitor for each bed, (no invasive monitoring is required) 2- Two laryngoscopes, 3- Ventilator with transport feature, 4- Easily accessible defibrillator (in hospital) 5- Equipment required for resuscitation.	In addition to the first level; 1- An invasive monitor capable of single channel pressure monitoring for each bed, 2- One ventilator for every 2 beds, (1 ventilator for every 3 beds if the service capacity is greater than 6 beds) 3- Portable x-ray device (in hospital), 4- Infusion pump, 5- Blood gas device (may be close to the service), 6- Defibrillator in the service, 7- Uninterruptible power supply, 8- USG device (in hospital).	II. In addition to the level; 1- A monitor capable of invasive hemodynamic monitoring for each bed, 2- One ventilator for each bed, 3- Blood, serum and patient warming systems, 4- Nutrition pump, 5- Bed scale.
STAFF STATUS	**EXPERT MEDICAL**	1- Anesthesiology and reanimation specialist, 2- Internal medicine specialist, 3- General surgery specialist.	In addition to the first level; 1-Brain and neurosurgeon specialist * 2- Neurology specialist *, 3- Cardiology specialist *, 4- Chest diseases specialist, * 5- Microbiology specialist or infectious diseases and clinical microbiology specialist. *	II. In addition to the level; 1- Brain and neurosurgeon specialist, 2- Neurology specialist, 3- Cardiology specialist, 3- Chest diseases specialist, 4- Microbiology specialist or infectious diseases and clinical microbiology specialist 5- Specialist physicians that can be easily reached in the branches that will be needed.
	NURSES	At any time of the day, a nurse / health officer up to 5 beds in the service (1 nurse / health officer is also added for each additional 5 beds.)	At any time of the day, at least one nurse / health officer for every 3 beds in the ward	At any time of the day, at least one nurse / health officer for every 2 beds in the ward
	OTHERS			It is sufficient to have a physiotherapist and dietician in the hospital.

2.2.3 The Efficiency and Circulation of ICUs

ICUs are established in hospitals for various purposes. ICUs are hospital units where doctors and nurses provide continuous monitoring and life support care. Patient care is complex and costly. Care of patients is directed towards ensuring adequate use of resources as well as providing the best outcome. Therefore, each intensive care unit must meet the standards required by critical patient care needs. It should have ideal staff and be managed appropriately (Anushiravani, 2017). So, the success and continuity of the unit depends on how well these factors are resolved.

ICU design should be planned according to the purpose of use. The most suitable personnel and devices should be selected. Because life-threatening patients need to be constantly monitored in the most reliable and appropriate way. ICU's efficiency begins with decisions at the planning stage from its inception. Achieving efficiency involves five basic components. These elements are complementary to each other. A failure of one can affect the system, causing a decrease in success. These elements can be sorted as follows (Taş, 2002);

- Management and organization
- Architectural planning and flexibility of this planning
- Material / device selection and tracking
- **Staff selection, training and comfort**
- Financial resources / budget

In the light of these substances, it can be said that ICUs are organized in such a way that they can be self-sufficient with their special architectural structures, experienced personnel and advanced devices. The role of these components in the chain of completing each other is important. Personnel comfort is also included in this complex system. Any positive progress in this direction should be considered in terms of design and planning, as it will affect other factors (Figure 4).

Figure 4. The Relationship between the Factors Constituting the ICU (Taş, 2002)

Failure to use intensive care effectively and efficiently leads to negative consequences. It causes employees to be psychologically affected, high hospital costs, patients with a high chance of being treated cannot use reserved beds and reduced family satisfaction (Miniksar, 2018). For this reason, ICU efficiency is important in every aspect in terms of improvement rate and patient satisfaction.

At the same time, architectural design should also ensure the harmonious resolution of patient, staff, and equipment circulation in intensive care units. It should successfully organize functional needs and comfort. Design must be able to respond to requests that may come with developments or change in accordance with the needs of the unit and staff. Architectural planning/solutions, organization and selection of devices are as important as personnel and their satisfaction. Because ICUs are directly related to human health and treatment, and the involvement of a dedicated and highly motivated team in treatment will also increase efficiency. Therefore, their comfort and the areas they use are also important. Attention should be paid and considered in the architectural planning section.

2.2.4. The Staff Circulation in ICUs

The circulation varies according to the personnel working in the unit. These groups are (Taş, 2002);

- Medical Staff: Doctor, specialist, assistant, etc. such as diagnostic and decision personnel.
- Care Personnel: Nurse, caregiver, etc. personnel involved in the treatment.
- Other Staff: Therapists, technicians, housekeepers, secretary, etc. such as support services personnel.

ICU areas are mostly used by medical and care staff. To specify these usage areas and circulation (Taş, 2002);

- Login
- Pass Hall
- Study room
- Dressing room
- Resting room
- Nurse Station
- Patient Care Department
- Service-Support Units
- Exit

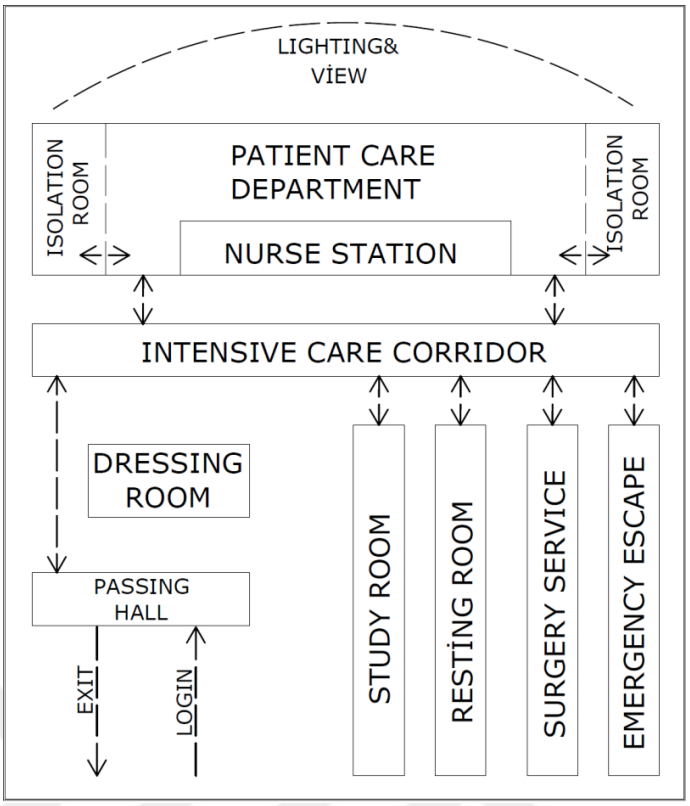

Figure 5. The Circulation Plan of ICU (Taş, 2002)

As Taş stated in his study and plan chart, the circulation chart followed by the areas used by the staff is indicated in Figure 2. As can be seen, staff usage areas are indicated on both sides of the corridor. Staff is at the center of use. Resting areas, on the other hand, are planned to be positioned in such a way that they can see the bed areas on the opposite side of the corridor. The plan order to be created in emergencies and due to distance has been arranged (Taş, 2002).

Duty staff circulation varies depending on the area in which it is used, as shown in the figure. The relationship and level of activity of these areas should be determined according to the state of use and research. The rest areas that will be used between the works pace should also be positioned and designed according to their suitability.

2.3. Review Method

Developing user-centered reviews in healthcare design is an important step in providing the right service. Within the framework of the research of health building design, users can be considered in two groups. The needs for different groups will vary with each other. First service group; the patient and patient relatives served by the healthcare structure are the user group. As the second service group, it is the

working personnel group. In fact, the two groups are in a relationship with each other. In this study, only user-oriented one design was examined.

In recent years, it has been proven that the effects of the physical environment on the healing process and well-being are relevant for patients and healthcare professionals. Research focuses on institutionally designed healthcare facilities based on the actual rate of recovery of patients as an indicator of recovery rate. This study explores and structures scientific research on an evidence-based healthcare design in terms of staff satisfaction. Evidence-based design has become the theoretical concept for measuring healthcare settings. Generally, its results show the effects of physical and environmental factors on staff satisfaction in health structures in terms of various aspects and dimensions (Huisman et al., 2012).

Hospital units are structures with complex systems and high work tempo that require continuous quality improvement. A few methods assess organizational or clinical attributes, but few focus on the built physical and psychological environment. It is possible to measure and compare the built environment of hospital units and health, sustainability or both through Post Occupancy Assessment (POE). As a Post Occupancy Evaluation (POE) assessment tool, areas can be measured based on evidence of space (Brambilla and Capolongo, 2019).

Measuring the quality of a complex service such as intensive care units using cutting-edge technology and combining it with attentive and careful care is a challenging task. However, ICUs are the places with the highest relationship between intensive care workers and patients. Therefore, measuring patient recovery outcome and staff relationship may be more appropriate in this area (Rubenfeld, 2002). In order to measure the relationship between the patient recovery rate and staff satisfaction, the rest areas that the staffs use effectively in the intensive care areas that work intensively during the pandemic process and in emergencies were selected.

During the arrangement of the ICU resting areas, which is one of the common areas, it should be planned by taking into account the needs of the personnel who support the patients during their treatment. This arrangement should not only be planned, but also a psychologically appropriate environment should be tried to be provided during the design. It is possible to measure the adequacy and suitability of the areas in current use and methods are used for this.

A literature review was conducted in terms of quality assessment of hospital units, and the examined ICU staff rest areas were analyzed through Ulrich's Evidence-Based Design (EBD) framework, according to the Post-Occupancy Evaluation (POE) tools specified in Ulrich's research.

2.3.1. The Post-Occupancy Evaluation (POE)

Evaluation means appraising or determining what it's worth. The term emerged from the definition of finance, which means calculating an exchange rate or determining the value of money. In the field of architecture, evaluation is concerned with determining the value of a built and finished environment, construction and management process. Evaluations can be for different reasons and target audiences. Evaluation method, evaluation time and users, research staff, people who are involved in the evaluation on a daily basis may differ (Al-Hagla, 2008).

However, architectural evaluation can deal with issues such as a requirements program, a plan or design, a specification, or an unfinished building. Architectural evaluation is referred to as post-occupancy evaluation (POE) when the building is completed and in use. This assessment relates to the process of construction and subsequent use as a whole, from initial to use or elements in this process (Al-Hagla, 2008).

Building performance evaluation is the process of evaluating places and systems for their actual performance in relation to the documented model. The evaluation process (POE) model was developed by Preiser, Rabinitz, and White in 1988 (Preiser and Vischer, 2005).

The purpose of POE is to evaluate the performance of the building based on user experiences. It also includes a more holistic, process-oriented evaluation process according to Preiser and Vischer (Munter, 2013). Bordass and Leaman, on the other hand, stated that building officials applied to POE to improve their facilities and the performance of their employees (Munter, 2013).

Post occupancy evaluation is an evaluation process that allows measuring the intended organizational goals and user needs when a structure is occupied for a certain period of time (Hashim et al., 2016).

POE is also defined as an examination of how effective the design environments used are for their users. That is, it compares the used building performance with the specified human performance needs. It focuses on the needs and satisfaction of users, without covering the opinions of experts or relevant professionals. It is a process that examines and evaluates the impact of the designed environment on user needs. POE also supports evidence-based design during the planning and implementation of new and existing facilities (Hashim et al., 2016).

The starting point is to learn how a building performs after it is built and how well it meets user expectations. According to these definitions, use after the evaluation, a social science that focuses on user satisfaction-based interviews, surveys, discussion groups, systematic behavioral observation and measurement with the formal evaluation of the building to ensure continuous performance improvement process mapping tools (Mohammed et al., 2014).

Its aim is to improve the quality of decisions made during building life, from strategic planning to programming, design and construction, facility management and adaptive reuse. It helps prevent common errors caused by insufficient information and communication between building users at different stages (Preiser and Vischer, 2005).

It should be noted that there are differences between the quantitative and qualitative aspects of building performance and the data collected from onsite and building occupants for evaluation. Building performance depends on lighting, acoustics, temperature, humidity, materials, quantity and distribution of square footage, etc. many aspects can be measured. Qualitative aspects relate to the ambiance of a space. That is, it addresses the sensory aspects of touch, hearing, smell and visual perception, including color. Aesthetic posture, i.e. qualitative aspects of buildings and places, such as meaning to people or visual compatibility of a space with its surroundings, can be the subject of consensus (Preiser and Vischer, 2005).

Within the scope of this thesis, intensive care areas were analyzed. The performance of recreational areas, which are important for ICU staff, was examined with evidence-based design factors. Since the purpose of POE is to measure the building performance over user satisfaction, the satisfaction of the staff in ICU was measured over the rest areas. According to the researches, evaluations were made with

quantitative and qualitative methods. At the same time, a survey was conducted with the third, that is, the highest level of ICU staff, contributing to the evaluations.

2.3.2. POE in Healthcare Structures and ICU

Building performance has been defined as ensuring that it fully fits different user needs and requirements. Hospitals, on the other hand, are used as the most complex structures containing various service and operational units (Hashim et al., 2016).

Healthcare facilities and hospitals should assist diagnosis, management and education for improved services and practices. For this, he must rely on the acquired knowledge of user satisfaction. In this context, a study on healthcare workers revealed that the main determinants were organizational support, job skills enrichment, quality control, and satisfaction. Post-use evaluation (POE) provides an organization with the opportunity to see how well a particular facility meets user requirements. Therefore, POE can improve the current situation from various perspectives and assist in the design of suitable healthcare buildings and spaces (Hashim et al., 2016).

The hospital should be a place where patient safety is ensured. The quality of care is paramount and efficiency is maximized. For this, user satisfaction supported by staff, management and working environment should be ensured, because building users and employees cannot be separated from the created and designed environment (Mohammed et al., 2014).

Health facility user groups are large in number and complexity. A range of user feedback initiatives can be designed. That is, the user group that provides feedback is only questioned about aspects of the facility that interest them. For example, receiving feedback on catering services, questioning visitors for signage and waiting areas, nursing staff for drug storage and transport, surgical staff for operating room functionality, and proficiency in areas where staff use and rest provide feedback for evaluation (Preiser and Vischer, 2005).

The importance of the preliminary work to be carried out to determine what information they want and need, what kind of designed environment they want to work and spend time in, the degree and nature of their possible response, the environment needed, and the resources they want to allocate to the POE are

important (Preiser and Vischer, 2005). Therefore, surveying employees/users in a chosen region to determine this supports this assessment.

On the other hand, it is a challenging task to measure the quality of intensive care units, which combine high technology with attentive care and have a complex service. The structure for a healthcare system consists of the physical needs and human resources used to provide medical care. The consequences are what happen to patients, such as mortality, quality of life, satisfaction with care, and employee satisfaction (Rubenfeld, 2002).

There is debate as to which of these metrics the quality of is important. Accordingly, higher quality medical care should improve patient outcomes. Several attempts have been made to measure the quality of intensive care. Clinicians use evidence-based medicine tools to causally link satisfaction with structure to outcomes and processes. The extent to which science will justify a claim between a particular structure or process and an improved outcome is the strength of the evidence to support that claim (Rubenfeld, 2002).

When considering measuring ICU quality and structure, it is important to choose the field and methods used to study the structure. Some aspects of ICU structure are easy to objectively describe and measure. For example, the number of ICU beds, the availability of bedside electrocardiographic monitoring, or the presence of respiratory therapists. Other aspects of ICU structure are more difficult to measure. Therefore, it requires special qualitative or quantitative evaluation (Rubenfeld, 2002).

Once designed and implemented, receiving useful feedback from users will generate new knowledge about the design and operation of healthcare services that will benefit both the healthcare and construction industries. For this, it is important to interview users, gather information, and create a solid evidence-based design (Preiser and Vischer, 2005). Likewise, in the ICU system, which has a complex structure within the health services, it is difficult to create a quality space for staff. In this context, within the scope of this thesis, a certain group of users will be surveyed and an examination will be made on the evidence-based design based on Ulrich's research and subject. In order to measure the quality and satisfaction of the ICU, resting areas of importance for the staff will be evaluated.

2.3.3. Evidence Based Design (EBD)

Evidence-based design (EBD) is the evaluation process for constructing a building or physical environment based on scientific research that works to deliver the best results. Evidence-based design states that in the medical field, environmental design can positively affect patient outcomes, albeit indirectly. It is also used in all other architectural design fields and planning (Wikipedia, 2015).

Evidence-based design (EBD) has evolved, beginning with Ulrich's (1984) highly influential study showing the effect of window view on patient recovery. The study noted that patients staying in rooms with a nature view experienced fewer complications than those staying in rooms facing a brick wall. He also found that he used less pain medication and was discharged sooner. He laid the foundation for what has now become a discipline known as evidence-based design. After this study, the relationships between the design of the physical environment of hospitals and health outcomes were examined. The results, on the other hand, showed the effect of positive physical environment on reducing hospital infections and medical errors, patient recovery and staff satisfaction increasing the patient recovery rate. At the same time, the positive effects of EBD are to reduce the stress of plant users, increase safety and productivity, reduce waste of resources and improve sustainability (Wikipedia, 2015).

EBD establishes the process of creating healthcare buildings developed with the best evidence to improve outcomes and continue to monitor the success of future designs. The focus of evidence-based design is to create spaces that enable patients to heal and be safer, enable staff to do their jobs better and increase satisfaction. EBD demonstrates how the physical environment can interfere with activities by patients, families, and staff. It is the process of creating health buildings and spaces informed by the best available evidence of how they can support them and the environment provides relevant, effective, safe living experiences (Ulrich et al., 2004).

Evidence-based design is also defined as an attempt to base design decisions on the best available research evidence. The Center for Health Design (CHD) wanted to improve the understanding and practice of design that affects healthcare and design professionals, healthcare performance, patient and staff satisfaction, staff productivity and safety. Evidence-based design for this; It is based on working in

partnership with the client and the interdisciplinary team to promote understanding of the client, preferences and resources (Hamilton, 2003).

There are psychological effects of factors such as lighting, flooring, noise, etc. on intensive care patients. Evidence includes the physical environment of patients and staff; associated with improving safety, health and satisfaction. Architectural researchers studied the impact of hospital layout and design on staff effectiveness. At the same time, social scientists studied guidance and direction finding. In addition, architectural researchers conducted post-occupancy assessments (POE) for recommendations on building design and quality improvement. The EBD process is particularly suited to healthcare. However, it is also used in other areas to provide positive health outcomes and healing environments (Wikipedia, 2015).

Ultimately, Ulrich's research concludes that the field of evidence-based design (EBD) guides healthcare facility design that reduces stress for facility users, increases satisfaction, safety and productivity, and ensures sustainability. It is also an integral part of the improvement of health buildings and key units (Huisman et al., 2012).

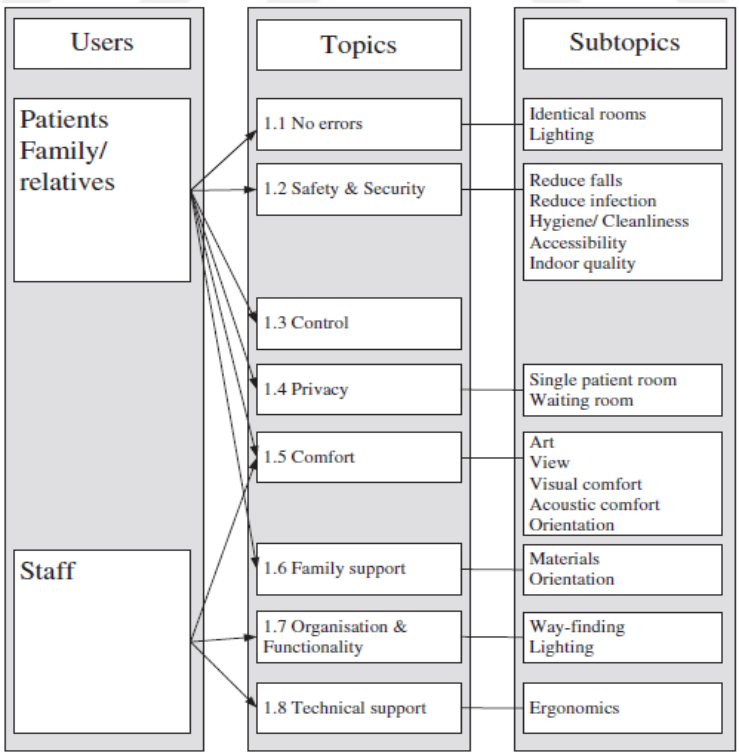

Figure 6. The User Perspectives Classified in Topics and Subtopics Based on Literature Reviews by Ulrich (Huisman et al., 2012)

In this thesis, the factors that Ulrich examined within the scope of EBD were examined on the ICU areas, which have a complex structure, through the staff break rooms where they socialize and relax, which is thought to make significant contributions to staff satisfaction and work performance. At the same time, with this evidence, post-occupancy evaluations (POE) were also considered for recommendations on design and quality improvement.

2.3.4. EBD in Healthcare Structure and in ICU

In the last 25 years, evidence-based research and design elements have focused on health and the built environment. In this context, EBD's field of study in recent years is considered to be a different knowledge base that deals with structures that provide health services such as hospitals, long-term care facilities, pediatric facilities, and psychiatry and treatment centers. Recently, it has focused on person-environment relations in the examination of hospital intensive care units (Verderber et al., 2021).

According to the studies, EBD examines the results of health status, hospital infections, medical errors, pain, sleep, stress, patient satisfaction, length of stay, privacy, communication, social supports, workplace injuries, staff stress and satisfaction related to the ICU. Regarding the built environment, access to daylight, suitable lighting, nature views, patient room comfort, noise reduction, staff working and resting area features are taken into consideration. In this context, the purpose of EBD is to evaluate the current state of technology and science in order to reduce adverse medical events, improve infection control and patient safety, examine person-nature interactions, and better make design choices. In addition, EBD contributes by examining policies aimed at improving the job performance, satisfaction and well-being of ICU staff (Verderber et al., 2021).

CHAPTER 3: ICU STAFF REST AREAS ORGANIZATION

Intensive care units of hospitals are areas with high working pace where people with critical illness are given uninterrupted treatment and care. Those working in the dynamic and stressful environment of the intensive care unit are psychologically at risk. The arrangements for improving the psychology of intensive care personnel, who are more intense than other hospital personnel, are important for the future intensive care structuring.

Employee well-being is evaluated as emotional, mental and physical health, job satisfaction, high quality of work and life. The negativities and heavy working tempo of intensive care workers cause deterioration in the quality of work and life. Measures should be taken for the health and well-being of the employee. Organizational measures such as organizing work hours and improving the work and rest environment are important for the welfare of the ICU employee. The welfare of these employees will be high. To protect the well-being, support must be provided in emotional, social and physical conditions (İzdeş and Çalılı, 2020).

Motivation is necessary for intensive care staff to work and work willingly. It is also important for both the employee and intensive care performance. Motivation methods should also be determined by evaluating the employee's qualifications, expectations and performance. Factors such as good economic gain, position, opportunity to advance in the profession, empowerment, rewarding, and the comfort of the working and resting environment are motivating factors for the employee. Well motivation of the employee also increases productivity and well-being (İzdeş and Çalılı, 2020).

On the other hand, it is known that the physical environment affects the physiology, psychology and social behavior of the inhabitants (Ulrich, 1991). The purpose of the design process in ICUs is to create an environment that produces measurable improvements in the physical or psychological conditions of patients, staff, physician and visitors. Elements of the healing environment include: materials and coatings that reduce noise levels, minimize glare and support infection control, floor plans, equipment, stress-reducing furniture that combine natural light and landscapes, décor, and well-planned work and rest areas. In this way, a systematic preparation should be made for the comfort of patients, families and staff. A design based on the

functional requirements of the critical care unit and expert consensus should increase patient, family and staff satisfaction (Thompson et al., 2012).

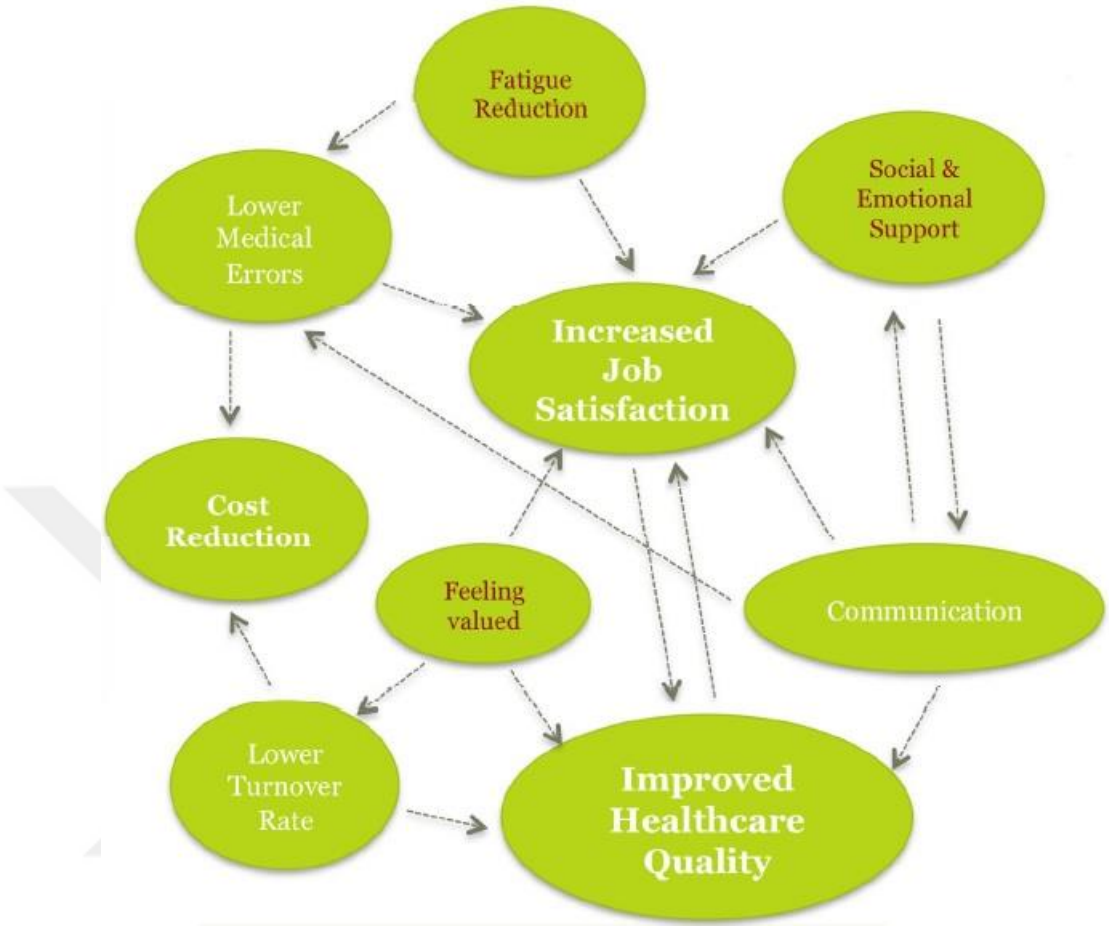

Figure 7. The Circulation of Staff Satisfaction Cycle (Park, 2010)

According to Park's study, as can be seen in the table, there are paradigms positively affected by staff satisfaction. These signs depend on causal factors related to users (Park, 2010).

One way to increase the satisfaction of the ICU staff is to create a comfortable resting area that can meet their desires in these closed areas when they are constantly working on a busy schedule.

It is necessary to evaluate these areas to measure the satisfaction of the ICU staff rest areas on the employees. While making this evaluation, the physical factors that make up the space should be determined. In this study, recent studies were examined and main topics were created to determine the factors.

The environment in which people live is one of the most important factors affecting their behavior. Architectural design that shapes the physical environment is one of the factors that affect our behaviors, judgments, preferences, evaluations, perceptions and emotions. The characteristics of the living environment affect the psychological processes and physical dynamics of the individuals using the space. It shows the effects of the space on the user through interaction data such as the spatial behavior, attitudes and satisfaction levels of the users. For this reason, architectural spaces should be created to meet all the physiological, psychological and spatial needs of their users (Sıramkaya and Aydın, 2014). In addition, since more than 70% of a person's life is spent indoors, the environment in which the user lives has become even more important (Mahmoud, 2017).

In addition, recent studies have generally divided the space to be examined into three categories and evaluated it on user satisfaction (Sıramkaya and Aydın, 2014). For this reason, in this thesis, intensive care staff break rooms are examined under three main headings. These titles and sub-branches are as seen in the table (Figure 8).

SPATIAL FEATURES (A)				
SPACE DIMENSIONS (m2)	LOCATION	WINDOW OPENING	DINING AREA	SEPARATE OR COMBINED AREAS

PHYSICAL CONDITIONS (B)				
LIGHTING SYSTEM	FURNITURE FEATURES	VENTILATION SYSTEM	NOISE CONTROL	MATERIALS

PSYCHOLOGICAL EFFECT (C)			
GENERAL COLOUR CHOICE	OUTDOOR VIEW (LANDSCAPE)	ARTWORKS	ENTERTAINMENT

Figure 8. ICU Staff Break Rooms Organization Table

3.1. Spatial Features in ICU Staff Rest Areas

The ICU is a dedicated and sophisticated area of the hospital, specially designed, specially staffed, that takes care of the treatment of critically ill patients, injuries or complications. It is a department with professional medical, nursing and auxiliary

staff in its business. It is a separate specialty. And it cannot only be considered part of anesthesia, medicine, surgery or any other specialty. According to the need for expertise, it should have its own separate team as doctor, nurse and other staff (Indian Health Facility Guidelines, 2010).

Especially, the working hours and intensity of the personnel working in intensive care units are rather high (İzdeş and Çalılı, 2020), so the physical environment they are in should not put an additional burden on them. On the contrary, it is important for it to facilitate their lives and to make a positive contribution to employees and therefore patients. For this reason, spatial solutions should be planned well to provide the physical and psychological comfort of the personnel in working and resting places.

It is important to plan and design personnel and support following the needs of the intensive care unit except for of patient care departments, bed areas, waiting and benches. Especially at a busy working pace, there should be appropriate staff rest areas where the staff can decamp and spend time during shifts and breaks.

According to the Turkey Healthcare Building Minimum Design Standards 2010 Guideline published by the Ministry of Health and the regulation, it is stated that there should be resting areas for personnel in intensive care units. However, there are no criteria that would require these areas to be sufficient in terms of their physical conditions and psychological effects. It is stated that it should only be a resting area. While planning intensive care units, the design, appropriate area calculation, space dimensions, location, placement etc. should be taken into consideration, because these areas are important for ICU staff. As Ulrich stated (Ulrich, 2010), staff satisfaction and comfort will increase work efficiency and this result will affect the recovery rate.

At the same time, according to NHS Estates, an Executive Agency of the Department of Health HMSO Publications; for these areas, the total number of staffs working in the unit should be considered. In addition, the increase in staff numbers around shift change times should be taken into account (National Health Service, 2013), because as seen during pandemic times, the number of staff will increase depending on the

situation, and the planning and design of the break rooms, which are among the common areas, should be in a way to meet the needs.

The spatial features of the ICU personnel rest areas that are not included in the regulation and the manual, and must provide efficient and comfortable standards, will be explained under the relevant design proposals.

3.1.1 Space Dimensions of ICU Staff Rest Areas

Intensive care units require great spatial and technical needs. For this reason, it is necessary to plan the spatial organization, sufficient area and location in detail for designs that facilitate the work of specialist physicians and personnel working in the units (Ünal, 2001). So, the spatial organization and space requirement in the unit design should be determined by the needs of the users.

Areas in intensive care units are designed according to the usage areas of patients, staff and visitors. According to Ünal; the total area of support units should be approximately 20-25% of the total of all patient and central care areas. Staff rest areas are also included in the support areas (Ünal, 2001).

On the other hand, when the published regulations are examined, the percentages that should be in other areas are written in proportion to the ICU (Ministry of Health Guide, 2010). The required square meters are specified. If it is related to the personnel area, the required area size is not specified as a regulation.

The required area measurements in the ICU in England (National Health Service, 2013) are as in the table (Figure 6). The areas vary depending on the number of beds. It was previously stated that the number of staff varies according to the number of beds. Therefore, the need for an intensive care resting area should be improved in proportion to the number of inpatients. The number of personnel working in units with a high number of patients will also increase. For this reason, while taking into account both the level of intensive care and the number of beds, the rest areas, which are important for staff comfort, should be taken into account.

According to this table, the areas of which are specified, in the hospitals to be examined, the total resting areas for the staff will be calculated, and their suitability will be recorded in the table with a score system by comparing with the value given in the table.

Considering this information, the intensive care personnel in the examined hospitals are evaluated in terms of the minimum dimensions that the resting areas should be, and if points are given according to the table created, minus one point will be given if the area is less than the required square meter, zero points if the area is equal, plus one point if the area is larger (Figure 10).

		6 beds		8 beds		10 beds	
Activity space	Space area m^2	Qty	Total area m^2	Qty	Total area m^2	Qty	Total area m^2
Waiting area		1	5.0	1	7.0	1	7.0
Staff base	17.0	1	17.0	1	17.0	1	17.0
Single-bed room	24.5	2	49.0	2	49.0	2	49.0
Gowning lobby	6.5	2	13.0	2	13.0	2	13.0
Multi-bed area	20.0	4	80.0	6	120.0	8	160.0
Bulk supplies store	18.0	1	18.0	1	18.0	1	18.0
Holding Bay	8.0	1	8.0	1	8.0	1	8.0
Clean Utility	17.0	1	17.0	1	17.0	1	17.0
Dirty Utility	12.5	1	12.5	1	12.5	1	12.5
Disposal Hold	4.0	1	4.0	1	4.0	1	4.0
Linen Bay	2.5	1	2.5	1	2.5	1	2.5
Clinical Equipment Store		1	33.0	1	33.0	1	33.0
Mobile X-Ray equipment bay	5.5	1	5.5	1	5.5	1	5.5
Furniture store		1	15.0	1	15.0	1	15.0
Laboratory	7.5	1	7.5	1	7.5	1	7.5
Equipment service room	10.0	1	10.0	1	10.0	1	10.0
Equipment service room lobby	11.5	1	11.5	1	11.5	1	11.5
Staff changing: male		1	7.5	1	7.5	1	10.0
Staff changing: female		1	16.0	1	16.0	1	16.0
Staff shower- type 4	2.5	2	5.0	2	5.0	2	5.0
Staff WC - type 1	2.0	2	4.0	2	4.0	2	4.0
Staff rest room		1	16.0	1	18.5	1	18.5
Staff pantry	6.0	1	6.0	1	6.0	1	6.0
Patients pantry	6.0	1	6.0	1	6.0	1	6.0
Relatives sitting room		1	12.0	1	12.0	1	12.0
Relatives pantry	6.0	1	6.0	1	6.0	1	6.0
Relatives WC - type 1	2.0	1	2.0	1	2.0	1	2.0
Office	11.0	1	11.0	1	11.0	1	11.0
Office/on call room	13.0	1	13.0	1	13.0	1	13.0
Ensuite WC and shower - type 4	5.0	1	5.0	1	5.0	1	5.0
Office - 2 person	12.0	1	12.0	1	12.0	1	12.0
Seminar room	20.0	1	20.0	1	20.0	1	20.0
Cleaner's room	7.0	1	7.0	1	7.0	1	7.0
Switch cupboard	2.0	1	2.0	1	2.0	1	2.0
Net total			459.0		503.5		546.0
ADD - planning provision		5%	23.0	5%	25.2	5%	27.3
	Total		482.0		528.7		573.3
ADD - engineering zone		3%	14.5	3%	15.9	3%	17.2
ADD - circulation		40%	192.8	40%	211.5	40%	229.3
	Total		689.2		756.0		819.8
Departmental areas			690.0	m^2	755.0	m^2	820.0

Figure 9. The Required Square Meters of ICU (National Health Services, 2013)

3.1.2. Location of ICU Staff Rest Areas

The only feature included in the Turkey Healthcare Buildings Minimum Design Standards 2010 Guide published by the Ministry of Health and in the regulation is as follows (Ministry of Health Guide, 2010);

- Staff halls should be positioned to allow staff to get there quickly when they are called in for patients in emergency situations. The hall must have telephone or internal communication system and emergency code alarm connections with the intensive care unit it serves. Halls next to intensive care areas can provide this service.

In addition to the statement in our country, another statement is that according to NHS Estates an Executive Agency of the Department of Health HMSO Publications (National Health Service, 2013);

- Staff restrooms should be placed far enough away from patient bed areas for staff to be able to withdraw. It should also be close enough for them to quickly return to patient bed areas in an emergency. Break rooms should have call systems in place to recall staff to clinical areas in an emergency. It should also have a good communication network with staff in other parts of the unit.

On the other hand, when the work of Nejati who conducted detailed research and one-on-one interviews with the staffs, is examined, it is seen that the closeness of the resting areas to the unit is an advantage for the employees. In his interviews, unit staff often do not take a break if the break room is not in the unit and they cannot access the unit immediately. Other employees are; to get away from the noise and not hear everything, you have to move away from the unit behind at least one door. But at the same time, one cannot go very far because the patients have to catch up and it is really difficult not to be there (Nejati et al., 2016).

Proximity was found to be one of the most important design principles that encourage employees to take more restorative breaks, according to Nejati's study. They are responsible for human life and tend to constantly worry about their patients. If the break-out areas are far from the sick, they may feel they have abandoned their humanitarian responsibilities by seeking a delay. Also, since there is a limited amount of time for breaks, offset distance generally means that you are less likely to use them. According to this study, the remote location of the rest areas was one of

the primary obstacles preventing him from enjoying regular rest breaks. This finding confirms previous studies showing higher usage levels for closer break areas (Nejati et al., 2016).

Based on the information obtained in line with the explanations, a qualitative measure of the location of the restrooms is not given. Recommendations for use are given for its possible location. The restroom location was evaluated based on observation.

Considering this information, the intensive care personnel resting areas in the examined hospitals are evaluated in terms of visibility according to their proximity to the bed area, and if points are given according to the table created, if the bed area is not visible and far, minus one point, if it is visible from the bed area, zero points, if it is opposite the bed area, plus one points will be awarded (Figure 10).

3.1.3. Presence of Window Openings in ICU Staff Rest Areas

According to Ulrich's research, the negative impact of windowless healthcare environments on outcomes is remarkable. Studies show that windowless areas in critical or intensive care use areas are directly proportional to higher anxiety, depression and psychological distress than the rates of similar units with windows. Absence of windows reduces positive stimulation. At the same time, it is thought that in cases such as repetitive sounds of respiratory devices in the unit bed areas, it may aggravate the negative effects of sensory deprivation and worsen results. It has been determined that there are positive results in the presence of windows in the rooms. However, with regard to employees, surveys conducted at various workplaces showed that staff liked the window views of areas lit by sunlight rather than cloudy conditions (Ulrich, 2001).

On the other hand, working in healthcare settings, particularly inpatient settings such as intensive care requires focus and concentration. Staff here live and work in isolation, in an inpatient environment without any connection with the outside world. Staff temporarily leaves these closed environments during restorative break and rest periods. And they make an opportunity to reconnect with everything that happens beyond the work environment. Windows, on the other hand, open the doors to the workers, the surrounding nature and the outside world. In the research of Nejati et al, one of the nurses stated that thanks to the window, there is a big difference in the

quality of the day, by looking out you can see what is going on. It was stated that windowed environments have a positive effect on staff satisfaction, as the perceived quality of the physical environment and overall employment experience (Nejati et al., 2016). For this reason, having windows in resting areas, which are an escape point for intensive care unit workers exposed to closed environments, will have content effects for the staff.

In line with the statements made by Ulrich and Nejati, the presence of windows in the areas has yielded positive results. However, these explanations are generally foreseen for patient bedrooms in intensive care units. Staff rest areas should also have windows, as much as possible. The psychology of the staff caring for them is as important as the patient satisfaction. For this reason, the general notifications made with the window status of the rooms should also be valid for these areas. Clean air is important for healthcare workers in combating the epidemic today. From this point of view, the presence of windows in these areas where the staff gather to rest and do their activities should be considered as a plus.

In addition, the presence of windows in the areas also provides information about light, sunlight, weather and other events in the outside world. They provide imagination about where it is in time and space (Kaplan, 1993). Having windows in the resting areas will create satisfaction for the intensive care staff in tiring work environments that need relaxation, rest and motivation.

Considering this information, the resting areas of the intensive care personnel in the examined hospitals are evaluated in terms of the window spaces on the walls and if points are given according to the table created, the rooms without windows will be given minus one point, the rooms with one window opening will be given zero points, and the rooms with more than one window opening will be given a plus point (Figure 10).

3.1.4. Need for Dining Areas in ICU Staff Rest Areas

According to NHS Estates an Executive Agency of the Department of Health HMSO Publications (National Health Service, 2013);

- The staff break room can be used for regular meals, tea and coffee breaks.

- Dry cake type food can be prepared, and then there must be the necessary plumbing facilities for dishes. For this purpose, cabinets should be available for storing sink, refrigerator, microwave oven, toaster, beverage machine and dry food containers. Apart from this, a hand washing sink is needed. The food room can be designed adjacent to or integrated into the staff lounge.

As can be seen, factors such as food preparation, eating and drinking, dry or perishable food storage are important for employees. For this reason, it is more useful to have sections that are used as kitchen areas in terms of practicality in staff break rooms. Also, in some cases, there can be a floor kitchen used by all employees. However, ICU staff needs to have a whole place to rest and eat, both in terms of time and practicality.

The general kitchen areas on the floors are generally planned to be away from the corridor and to serve the whole team. For this reason, it may not always be practical for ICU staff to use the kitchen to meet their needs such as eating and preparing drinks, even for a short time. In this respect, having a kitchen counter in resting areas, independent of the kitchen, will make a positive contribution to the staff in terms of eating and preparing their drinks while resting times. In addition, ICU staff do not have time to eat in the mess hall or outside the hospital at a busy pace of work. For this reason, they also spend their meal hours in this area. Its location should be evaluated in this way, taking into account disturbing factors such as smell and noise.

Considering this information, the resting areas of the intensive care personnel in the examined hospitals are evaluated in terms of having a kitchen counter in the room, and if points are given according to the table created, a minus point if there is no kitchen counter in the room, zero points if there is only a kitchen counter in the room, a plus point will be given if there is a kitchen in a separate area (Figure 10).

3.1.5. Separate or Combined ICU Staff Rest Areas

Having a single large room where the personnel working in the intensive care unit can sit together or separating the break rooms depends on the preference of the planning committee. Those who advocate the idea of a single room believe that such planning will promote teamwork by creating a better atmosphere (Taş, 2002).

According to research, it is seen that the doctor and nurse restrooms are generally separate. In fact, the responsible nurse and doctor rooms in the department can also be separate. However, according to the observations made on site in general, these rooms are used as offices, not as resting rooms. For this reason, the responsible personnel use these areas to benefit from the facilities in the rest area. As Taş stated (Taş, 2002), although resting areas create a social environment for the staff in social terms, they are generally planned separately.

On the other hand, areas for staff can be divided into both resting and working areas. This distinction will meet more needs of the personnel. It gives separate opportunities for work and rest. However, according to the observations, the work area and the desk are generally located in the resting area. Having separate work and rest areas for both doctors and nurses can give more positive results in terms of staff satisfaction.

Recently, as seen in pandemic times, social distancing and the decrease in the number of staff will increase the comfort of the resting rooms more. For this reason, the fact that the staff rest areas are separate compared to the working groups has more positive results. In the hospitals to be examined, nurse and doctor will be evaluated separately as resting areas and scoring will be made by giving two separate groups.

Considering this information, the intensive care personnel resting areas in the examined hospitals are evaluated in terms of being separate according to the personnel unit, and if the score is given according to the table created, if all personnel use the same area, minus one, if they are separate rooms according to the unit, zero, both working area and resting area according to the unit, it will be scored as plus one (Figure 10).

3.2. Physical Conditions in ICU Staff Rest Areas

The physical environment affects the physiology, psychology and social behavior of those who experience it. There is awareness among healthcare managers and medical professionals of the need to create functional environments with patient-centered or supportive features that help patients cope with stress. The factor that creates awareness of hospital design is to create scientific evidence that environmental characteristics affect patient health outcomes. Studies in this direction have shown

that well-designed environments can, for example, reduce anxiety, lower blood pressure, and reduce pain. On the other hand, inappropriate designs have been attributed to adverse effects such as increased depression, greater need for pain medication, and in some cases longer hospital stay (Ulrich, 1991).

In addition, staff, as well as patients benefit from good design. Supportive design of staff areas can help staff better cope with workplace stress. What's more, it can reduce absenteeism of staff, lower turnover, and support employees in providing quality care in a variety of ways. Well-designed staff environments are a positive factor for positively influencing and retaining qualified employees (Ulrich, 2000).

In Taş's thesis, the purpose of the design process in ICUs is to create a healing environment in the physical or psychological state of patients, staff, physicians and visitors. ICU design helps reduce medical errors, improve patient outcomes, Shorten stay time, and increase social support for patients. And it can play a role in cutting costs (Taş, 2002). In addition to explanations, correctly applied physical design elements (Salonen et al., 2013);

- Increase patient safety (to reduce hospital-induced infections and medical errors),
- Improve patient health (reduce pain, improve sleep, reduce stress and depression),
- Reduce spatial disorientation,
- Improve patient privacy (promoting social support)
- **Improve staff work results (reducing stress and increasing efficiency)**
- **Increase staff job satisfaction, job performance, productivity and ultimately the quality of health care.**

A design based on the functional requirements of the intensive care unit and the consensus of experts improves patient, family and staff satisfaction. It seems that staff satisfaction related to the working environment is associated with patient satisfaction. For this reason, one way to retain these qualified and intensive staff is the personnel resting environments that are suitably designed according to their quality. The main items that make up the physical conditions in the ICU staff break rooms are as follows;

3.2.1. Lighting System of ICU Staff Rest Areas

According to Ulrich's research, it is beneficial to use natural daylight as the primary source of illumination in healthcare facilities. Daylight exposure has been associated with less stress, less depression, better sleep at night, and higher staff performance. Moreover, it is healthier to use daylight in conjunction with appropriate photoelectric dimming systems. At the same time, natural lighting reduces electricity consumption and contributes to the ecological system of healthcare facilities. Besides daylight, artificial light is required for general lighting and special tasks (Ulrich, 2010).

According to survey and interview data in another study, doctors and nurses prefer dim, soft and low light levels for resting areas. They also stated in survey and interview that the staffs were not satisfied with the cold white fluorescent lighting so that it was bright and not dimmed. Also, natural light has a very significant impact on staff physiology and psychology. In the light of the interviews, it was revealed that the staff felt uncomfortable or isolated from the outside if there was no chance of getting natural light in the work areas due to the room's location, size, and orientation to the sun or window size. NVivo results revealed that both doctors and nurses used the word natural rather than artificial. This shows that they find natural light more important than artificial light (Çetinkaya et al., 2019).

In addition to the interviews, the staffs were not satisfied with the lighting control in both the working and resting areas. This reduced the sense of belonging and spatial aspects. As a result, direct or indirect glare and visual noise should be prevented for well-designed lighting in the working and resting areas of healthcare personnel. Darkness and light adaptation should be made homogeneous. Lighting should be controlled by allowing dim light. Natural sunlight should be preferred. In insufficient cases and evening shifts, there should be artificial lighting that can be adjusted in addition to daylight (Çetinkaya et al., 2019).

Researches provide information about general hospital spaces and then the lighting of staff restrooms. These features are also valid for intensive care units staff rest areas.

Considering this information, the resting areas of the intensive care personnel in the examined hospitals are evaluated in terms of lighting systems and if points are given according to the table created, rooms that do not receive natural light and are

illuminated with artificial light are minus one point, areas with natural light but the required warm values and artificial light areas that do not have adjustable features, zero points, plus one point will be given to rooms with lighting systems that receive both natural and warm values and adjustable artificial light (Figure 10).

3.2.2. Furniture Features of ICU Staff Rest Areas

ICU staff with a busy schedule need storage areas for ICU staff to sleep, eat, rest, meet their personal needs and store their belongings. The staff lounge provides a private, comfortable, spacious and relaxing environment. There should be a comfortable seating area in the living room. In this way, it should be able to rest during rest breaks and seizures. There should be chairs and a table to eat; as they also do their meal breaks here (Katırcı et al., 2019).

In addition, according to Ulrich, many studies focusing on lounges have indicated that the common practice of arranging side-by-side seating along the walls of a room prevents social interaction between users. These studies also show that levels of social interaction can be increased and possibly beneficial social support can be increased by providing comfortably movable single furniture arranged in flexible groups. However, in addition to socializing, long sitting groups should also be found in order to lie down and relax. Likewise, he stated that the appropriate mobile seat arrangement at meal times also increased social interaction (Ulrich, 2001).

Considering this information, the resting areas of the intensive care personnel in the examined hospitals are evaluated in terms of furniture group features and if points are given according to the table created, if one of the eating group or one of the sitting groups is missing, minus one point, if both groups are present, zero points, and if there is both an eating group and if the seating groups are also mobile and single-seating units, a plus point will be given (Figure 10).

3.2.3. Ventilation System of ICU Staff Rest Areas

Hospitals have an HVAC ventilation system. This system protects heating, ventilation, negative pressure in rooms and the health of employees, patients and visitors. It is also essential to control the risk of patients from airborne diseases (Salonen et al., 2013).

The intensive care unit should have an air conditioning system to allow control of temperature, humidity and air exchange. If possible, it should also have windows that can be opened. In terms of providing hygiene, proper and safe air quality should be maintained. Where there is no air conditioning, there should be fifteen air changes per hour in cabins and at least three air changes per hour in other patient areas. Dirty service, channel and lab make five changes per hour, but twice an hour is enough for other staff areas. At the same time, warming should be provided by prioritizing the comfort of patients and ICU staff. The temperature should be adjustable within each area, allowing a choice of temperature between 16 and 25 degrees Celsius (Indian Health Facility Guidelines, 2010).

On the other hand, natural ventilation in hospitals is considered among effective environmental measures to reduce the risk of spreading airborne infections. According to a guide published by the WHO in 2009, it reports that natural ventilation is more effective than artificial ventilation (Salonen et al., 2013).

In the same way, these ventilation systems are valid in the personnel rooms in intensive care. Health workers need to have natural air in the resting areas. In particular, the importance of natural ventilation in the pandemic process was emphasized. Medical personnel who manage this process in intensive work performance also need to be ready for these pandemic situations. Therefore, in addition to the ventilation system, it is important to have a window or system where they can get natural air to work healthily.

Looking at the studies, it is seen that natural ventilation is more positive than artificial ventilation. However, natural ventilation alone may not be sufficient for ICU staff resting areas. But having it will add a plus feature.

Considering this information, the resting areas of the intensive care personnel in the examined hospitals are evaluated in terms of the ventilation system and if points are given according to the table created, the areas where there is no natural ventilation and artificial ventilation is insufficient, minus one point, the areas where there is natural ventilation but artificial ventilation is insufficient, zero points and the areas of the required condition with both natural and artificial ventilation will be scored plus one (Figure 10).

3.2.4. Noise Control in ICU Staff Rest Areas

There are many sources of noise in healthcare facilities, and most generally exceed recommended noise levels guidelines (Salonen et al., 2013). Studies show that noise detrimentally affects at least some critical maintenance outcomes. However, apart from patients, noise is also a major source of stress for staff and can adversely affect workplace performance. Therefore, regarding the negative effects of noise, noise reduction should be a fundamental consideration in the design of new healthcare buildings (Ulrich, 2010).

In addition to the visual and tactile design features in healthcare spaces, acoustic comfort is critical for the spatial satisfaction of the users. Situations that provide appropriate noise levels and appropriate acoustic conditions provide auditory comfort. Not keeping the noise at acceptable levels and not providing the acoustic conditions give negative results. These are known to cause psychological and physical ailments. Healthcare professionals will feel comfortable if they can control their noise levels and adapt them to their needs. The consequences of noise in hospitals are auditory fatigue, mental fatigue and tension. It also reduces the perceived communication quality. This means that staff feels stressed in their environment under high sound levels. In particular, it is reported that stress in nurses arises from noise associated with burnout (Çetinkaya et al., 2019).

At the same time, noise is regarded as a distraction and stressor for healthcare professionals. Decreased noise levels for staff have been associated with reduced stress, reduced emotional exhaustion and burnout, decreased fatigue, increased satisfaction, increased productivity. Improved communication reduces medical errors. In addition, improved acoustic conditions provide a reduction in staff work demands and increase satisfaction (Salonen et al., 2013).

Sound quality in healthcare can be improved by reducing noise and offering pleasant sounds like music. The noise level in hospitals is around 45-68 decibels (dB) and maximum 85-90 dB. Exceeding this noise level negatively affects both patients and staff. And it leads to inhibition and poor performance in verbal communication for staff (Ulrich, 2010).

Precautions should be taken in architectural planning to prevent noise sources. Rooms should be built with solid wall partitions that extend all the way to the ceiling

for sound leakage and privacy from the ceiling. Geometry and space size is important for acoustic comfort. To have appropriate acoustic comfort in health care interior, sound-absorbing ceilings should be constructed. Providing measures that shorten the reverberation time and reduce noise emission should be a priority (Çetinkaya et al., 2019).

Intensive care units are also places where the sound level is high. Severe patients are often attached to devices, and these devices cause noise pollution. Intensive care workers, on the other hand, are exposed to this noise level in their working lives. Resting areas are places where they take a break from work and get away from the noise. Therefore, taking measures to reduce noise in these areas will increase user satisfaction.

Considering this information, the resting areas of the intensive care personnel in the examined hospitals are evaluated in terms of sound levels and if points are given according to the table created, a minus point will be given to the areas with a maximum sound level of 85-90 decibels (dB) in the room, and those with a normal sound level of 45-68 dB areas with a sound level lower than the normal 45-68 dB will be given zero points, and those with a lower than normal sound level will be given a plus point (Figure 10).

3.2.5. Materials in ICU Staff Rest Areas

Surfaces are defined as ceilings, floors and walls that define the boundaries of the components of an environment. It is important to improve the surface design, the finishing materials and their respective detailing, because the result of the design makes a great contribution to the final impression. They function to meet the multitude of requirements of the environment. In addition, in a healthcare setting, appropriate treatment, choice of form and color, materials can play an important role in healing and stress reduction, which is essential and primitive for those in a healthcare setting (Karakurt, 2003).

Material selection is important in hospitals. The choices are divided into suitability for the hospital environment in terms of security, ease of cleaning and maintenance, and different types and abilities of users. When these criteria are met, other components related to the perceptual integrity of the space can be complemented with each other. Materials have chemical, physical and mechanical properties. In

addition to this, there are also visual effects that vary according to the material such as size, color and texture. In this way, materials create physical effects such as width, depth, brightness, cold, warmth, soft and hardness in the space (Göler, 2009).

All varnishes and coatings in the hospital should be according to the bacterial and fungal compatibility level. This is because the hospital is vulnerable to the spread of infections from patients. For example, the most important properties of finished materials in acute care units are strength and durability, because the risk of routine and accidental effects is very important (Harris and Detke, 2013).

Healthcare personnel should not have difficulty in moving patients and equipment and in the areas of use due to slippery floors. In addition, high-performance and sound-absorbing inner surfaces benefit both patients and hospital staff. For healthcare professionals, noise has negative effects on distracting communication and interaction, cognitive performance and concentration, stress and fatigue. For this reason, the acoustic provider, soundproofing materials are important for both patients and staff who need to be careful (Çetinkaya et al., 2019).

Fatigue and stress caused by physical conditions is an ergonomic problem for healthcare professionals. Strains and sprains are common complaints among hospital staff. The frequency of these injuries includes falling, lifting heavy materials, moving beds and furniture, pushing heavy cars, etc. can be added. For this reason, it is appropriate to cover the floors with a non-slip and easy-to-clean flooring material to protect the safety and health of healthcare workers. It will be a source of satisfaction for them to apply this type of material not only in patient areas, but also in other areas used by staff (Harris and Detke, 2013).

Matters such as infection control, air quality, patient and employee safety, comfort and aesthetics are important in the upholstery of healthcare units. PVC materials are generally preferred. Alternatives for flooring materials are products such as rubber, polyolefin and linoleum. Another flooring option is bamboo, a natural product used in sustainable projects. Other options that are naturally antibacterial and antimicrobial, easy to maintain and environmentally friendly are rubber and flexible textile sheet flooring.

Harris examined terrazzo, rubber and carpet tiles, which are flooring materials in terms of sound absorption, comfort, light reflection, employee perceptions and preferences, and patient satisfaction. There are many causes of injury to the healthcare worker. These are factors such as pushing and pulling equipment, carrying patients, slippery floor surfaces, and standing or walking on a hard surface for hours at a time. A flexible or soft floor material reduces fatigue. Hygiene should also be given importance in choosing a floor covering that provides a measurable change in sound levels to increase employee satisfaction with staff and hospital organization (Çetinkaya et al., 2019). Therefore, the criteria for the floor are cleanliness, comfort, noise and aesthetics.

While there are increasing indications that carpet is superior to the patient, according to Ulrich, some studies report that cleaning carpet is more difficult than hard floor coverings. However, some serious pathogens have been reported to survive on the carpet for a shorter time than other floor coverings (including linoleum, rubber tile, vinyl composite tile and vinyl sheet products) and carpets transfer fewer pathogens to hands through contact vinyl (Ulrich, 2000). Other advantages of the carpet are noise and glare reduction, ease of use, a possible reduction in falls and resulting injuries, a sense of security, improving personal comfort and creating a homey environment (Salonen et al., 2013).

On the other hand, studies on the effect of noise on healthcare workers are aimed at measuring the impact of various floor covering materials and noise levels on healthcare workers. It is also necessary to evaluate flooring materials to reduce noise as a stressor affecting patients and healthcare workers (stress, errors and loss of productivity). Studies are showing the acoustic properties of carpets that are beneficial to the health environment. However, not shown in the study are environmental effects in the patient environment or effects on users, including patients and healthcare professionals. For this reason, in addition to the acoustic feature of the carpet, its suitability for health environments in terms of hygiene and easy use is not obvious (Harris and Detke, 2013).

Another important issue in material selection is wall coverings. Care should be taken in the selection of wall coverings due to hospital conditions. Factors such as relative humidity (RH), indoor air quality (IAQ) and contamination of harmful bacteria in an

area may depend on the quality of the wall material. Therefore, the wall material is as important as the visual (Çetinkaya et al., 2019).

These wall coverings are divided into varieties ranging from mosaics, tiles, natural products such as natural stone, rubber and wood to synthetic materials such as vinyl. The most common is the paint application. The paint is durable and requires little maintenance. It is necessary to choose the appropriate paint type for the wall coverings of health areas. On the other hand, plastic-laminated, flame-retardant plywood, fiberglass composite substrate and vinyl are aesthetically pleasing and easy to maintain. Also, they contain a variety of colors, textures, and patterns. Vinyl materials are preferred in hospitals because of their durability and infection control. But at the same time, plastics and polyvinyl chlorides (PVCs) are unhealthy and have a negative environmental impact. However, it is among the most used applications. At the same time, vinyl-based textile-based wallpapers are preferred for ease of use and hygiene (Levy and Dixit, 2012).

Another important issue is related to ceiling materials. In the selection of ceiling material, the comfort of the employees in the health environment should be considered and the selection should be made accordingly. It is important that the material is sound absorbing, cleanable and easily accessible. Often the interaction of noise with communication causes stress and fatigue, as a distraction, on cognitive performance and concentration. Research focusing on stress, strain, and fatigue in the healthcare workplace indicates that sound-absorbing ceiling tiles improve reverberation times and speech intelligibility. As a result, he found that staff reported lower job demands and less pressure and coercion. For this reason, the use of sound-absorbing materials in ceiling materials will create satisfaction for the personnel (Ulrich, 2005). While examining the staff rooms, it is important for satisfaction that the ceiling material has these features.

According to these explanations, materials applied throughout the hospital intensive care unit can continue in the rest areas of the personnel in terms of hygiene, usage and durability. Generally, artificial applications such as paint and wallpaper are used on the walls. On the floor, there are plastic-based PVC vinyl applications. The naturalness of the product range creates more positive results for these areas. However, the ongoing artificial vinyl-based applications throughout the whole can

make a difference with design diversity such as color and texture. At the same time, it is important to use sound-absorbing materials for ceilings. But generally, flat plasterboard ceilings are used. When looking at the ceiling, wall and floor materials in general, hygiene, usage, durability and technical suitability can be continued in personnel break rooms rather than comfort and visuality.

Considering this information, the intensive care personnel resting areas in the examined hospitals are evaluated in terms of the materials used and if points are given according to the table created, the areas that do not provide hygiene, usability, durability and technical conformity are minus one point, the areas that provide at least one are zero points, and the areas that provide all are plus one point will be awarded (Figure 10).

3.3. Psychological Effect in ICU Staff Rest Areas

The atmosphere is the reality that creates the perceiver and the perceived environment. The reality of the present situation and the perceiver exists bodily to the extent that he experiences the atmosphere. In other words, the atmosphere is the living environment formed by the real space and self-perception of the people living in a certain environment. There are factors that affect and determine this atmosphere. However, in order to determine these impact units, concepts were tried to be formed by looking at previous studies. The works of famous philosophers such as Benjamin, Herman Shmitz, Kant, Klages, Hirschfeld and Gestalt on atmosphere were examined. They stated that the atmosphere has psychological effects on the environment in which people live. The atmosphere of the space, on the other hand, is composed of factors such as aesthetic concerns, colors, works of art, the concept of natural light, comfort, and natural scenery (Böhme, 1993).

A visual and perceptual quality alone does not determine the quality of a space and place, as is often thought. Space is a complex combination of numerous factors that are instantly and synthetically grasped as the nature, atmosphere, ambiance, emotion or mood of environmental factors. As Böhme also determined in his research, there are factors that determine psychology in space (Pallasmaa, 2014).

The psychologically supportive design engages and awakens people both socially and mentally. It also provides an individual with a high sense of coherence (Uwajeh, 2019). The relationship between design and psychology is not just consequential. It

is bidirectional. The successful design has been shown to have clear psychological and physiological implications. Also, psychology plays an important role in human experience and satisfaction in what we perceive as successful design (Ricci, 2018).

Environmental psychology research shows that the physical environment is a positive stimulus on human health. In other words, the environmental warning should be neither too much nor too little. Employees must keep the patient spirituality high, and the building they are in must provide this environment. The architect should make the space aesthetic with the design of elements such as the contrast of the occupied and empty parts, the rhythm of the window rows, the harmony and contrast of colors, and the natural environment. For an effective psychological environment in healthcare settings, the color selection should be designed in a way that the equipment is comfortable and not bored with the use of technological tools. Due to the incompatibility or lack of these factors, it can provoke negative feelings such as stress, anxiety, thoughts that increase stress, and depression. So, these components should be designed and implemented in place and in harmony (Çetintaş, 2016). These features foreseen for healthcare structures are also valid for personnel areas. In particular, intensive care personnel working for seriously ill and emergency cases should also be in a psychologically positive environment. Therefore, the psychological architectural rhythm and harmony of the staff rest areas where they socialize will contribute to the satisfaction of the users.

Within the scope of this thesis, titles have been separated and examined according to the factors affecting human psychology in the space included in the research and writings of Ulrich, Pallasmaa and Böhme.

The architectural design elements that will contribute psychologically to the ICU staff resting areas can be examined as follows;

3.3.1. Importance of Colour in ICU Staff Rest Areas

Color is expressed as an objectively perceived sensation produced by light. Color perception, on the other hand, depends on the color structure of the light, the surface material, and the age and health of the viewer's eyes. At the same time, colors are linked to people's physiological, psychological, and social responses. It is stated that cooler colors are more calming and relaxing, while warmer colors tend to stimulate

and energize. For the design of hospital spaces, it is important to have a relationship between certain colors and certain moods or emotions (Salonen et al., 2013).

Color is considered one of the most important design elements affecting human psychology, productivity, and motivation. Color plays a very important role, especially for healthcare professionals who are under stress during long working hours (Çetinkaya et al., 2019). According to research, many psychological and behavioral outcomes such as temperature, coldness, activity, passivity, lightness, stimulants, rest, joy and sadness vary according to the type, value and saturation of colors. Color has effects on emotional responses to the environment. Combining cool and warm colors has positive effects on the human mind, and their contribution to comfortable atmospheres and environments has also been studied (Andritsch et al., 2012).

Ghamari and Amor talk about the importance of color for staff morale and productivity. According to Ulrich, they noted that in a well-designed work environment, multiple staffing decisions can help recruit and retain staff as well as improve morale. Proper lighting and color design can positively contribute to staff concentration, productivity and morale. Therefore, the psychological well-being of medical personnel is also affected by the color, tone and saturation that characterize the hospital's design and are essential for the quality of the indoor atmosphere (Ghamari, 2016).

Studies show that the need to improve staff areas, the main causes and consequences of healthcare staff fatigue, are related to patient and facility outcomes. That is, improved rest areas design is important in improving staff job satisfaction and performance. These researchers concluded by analyzing the impact of design features on staff. They revealed that the health, job performance and desire to remain in the profession were positively affected. To reduce staff turnover and increase satisfaction, staff break areas should allow for special relaxation and reflection (Çetinkaya et al., 2019).

As seen in pandemic conditions recently, intensive care units are in a different location that takes over the density of the hospital. For this reason, the staff in this department is also in the priority group that needs psychological relief. These emotional and psychological factors that affect the well-being of ICU healthcare

personnel should be taken into account in the application of color in the staff areas of the hospital.

In Özdemir's study, colors affect the perception of space dimensions on ceilings, walls and floors as follows (Çetinkaya, 2016):

- High ceilings are perceived as lower with warm colors and dark values, and low ceilings are perceived as higher with cold colors and light values.
- Side walls are perceived as being farther from each other with cold color and light values, and closer to each other with warm color and dark values. On the other hand, the opposite walls are perceived as closer to the warm color with dark values, while the cold color is perceived further with the darker values.
- While the floors are perceived as secluded and safe with warm color and dark values, they create the effect of cleanliness and width with cold color and light values.

Considering these explanations, colors affect the perception of space dimensions on ceilings, walls and floors as follows (Çetinkaya, 2016):

COLOR TYPES AND VALUES	WARM COLOR & DARK VALUE	COLD COLOR & DARK VALUE	WARM COLOR & LIGHT VALUE	COLD COLOR & LIGHT VALUE
CEILING	gloomy, menacing	overcast	spiritual pressure	enhancer
WALL	imprisoning	cold	rousing	router, cool
FLOOR	holder, sturdy, safe	strenuous	arousing	unsafe, encouraging to run

Figure 10. The Table of Color Types and Values (Taş, 2002)

Studies have determined that there are some relationships between the effects of color types on depth perception and the size of shapes. It was stated that light colored surfaces were perceived as larger in size than dark colored surfaces. Warm, dark bright colors are perceived as closer than cold, light and dull colors. These psychological effects of colors can be used to show small–large, low–high, near–far, indoors. Thus, as a result of the perceptions of heavy-light, warm-cold, large-small, near-far obtained by experiments with color types, the contents of the effects of color

types on the perception of space are determined (Göler, 2009). These effects can be made with the walls, floors and furniture used in the space.

CLOLOUR TYPE	EFFECTS
WHITE	White has become a symbol of unity and health as it contains all colors. It reflects an ideal of openness and transparency.
BLACK	The opposite of white, black is the 'other' color of natural dilemmas such as good-bad, day-night, life-death. Black is a symbol of the deep discord inherent in each of us. This color can symbolize mourning, regret, guilt, as well as deep restful silence and eternity or structural strength.
PURPLE	Purple is the color of dignity, a combination of nobility, mysticism, shame, sadness, love and reason. Purple can be a frightening and unsettling color when seen in large areas.
BLUE	Blue connotes contentment, goodwill, compassion, frankness, cooperation and peace. It has an anti-anxiety and calming effect.
BROWN	It is a soothing color that represents maturity.
YELLOW	Yellow sharpens understanding and increases mental functions. It is the only color that increases the strength of general muscle nerves.
RED	Red, which is the color of passion, carries attention-enhancing, interesting, stimulating, courage, power, lively and warming effects. In case of exaggeration, it can express harshness and violence, danger, discomfort.
PALE PINK	It is a color that instills a sense of kindness, softness, sweetness, shyness, embarrassment and conservatism.
ORANGE	It is a joyful, warming, unity-oriented color, disturbing when used too much, representing wealth, light and productivity.
GREEN	It evokes silence, productivity, life, growth, nature, wisdom and faith.

Figure 11. The Table of Color Types and Effects (Taş, 2002)

According to the researches and the table, it can be explained that it has positive effects in every sense when used on the ceiling, wall and floor, according to light and warm, dark and cold colors.

Considering this information, if the resting areas of the intensive care personnel in the hospitals examined in terms of the colors used in the space are evaluated and points are given according to the table created, if there is no light and warm colors in the environment, a minus point, and if one of the walls-floor or one of the furniture in the environment has one of the light and warm colors, zero point, and if the

environment is dominated by both light and warm colors, a plus point will be given (Figure 10).

3.3.2. Importance of Landscape View in ICU Staff Rest Areas

Views of nature have been associated with faster recovery, time of day orientation, distraction, emotional well-being, and person satisfaction. In addition, a look at the outside world contributes to a sense of normalcy for individuals and has a positive effect on the person (Ulrich, 1984).

On the other hand, atmosphere is closely related to the spirit of the place, its genius, and our empathic and emotional capacities. Just as music can affect a spatial or social situation, the ambiance of a natural landscape and outdoor scene can reflect similar integrative and inclusive feelings. The presence of natural outdoor view in the inner world and atmosphere of the person will positively affect the spatial psychology of the person (Pallasmaa, 2016).

In addition, the importance of landscape is also emphasized in Böhme's book. One of the determining elements of the atmosphere that creates the space and which has an impact on people is landscapes with natural views. According to Hirschfeld, landscape determines which elements reveal the character of an atmosphere. These elements are water, light and shadow, color, woodland, hills, stones, buildings and natural view. Observation of these elements by the people in the atmosphere will create positive effects (Böhme, 2017).

It is suggested that the natural view has relatively therapeutic effects. For this reason, natural landscapes should be preferred rather than urban scenes whenever possible. Because most natural landscapes evoke positive emotions, they can reduce fear, inhibit or reduce stressful thoughts in stressed people. It can also promote anxiety or stress relief (Ulrich, 1984).

Kaplan also has studies showing that natural landscapes have positive effects on human psychology and staff satisfaction. The elements of nature that make a strong psychological difference consist of a few trees, some landscaping or some signs of vegetation. Also, the existence of other buildings or parks is not a problem as long as it is the natural world (Kaplan, 1993).

Natural environments have important advantages over many other environments. Thus, a view out of the window can be called an experience that provides a brief rest to the person's directed attention. A look outside can make you feel that you are far away. The snow on the tree, the changing colors of the leaves, the bird visible in the bushes, draws attention and gives the feeling of being somewhere else. Because of such positive contributions, even this brief opportunity for employees to regain their attention capacity can be expected to increase competence and collaboration (Kaplan, 1993).

Nature's window views for staff also reduce stress, improve performance and productivity, increase job satisfaction, improve concentration, reduce headaches and work pressure, and offer a restorative effect after performing demanding processes (Salonen et al., 2013). At the same time, there is existing evidence that nature-looking windows and direct access to outdoor gardens significantly reduce staff stress and increase their alertness and productivity (Nejati et al., 2016). According to Ulrich also, in relation to the staff, in working areas such as health services and office buildings, staff also attach great importance to windows like patients and that nature views are the most preferred. Moreover, staff who have nature window views reported that they were less stressed, healthier, and higher job satisfaction than similar groups who lacked nature views (Ulrich, 2000).

For intensive care workers who are under stress due to the care of patients in intensive care, resting areas with nature-view outdoor areas will help to reduce their workload and stress and increase job satisfaction. Intensive care workers in counters, workplaces and patient rooms may not notice the effect of the outdoor space, as they are under workload. Thus it can be concluded that nature scenery is important for intensive care staff in recreation areas where they spend time, eat, and communicate with the outdoors.

Considering this information, the resting areas of the intensive care personnel in the examined hospitals are evaluated in terms of having a natural outdoor view and if points are given according to the table created, a minus point if it does not have both an outdoor and a natural view, zero points if it has an outdoor view and no natural view, and it will be a plus point if it has both views (Figure 10).

3.3.3. Importance of Artworks in ICU Staff Rest Areas

In ancient Greek times, art and healing were one. Healing temples featured paintings, sculptures, gardens, fountains, music, poetry, and storytelling. The medium containing art was thought to have a therapeutic effect, providing a means to alleviate physical discomfort and emotional distress. Now researchers are finding evidence of what was intuitively believed centuries ago. They found evidence that viewing art (paintings, prints, photographs) has an impact on stress reduction, pain relief, and other outcomes (Ulrich, 2009).

On the other hand, according to Böhme, the work of art is one of the most important elements that affect the atmosphere that creates an environment. He stated that art objects that are chosen correctly and used in place have positive effects between people and space (Böhme, 1993). Similarly, a work of art should never be perceived as an intellectual object, it can convey a positive effect throughout life (Pallasmaa, 2016).

Some artists and designers assume that most visual art or painting has a positive impact and will affect people in a positive way. However, it should be kept in mind that artworks vary and the content of most of them is strongly emotional. Accordingly, it can be said that certain types of art will be positive, while other types can be stressful and worsen the results. The criterion of health care art is not the acclaim of art critics or its conformity with museum standards in quality. What is important is that it improves patient outcomes and has a positive impact on people in general (Ulrich, 1991).

On the other hand, nature art can reduce stress. There is opinion and evidence that watching nature can be calming, reduce stress, and improve health (Ulrich, 1991). It has a positive impact when nature art incorporates elements such as calm or slow-moving water, lush leaves, flowers, foreground spatial clarity, park-like or savanna-like features, grassland, birds, deer or other non-hazardous wildlife (Ulrich, 1999).

Regarding the psychological effects, looking at the image of nature raises positive emotions such as pleasantness and calmness. It reduces negative-toned emotions such as anxiety, anger, and grief. Evidence suggests that nature scenes dominated by vegetation, flowers, or water are more effective in restoration than the majority of scenes devoid of nature (Ulrich, 1991).

The other subject is abstract art objects. A healthy person in good spirits may tend to interpret an abstract or ambiguous picture in an emotionally positive way. When the same person is hospitalized and experiences different negative emotions, they may react negatively to the same picture. Therefore, care should be taken when considering ambiguous or abstract art for patient areas, high-stress waiting and rest areas (Ulrich, 2009).

Abstract artworks in the hospital corridor are extensively furnished with wall-mounted paintings and prints. Hospital users reported having positive emotions and associations in the vast majority of nature paintings. In contrast, a few people reacted negatively to abstract artworks whose content is ambiguous and can be interpreted in various ways (Ulrich, 2009).

In another hospital, it happened in the example of a large-scale Bird Garden sculpture installation. The purpose of the sculpture was to present a pleasant and restorative visual for the users. The work was a tall metal sculpture with straight edges and abstract forms, many with pointed or penetrating features. It received negative reactions from some patients. Therefore, a survey study was conducted for an evidence-based assessment of the effects of artworks. Twenty-two percent of users reported an overall negative emotional response to the sculpture garden. Many found the art installation ambiguous. Others interpreted the statues, for example, as fearsome predators. As a result, this artwork was removed (Ulrich, 2009). Therefore, instead of abstract and vague art objects, the use of items containing more prominent art elements can create more positive results.

According to research, selected health care artworks (paintings, prints, and photographs) aim to increase the likelihood of improving outcomes for stressful environments. It is recommended that all visual arts exhibited have positive themes and convey a sense of security or satisfaction. In addition, priority should be given to the selection of art items that include the following subject categories (Ulrich, 2009):

- Waterscapes
- Nature Scenes
- Flowers and gardens
- Figurative Art (People in places of obvious nature, caring or friendly, emotionally positive facial expressions, etc.)

In addition, the following features should be avoided when choosing artworks that may have a negative impact (Ulrich, 2009):

- Uncertainty
- Negative / provocative topic
- Surreal qualities
- Closely spaced repeating edges or forms
- Restricted depth or claustrophobic features
- Outdoor scenes with bad weather

As a result, Ulrich's work implies that visual art in healthcare institutions is not just a visual or an insignificant ornament. Conversely, it shows that evidence-based selection of psychologically appropriate art produces positive results. It also supports the idea that it adds an important dimension to patient care that reduces users' stress and improves other medical outcomes.

Considering this information, if the intensive care personnel resting areas in the examined hospitals are evaluated in terms of having a variety of works of art and a score is given according to the table created, if there is no artwork in the environment, a minus point, if there is a work of art in the environment that will not have a positive effect, zero points, plus points will be given if there is one or more works of art that contain abstract concepts that have a natural or positive effect and have relaxing effects in the environment (Figure 10).

3.3.4. Importance of Entertainment in ICU Staff Rest Areas

Technological tools are useful for employees to spend time, have fun, listen to music and watch something. In these areas, there should be a television, as well as a computer for activities such as listening to music, accessing the internet, conducting research.

Technological tools are useful for employees to spend time, have fun, listen to music and watch. In these areas, there should be a computer for activities such as watching television and listening to music, using the internet and doing research.

It has been observed that entertaining programs on televisions in their fields reduce stress. Televisions contribute to a calming atmosphere and can reduce distraction for some staff. It has the same effects in music. It has shown that music, especially when

it is controllable, can help listeners' lower blood pressure, reduce anxiety and distress, reduce depression, lower heart rate, lower respiratory rate, and bring it to a higher level. For this reason, the presence of such technological devices in the resting areas for the psychological relaxation of the intensive care personnel will contribute positively (Thompson et al., 2012).

Considering this information, the intensive care personnel resting areas in the examined hospitals are evaluated in terms of having electronic products for entertainment purposes and points are given according to the table, if there is no device in the environment, a minus point, if there is one of the television or computer, zero points, and if both devices are present, plus one point will be awarded (Figure10).

CHAPTER 4: CASE STUDY

4.1. Results

The fieldwork was carried out in two stages; 'Pilot fieldwork' and 'Fieldwork'. In the pilot field study, a survey was conducted with the staff of the Intensive Care Department of Kanuni Sultan Suleyman Training and Research Hospital. In addition, a number of design evaluation criteria were determined as a result of personal observations in the ICU staff resting areas of the selected hospitals.

In the field study; Hospitals were determined as one example for each of the plan types developed, and were evaluated by using the qualitative research method and scoring technique in the observation-based field study to be used for the design and use efficiency of the patient waiting areas and post-design evaluations. In field work;

- Kanuni Sultan Suleyman Training and Research Hospital (2 parts)
- Izmir Private Kent Hospital
- Büyükçekmece Mimar Sinan State Hospital

Spatial analyzes and observations made in the ICU staff resting areas of different hospitals. Triple scoring technique was used in the evaluation. In the evaluation; According to the determined design criteria (Figure 9), the results of the observations and measurements made in the space were evaluated as follows:

- If it meets the standard, that is, if it is neutral, 0 point,
- If it meets the standard and contributes positively to the environment, +1 point,
- Non-standard, that is, if it does not provide -1 point, scored with points.

SCORING		
POSITIVE IMPACT IN-STANDARD	POSITIVE IMPACT IN-STANDARD	NON-STANDARD NEGATIVE IMPACT
1	0	-1

Figure 12. The Table of Scoring System

The fieldwork was carried out under the following main headings:

SPATIAL FEATURES (A)				
SPACE DIMENSIONS (m2)	LOCATION	WINDOW OPENING	DINING AREA	SEPARATE OR COMBINED AREAS
if the area is less than the required square meter, minus one point will be given, zero points if the area is equal, plus one point if the area is larger.	if the bed area is not visible and far, minus one point, if it is visible from the bed area, zero points, if it is opposite the bed area, plus one points will be awarded.	the rooms without windows will be given minus one point, the rooms with one window opening will be given zero points, and the rooms with more than one window opening will be given a plus point.	a minus point if there is no kitchen counter in the room, zero points if there is only a kitchen counter in the room, a plus point will be given if there is a kitchen in a separate area.	if all personnel use the same area, minus one, if they are separate rooms according to the unit, zero, both working area and resting area according to the unit, it will be scored as plus one.

PHYSICAL CONDITIONS (B)				
LIGHTING SYSTEM	FURNITURE FEATURES	VENTILATION SYSTEM	NOISE CONTROL	MATERIALS
the rooms that do not receive natural light and are illuminated with artificial light are minus one point, areas with natural light but the required warm values and artificial light areas that do not have adjustable features, zero points, plus one point will be given to rooms with lighting systems that receive both natural and warm values and adjustable artificial light.	if one of the eating group or one of the sitting groups is missing, minus one point, if both groups are present, zero points, and if there is both an eating group and if the seating groups are also mobile and single seating units, a plus point will be given.	the areas where there is no natural ventilation and artificial ventilation is insufficient, minus one point, the areas where there is natural ventilation but artificial ventilation is insufficient, zero points and the required conditions areas with both natural and artificial ventilation will be scored plus one.	a minus point will be given to the areas with a maximum sound level of 85-90 decibels (dB) in the room, and those with a normal sound level of 45-68 dB areas with a sound level lower than the normal 45-68 dB will be given zero points, and those with a lower than normal sound level will be given a plus point.	the areas that do not provide hygiene, usability, durability and technical conformity are minus one point, the areas that provide at least one are zero points, and the areas that provide all are plus one point will be awarded.

PSYCHOLOGICAL EFFECT (C)			
COLOUR	OUTDOOR VIEW (LANDSCAPE)	ARTWORKS	ENTERTAINMENT
if there is no light and warm colors in the environment, a minus point, and if one of the walls-floor or one of the furniture in the environment has one of the light and warm colors, zero points, and if the environment is dominated by both light and warm colors, a plus point will be given.	a minus point if it does not have both an outdoor and a natural view, zero points if it has an outdoor view and no natural view, and it will be a plus point if it has both views.	if there is no artwork in the environment, a minus point, if there is a work of art in the environment that will not have a positive effect, zero points, plus points will be given if there is one or more works of art that contain abstract concepts that have a natural or positive effect and have relaxing effects in the environment.	if there is no device in the environment, a minus point, if there is one of the television or computer, zero points, and if both devices are present, plus one point will be awarded.

Figure 13. The Table of Fieldwork Criteria

The findings obtained in the hospitals examined as a result of the field study are discussed under separate headings. Each area is scored according to its evaluation.

4.1.1. Kanuni Sultan Suleyman Training and Research Hospital

Kanui Sultan Süleyman Training and Research Hospital started its activities on 01.09.1952 under the name of SSK Sultanahmet Hospital Foreign Affairs and Nisaiye Service. After the various name and location changes, it moved to a new

648-bed building built by TOKİ in Halkalı on May 2, 2011. The role of the hospital has been defined as A1 general branch hospital, and it continues to serve under the name of Istanbul Kanuni Sultan Suleyman Training and Research Hospital in this role. Over time, the hospital expands according to the need with additional departments and areas. In terms of Intensive Care Units, they were working as the 3rd level, that is, the most intensive ICU hospitals (Kanuni Sultan Suleyman Training and Research Hospital, 2021).

Due to the increased cases during the pandemic process, the area planned for the Pediatrics department was revised as the Intensive Care area and started to be used. For this reason, there are two separate intensive care units within the scope of the hospital, and the staff resting areas were evaluated separately. In the field study carried out at the Kanui Sultan Suleyman Training and Research Hospital, an observational study was conducted within the framework of the determined design criteria in the Staff Break Areas of the Intensive Care Units. In this ICU area, doctor and nurse resting areas are separate, and evaluations were made for two separate floors and two separate spaces. As a result of this study, the following data were obtained:

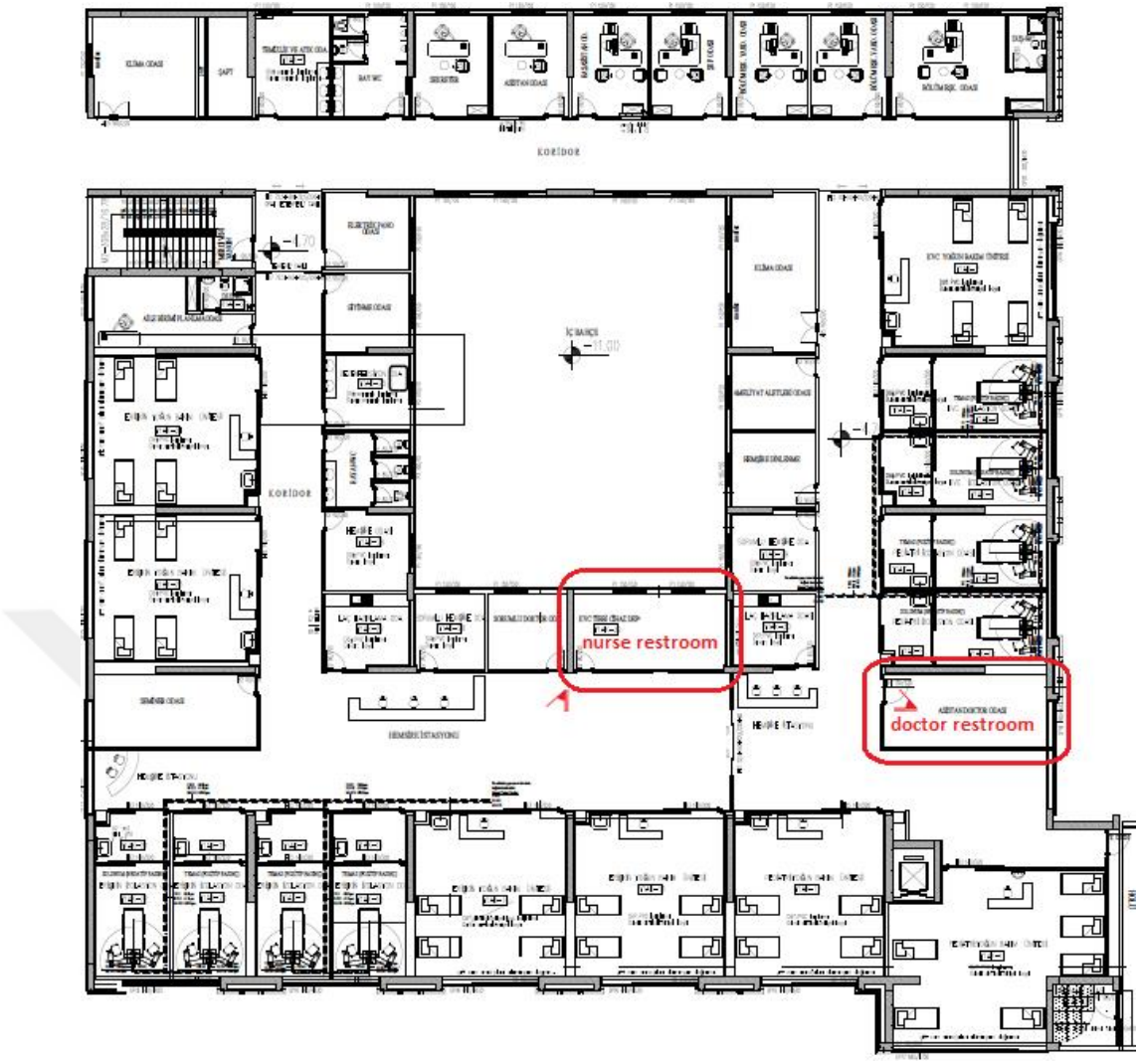

Figure 14. General Intensive Care Unit Floor Plan of Kanuni Sultan Suleyman Training and Research Hospital

General Intensive Care Unit Nurse Restroom:

- Recreation Area 23, 60 m2.
- It is possible to see inpatients from the resting area.
- There is direct access to inpatients from the rest area.
- There is a window in the relaxation area.
- There is a no counter for the kitchen function in the resting area.
- The nurse in charge and the nurse break room are separate.
- Both natural and artificial lighting are available.
- The seats are in the shape of a sofa and covered with leather.
- The environment is ventilated with natural ventilation and mechanical ventilation system.

- 91 db. the sound level was measured.
- The floor material is PVC coating.
- The walls are painted.
- The ceiling material is in the form of flat drywall.
- The beige color is preferred as the color of the space.
- Existing windows do not have natural views.
- There is no art work in the area.
- Technological devices where they can spend time and have fun are not included.

Figure 15. General Intensive Care Unit Nurse Restroom of Kanuni Sultan Suleyman Training and Research Hospital

General Intensive Care Unit Doctor Restroom:

- Recreation Area 23.90 m2.
- It is not possible to see the patients lying in the rest area.
- There is direct access to inpatients from the rest area.
- There is a window in the relaxation area.
- There is no counter for kitchen function in the resting area.
- The responsible doctor and the doctor's break room are separate.
- Both natural and artificial lighting are available.
- The seats are in the shape of a sofa and covered with leather.
- The environment is ventilated with natural ventilation and mechanical ventilation system.
- 87 db. the sound level was measured.

- The floor material is PVC coating.
- The walls are painted.
- The ceiling material is in the form of flat drywall.
- The beige color was preferred as the color of the space and purple color, which is a warm tone, was preferred for the furniture.
- Existing windows offer landscape views.
- There is no art work in the area.
- Technological devices where they can spend time and have fun are not included.

Figure 16. General Intensive Care Unit Doctor Restroom of Kanuni Sultan Suleyman Training and Research Hospital

	CRITERIA	CONDITIONS	KANUNI SULTAN SULEYMAN E.A.H.			
			DOCTOR REST ROOM		NURSE REST ROOM	
			RESULTS	SCORE	RESULTS	SCORE
SPATIAL FEATURES (A)	DIMENSION	M2	23.90 M2	1	23.60 M2	1
	LOCATION	COMMUNICATION	CONVENIENT	1	CONVENIENT	1
		DISTANCE TO THE BED AREA	FAR AWAY	-1	OPPOSED	1
	WINDOW OPENING	EXIST OR NOT	EXIST	0	EXIST	0
	DINING AREA	IN THE ROOM / OUTSIDE THE ROOM / BOTH OF THEM	NOT EXIST	-1	NOT EXIST	-1
	SEPARATE OR COMBINED AREAS	ONE ROOM / SEPARATE ROOM	SEPERATE	1	SEPERATE	1
PHYSICAL CONDITIONS (B)	LIGHTING SYSTEM	NATURAL LIGHT / ARTIFICIAL LIGHT / BOTH OF THEM	HYBRID	1	HYBRID	1
	FURNITURE FEATURES	SEATING GROUP / DINING GROUP / BOTH OF THEM	SEATING GROUP	0	SEATING GROUP	0
	VANTILATION SYSTEM	NATURAL / ARTIFICIAL / BOTH OF THEM	HYBRID	1	HYBRID	1
	NOISE CONTROL	HIGH / LOW	HIGH	-1	HIGH	-1
	MATERIALS	HYGIENE / USAGE / DURABILITY / TECHNICAL SUITIBILITY	LACK OF TECHNICAL SUITIBILITY	0	LACK OF TECHNICAL SUITIBILITY	0
PSYCHOLOGICAL EFFECT (C)	ENTERTAINMENT	TV / MUSIC BROADCAST	NOT EXIST	-1	NOT EXIST	-1
	ARTWORKS	PAINTING / SCRULPTURE / BOTH OF THEM	NOT EXIST	-1	NOT EXIST	-1
	OUTDOOR VIEW (LANDSCAPE)	EXIST OR NOT	EXIST	1	NOT EXIST	-1
	GENERAL COLOUR CHOICE	LIGHT TONE / DARK TONE WARM COLOUR / COLD COLOUR	LIGHT TONE / WARM COLOUR	1	LIGHT TONE / WARM COLOUR	1
REQUIRED VALUES ARE IN THE RANGE OF 0-15 POINTS				TOTAL: 2 POINTS		TOTAL: 2 POINTS

Figure 17. Score Table of General Intensive Care Unit of Kanuni Sultan Suleyman Training and Research Hospital

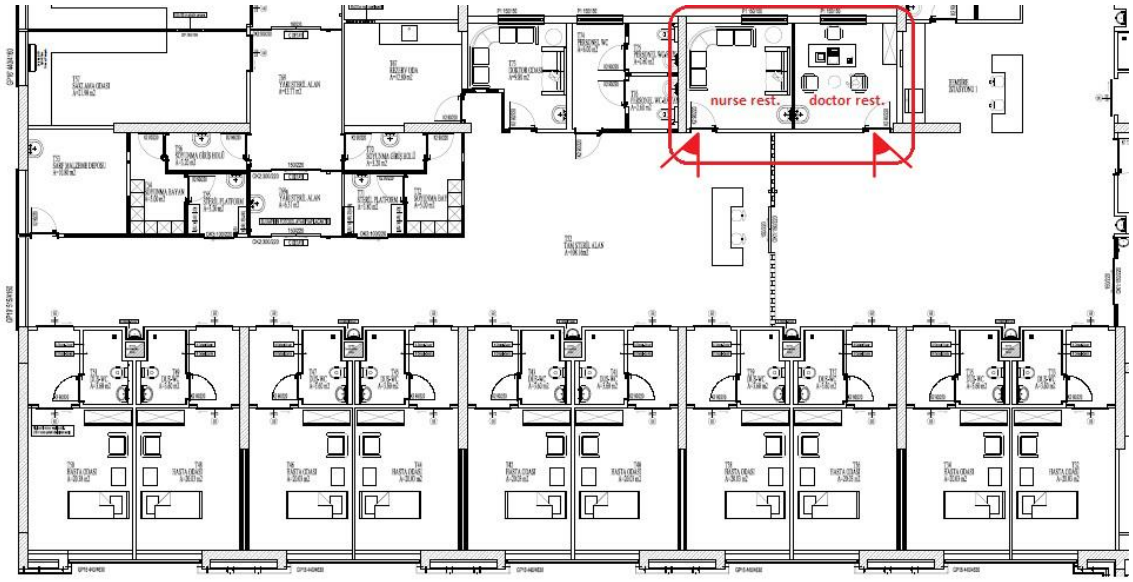

Figure 18. Additional/New Intensive Care Unit Floor Plan of Kanuni Sultan Suleyman Training and Research Hospital

Additional/New Intensive Care Unit Nurse Restroom:

- Recreation Area 11, 80 m2.
- It is possible to see inpatients from the resting area.
- There is direct access to inpatients from the break room.
- There is a window in the break area.
- There is a no counter for the kitchen function in the resting area.
- The nurse in charge and the nurse break room are not separate.
- Both natural and artificial lighting are available.
- The seats are in the shape of a sofa and covered with leather.
- The environment is ventilated with natural ventilation and mechanical ventilation system.
- 86 db. the sound level was measured.
- The floor material is PVC coating.
- The walls are painted.
- Ceiling material is in the form of flat drywall.
- The beige color is preferred as the color of the space.
- Existing windows do not have natural views.
- There is no art work in the area.

- Technological devices where they can spend time and have fun are included.

Figure 19. Additional/New Intensive Care Unit Nurse Restroom of Kanuni Sultan Suleyman Training and Research Hospital

Additional/New Intensive Care Unit Doctor Restroom:

- Recreation Area 11.40 m2.
- It is not possible to see the patients lying in the rest area.
- There is not direct access to inpatients from the rest area.
- There is a window in the relaxation area.
- There is no counter for kitchen function in the resting area.
- The responsible doctor and the doctor's break room are not separate.
- Both natural and artificial lighting are available.
- The seats are in the shape of a sofa and covered with leather.
- The environment is ventilated with natural ventilation and mechanical ventilation system.
- 85 db. the sound level was measured.
- The floor material is PVC coating.
- The walls are painted.
- The ceiling material is in the form of flat drywall.
- The beige color was preferred as the color of the space and purple color, which is a warm tone, was preferred for the furniture.
- Existing windows doesn’t offer landscape views.
- There is no art work in the area.

- Technological devices where they can spend time and have fun are not included.

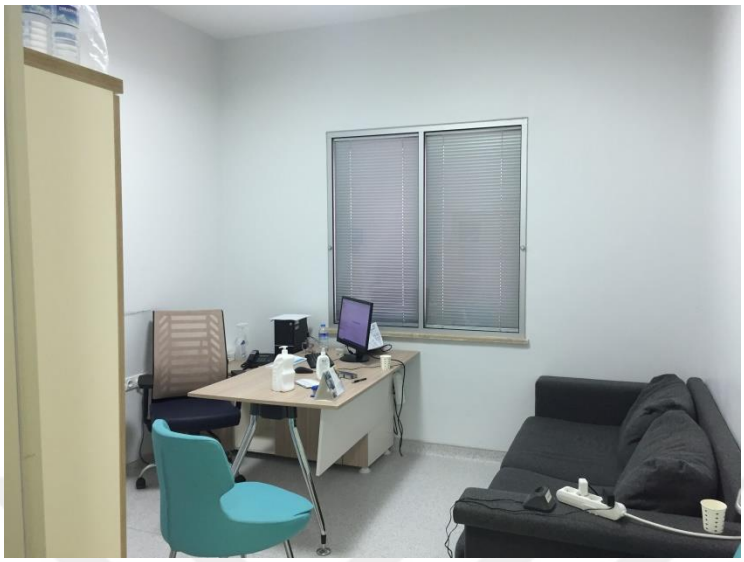

Figure 20. Additional/New Intensive Care Unit Doctor Restroom of Kanuni Sultan Suleyman Training and Research Hospital

	CRITERIA	CONDITIONS	KANUNI SULTAN SULEYMAN E.A.H.			
			DOCTOR REST ROOM		NURSE REST ROOM	
			RESULTS	SCORE	RESULTS	SCORE
SPATIAL FEATURES (A)	DIMENSION	M2	11.40 M2	-1	11.80 M2	-1
	LOCATION	COMMUNICATION	CONVENIENT	-1	CONVENIENT	1
		DISTANCE TO THE BED AREA	FAR AWAY	-1	CLOSE / NOT OPPOSED	0
	WINDOW OPENING	EXIST OR NOT	EXIST	0	EXIST	0
	DINING AREA	IN THE ROOM / OUTSIDE THE ROOM / BOTH OF THEM	NOT EXIST	-1	NOT EXIST	-1
	SEPARATE OR COMBINED AREAS	ONE ROOM / SEPARATE ROOM	NOT SEPERATE	-1	NOT SEPERATE	-1
PHYSICAL CONDITIONS (B)	LIGHTING SYSTEM	NATURAL LIGHT / ARTIFICIAL LIGHT / BOTH OF THEM	HYBRID	1	HYBRID	1
	FURNITURE FEATURES	SEATING GROUP / DINING GROUP / BOTH OF THEM	SEATING GROUP	0	SEATING GROUP	0
	VANTILATION SYSTEM	NATURAL / ARTIFICIAL / BOTH OF THEM	HYBRID	1	HYBRID	1
	NOISE CONTROL	HIGH / LOW	HIGH	-1	HIGH	-1
	MATERIALS	HYGIENE / USAGE / DURABILITY / TECHNICAL SUITIBILITY	LACK OF TECHNICAL SUITIBILITY	0	LACK OF TECHNICAL SUITIBILITY	0
PSYCHOLOGICAL EFFECT (C)	ENTERTAINMENT	TV / MUSIC BROADCAST	NOT EXIST	1	EXIST	1
	ARTWORKS	PAINTING / SCRULPTURE / BOTH OF THEM	NOT EXIST	-1	NOT EXIST	-1
	OUTDOOR VIEW (LANDSCAPE)	EXIST OR NOT	NOT EXIST	-1	NOT EXIST	-1
	GENERAL COLOUR CHOICE	LIGHT TONE / DARK TONE WARM COLOUR / COLD COLOUR	LIGHT TONE / WARM COLOUR	1	LIGHT TONE / WARM COLOUR	1
REQUIRED VALUES ARE IN THE RANGE OF 0-15 POINTS				TOTAL: -4 POINTS		TOTAL: -1 POINTS

Figure 21. Score Table of Additional Intensive Care Unit of Kanuni Sultan Suleyman Training and Research Hospital

4.1.2. Izmir Private Kent Hospital

Izmir Private City Hospital is in the City Health Group. It was put into service in 2004. It has a closed area of 40 thousand square meters in Çiğli, İzmir. It is a fully equipped private hospital where advanced health services are provided. Kent Hospital gathers all services from medical oncology to radiotherapy, from nuclear medicine to cancer surgery under one roof. In addition, it aims to be the reference center of Turkey in the diagnosis and treatment of cancer with its Oncology Center. The hospital has a busy schedule with many specialty surgeries performed from organ transplants to aortic surgery, from brain tumors to cancer surgery. In terms of Intensive Care Units, they worked as the 3rd level, that is, the most intensive ICU hospitals (Kent Saglik Grubu, 2020).

The Intensive Care Unit is next to the Operating Room. Therefore, ICU and operating room staff rest areas are in the form of common use. In the field study carried out in İzmir Private City Hospital, the observation-based study was carried out within the framework of previously determined design criteria in the Intensive Care Units Staff Break Rooms. In this ICU area, the doctor, nurse and common staff resting areas are separate, and evaluations were made for three separate places. As a result of this study, the following data were obtained:

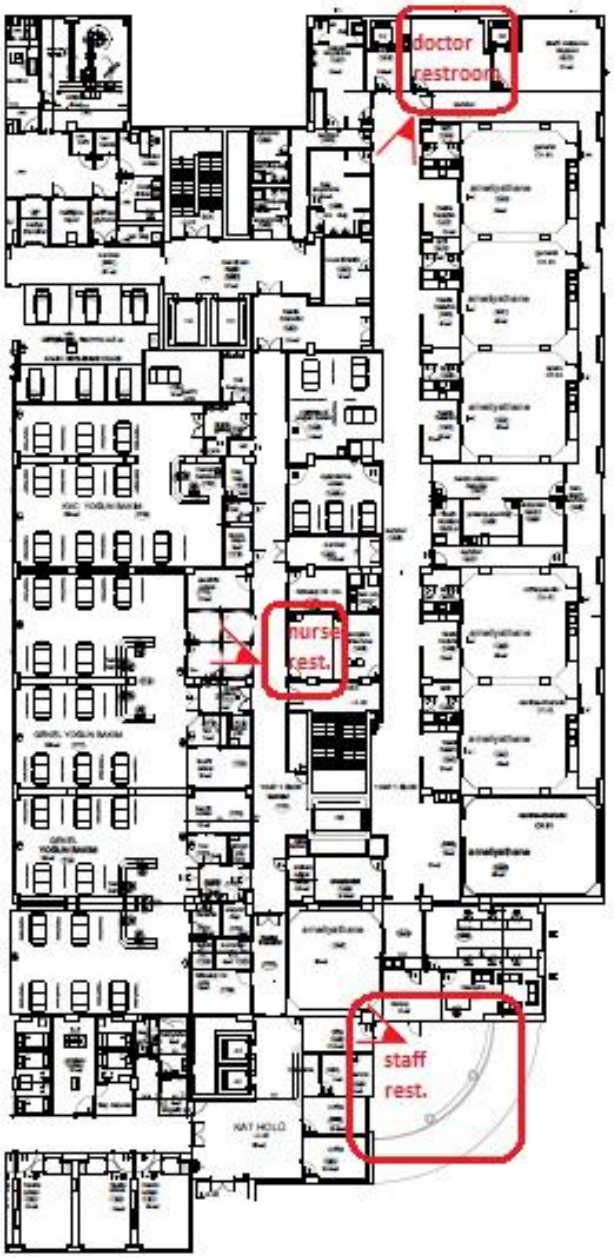

Figure 22. Intensive Care Unit Floor Plan of Izmir Private Kent Hospital

General Intensive Care Unit Nurse Restroom:

- Recreation Area 13, 65 m2.
- It is possible to see inpatients from the resting area.
- There is direct access to inpatients from the rest area.
- There is not a window in the relaxation area.
- There is a counter for the kitchen function in the resting area.
- The nurse in charge and the nurse breaking room are not separate.
- Both natural and artificial lighting are not available.

- The seats are in the shape of a sofa and covered with fabric.
- There is not natural ventilation and only mechanical ventilation system in the area.
- 89 db. sound level was measured.
- Floor material is PVC coating.
- The walls are painted.
- The ceiling material is in the form of acoustic square panels.
- The beige color is preferred as the color of the space.
- There is no natural view in the area.
- There is no art work in the area.
- Technological devices where they can spend time and have fun are not included.

Figure 23. General Intensive Care Unit Nurse Restroom of Izmir Private Kent Hospital

General Intensive Care Unit Doctor Restroom:

- Recreation Area 23.00 m2.
- It is not possible to see the patients lying in the rest area.
- There is not direct access to inpatients from the rest area.
- There is a window in the relaxation area.
- There is a counter for kitchen function in the resting area.
- The responsible doctor and the doctor's break room are separate.
- Both natural and artificial lighting are available.
- The seats are in the shape of a sofa and covered with leather.

- The environment is ventilated with natural ventilation and mechanical ventilation system.
- 86 db. sound level was measured.
- Floor material is PVC coating.
- The walls are painted.
- The ceiling material is in the form of acoustic square panels.
- The beige color was preferred as the color of the space and purple color, which is a warm tone, was preferred for the furniture.
- Existing windows offer landscape views.
- There is no art work in the area.
- Technological devices where they can spend time and have fun are not included.

Figure 24. General Intensive Care Unit Doctor Restroom of Izmir Private Kent Hospital

General Staff Restroom:

- Recreation Area 44.85 m2.
- It is not possible to see the patients lying in the rest area.
- There is not direct access to inpatients from the rest area.
- There is a window in the relaxation area.
- There is no counter for kitchen function in the resting area.
- The responsible doctor’ and the nurse' break room are separate.
- Both natural and artificial lighting are available.
- The seats are in the shape of a sofa and covered with leather.

- The environment is ventilated with natural ventilation and mechanical ventilation system.
- 86 db. sound level was measured.
- The floor material is PVC coating.
- The walls are painted.
- The ceiling material is in the form of acoustic square panels.
- The beige color was preferred as the color of the space and purple color, which is a warm tone, was preferred for the furniture.
- Existing windows offer landscape views.
- There is no art work in the area.
- Technological devices where they can spend time and have fun are not included.

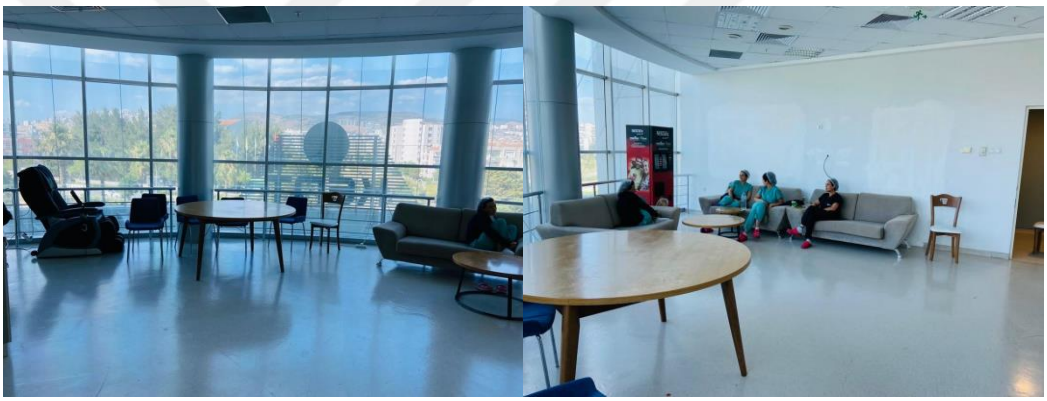

Figure 25. General Intensive Care Unit Staff Restroom of Izmir Private Kent Hospital

	CRITERIA	CONDITIONS	İZMİR PRIVATE KENT HOSPITAL					
			DOCTOR REST ROOM		NURSE REST ROOM		STAFF REST ROOM	
			RESULTS	SCORE	RESULTS	SCORE	RESULTS	SCORE
SPATIAL FEATURES (A)	DIMENSION	M2	23.00 M2	1	13.65 M2	-1	44.85 M2	1
	LOCATION	COMMUNICATION	NOT CONVENIENT	-1	CONVENIENT	1	NOT CONVENIENT	-1
		DISTANCE TO THE BED AREA	FAR AWAY	-1	CLOSE	1	FAR AWAY	-1
	WINDOW OPENING	EXIST OR NOT	EXIST	0	NOT EXIST	-1	EXIST	0
	DINING AREA	IN THE ROOM / OUTSIDE THE ROOM / BOTH OF THEM	EXIST	1	EXIST	1	NOT EXIST	-1
	SEPARATE OR COMBINED AREAS	ONE ROOM / SEPARATE ROOM	NOT SEPERATE	-1	NOT SEPERATE	-1	NOT SEPERATE	-1
PHYSICAL CONDITIONS (B)	LIGHTING SYSTEM	NATURAL LIGHT / ARTIFICIAL LIGHT / BOTH OF THEM	HYBRID	1	ARTIFICIAL LIHGT	-1	HYBRID	1
	FURNITURE FEATURES	SEATING GROUP / DINING GROUP / BOTH OF THEM	SEATING GROUP	0	SEATING GROUP	0	SEATING GROUP	0
	VANTILATION SYSTEM	NATURAL / ARTIFICIAL / BOTH OF THEM	HYBRID	1	HYBRID	-1	HYBRID	1
	NOISE CONTROL	HIGH / LOW	HIGH	-1	HIGH	-1	HIGH	-1
	MATERIALS	HYGIENE / USAGE / DURABILITY / TECHNICAL SUITIBILITY	LACK OF TECHNICAL SUITIBILITY	0	LACK OF TECHNICAL SUITIBILITY	0	LACK OF TECHNICAL SUITIBILITY	0
PSYCHOLOGICAL EFFECT (C)	ENTERTAINMENT	TV / MUSIC BROADCAST	NOT EXIST	-1	NOT EXIST	-1	NOT EXIST	-1
	ARTWORKS	PAINTING / SCRULPTURE / BOTH OF THEM	NOT EXIST	-1	NOT EXIST	-1	NOT EXIST	-1
	OUTDOOR VIEW (LANDSCAPE)	EXIST OR NOT	EXIST	1	NOT EXIST	-1	EXIST	1
	GENERAL COLOUR CHOICE	LIGHT TONE / DARK TONE WARM COLOUR / COLD COLOUR	LIGHT TONE / WARM COLOUR	1	LIGHT TONE / WARM COLOUR	1	LIGHT TONE / WARM COLOUR	1
REQUIRED VALUES ARE IN THE RANGE OF 0-15 POINTS				TOTAL: 0 POINTS		TOTAL: -5 POINTS		TOTAL: -2 POINTS

Figure 26. Score Table of Intensive Care Unit of Izmir Private Kent Hospital

4.1.3. Büyükçekmece Mimar Sinan State Hospital

Büyükçekmece Mimar Sinan State Hospital is located on the European side of Istanbul, in one of the most densely populated areas. The hospital became operational on 01.06.2018 under the name of Büyükçekmece Mimar Sinan State Hospital. The hospital has an adult general intensive care unit, 2nd level with 5 beds, and 3rd level intensive care bed units with 5 beds. It provides services with advanced technological infrastructure and a multidisciplinary approach. In addition, hemofiltration and hemodialysis systems are always ready for use. All laboratory and imaging procedures are performed. It has waiting, information and rest areas for patient relatives and staff (Büyükçekmece Mimar Sinan State Hospital, 2021).

In the field study carried out in Büyükçekmece Mimar Sinan State Hospital, an observational study was carried out within the framework of the determined design criteria in the Intensive Care Units Staff Break Rooms. In this ICU area, doctor and nurse resting areas are separate and evaluations were made for two separate places. As a result of this study, the following data were obtained:

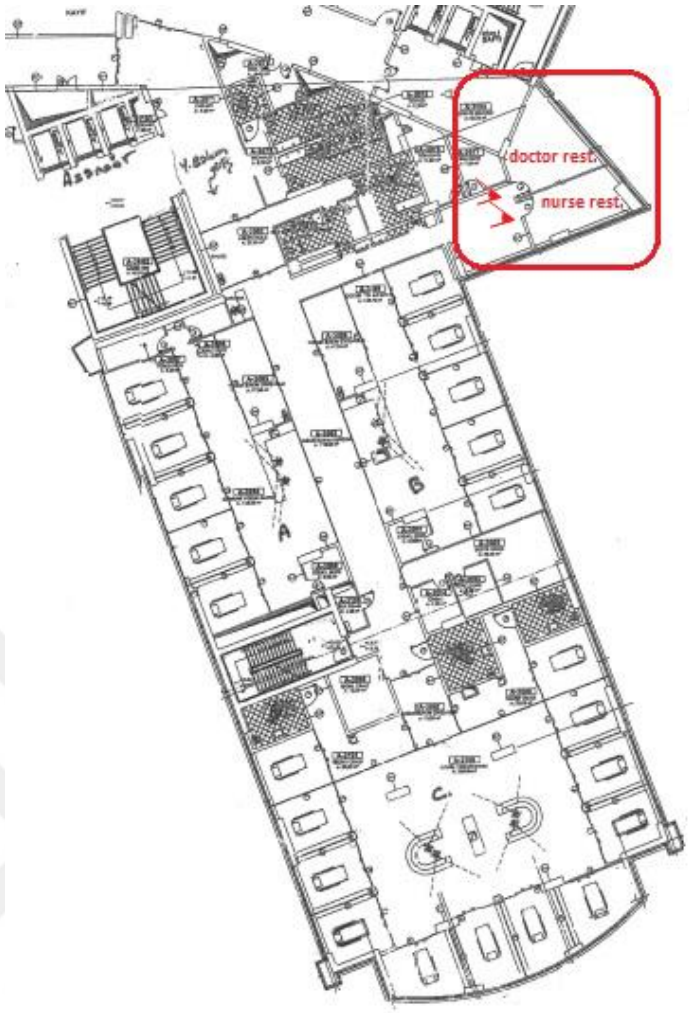

Figure 27. Intensive Care Unit Floor Plan of Büyükçekmece Mimar Sinan State Hospital

General Intensive Care Unit Nurse Restroom:

- Recreation Area 18.00 m2.
- It is not possible to see inpatients from the resting area.
- There is not direct access to inpatients from the rest area.
- There is a window in the relaxation area.
- There is a counter for the kitchen function in the resting area.
- The nurse in charge and the nurse break room are separate.
- Both natural and artificial lighting are available.
- The seats are in the shape of a sofa and covered with leather.
- The environment is ventilated with natural ventilation and mechanical ventilation system.

- 86 db. sound level was measured.
- The floor material is PVC coating.
- The walls are painted.
- The ceiling material is in the form of flat drywall.
- The beige color is preferred as the color of the space.
- Existing windows do not have natural views.
- There is no art work in the area.
- Technological devices where they can spend time and have fun are included.

Figure 28. General Intensive Care Unit Nurse Restroom of Büyükçekmece Mimar Sinan State Hospital

General Intensive Care Unit Doctor Restroom:

- Recreation Area 23.00 m2.
- It is not possible to see the patients lying in the rest area.
- There is not direct access to inpatients from the rest area.
- There is a window in the relaxation area.
- There is no counter for kitchen function in the resting area.
- The responsible doctor and the doctor's break room are separate.
- Both natural and artificial lighting are available.
- The seats are in the shape of a sofa and covered with leather.
- The environment is ventilated with natural ventilation and mechanical ventilation system.
- 85 db. sound level was measured.
- The floor material is PVC coating.
- The walls are painted.

- The ceiling material is in the form of flat drywall.
- The beige color was preferred as the color of the space and purple color, which is a warm tone, was preferred for the furniture.
- Existing windows offer landscape views.
- There is no art work in the area.
- Technological devices where they can spend time and have fun are not included.

Figure 29. General Intensive Care Unit Doctor Restroom of Büyükçekmece Mimar Sinan State Hospital

	CRITERIA	CONDITIONS	BÜYÜKÇEKMECE MİMAR SİNAN STATE HOSPITAL			
			DOCTOR REST ROOM		NURSE REST ROOM	
			RESULTS	SCORE	RESULTS	SCORE
SPATIAL FEATURES (A)	DIMENSION	M2	23.00 M2	1	18.00 M2	-1
	LOCATION	COMMUNICATION	CONVENIENT	-1	CONVENIENT	-1
		DISTANCE TO THE BED AREA	FAR AWAY	-1	FAR AWAY	-1
	WINDOW OPENING	EXIST OR NOT	EXIST	0	EXIST	0
	DINING AREA	IN THE ROOM / OUTSIDE THE ROOM / BOTH OF THEM	NOT EXIST	-1	EXIST	1
	SEPARATE OR COMBINED AREAS	ONE ROOM / SEPARATE ROOM	SEPERATE	1	SEPERATE	1
PHYSICAL CONDITIONS (B)	LIGHTING SYSTEM	NATURAL LIGHT / ARTIFICIAL LIGHT / BOTH OF THEM	HYBRID	1	HYBRID	1
	FURNITURE FEATURES	SEATING GROUP / DINING GROUP / BOTH OF THEM	SEATING GROUP	0	SEATING GROUP	0
	VANTILATION SYSTEM	NATURAL / ARTIFICIAL / BOTH OF THEM	HYBRID	1	HYBRID	1
	NOISE CONTROL	HIGH / LOW	HIGH	-1	HIGH	-1
	MATERIALS	HYGIENE / USAGE / DURABILITY / TECHNICAL SUITIBILITY	LACK OF TECHNICAL SUITIBILITY	0	LACK OF TECHNICAL SUITIBILITY	0
PSYCHOLOGICAL EFFECT (C)	ENTERTAINMENT	TV / MUSIC BROADCAST	NOT EXIST	-1	NOT EXIST	-1
	ARTWORKS	PAINTING / SCRULPTURE / BOTH OF THEM	NOT EXIST	-1	NOT EXIST	-1
	OUTDOOR VIEW (LANDSCAPE)	EXIST OR NOT	EXIST	1	NOT EXIST	-1
	GENERAL COLOUR CHOICE	LIGHT TONE / DARK TONE WARM COLOUR / COLD COLOUR	LIGHT TONE / WARM COLOUR	1	LIGHT TONE / WARM COLOUR	1
REQUIRED VALUES ARE IN THE RANGE OF 0-15 POINTS				TOTAL: 0 POINTS		TOTAL: -2 POINTS

Figure 30. Score Table of Intensive Care Unit of Büyükçekmece Mimar Sinan State Hospital

4.1.4. Survey Results

A total of 37 people participated in the survey conducted within the scope of the thesis study. All of the staff consists of staff working in intensive care units. Participants were randomly selected. Responses to the survey are summarized below:

1. The genders of the participants were asked. 25/37 (68%) of the respondents were female and 12/37 (32%) were male.

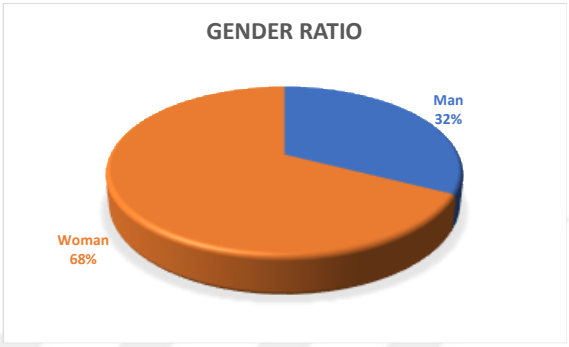

Figure 31. Survey Responses_ Question 1

2. The age of the participants was asked. There are no over 50 years old. 16/37 (43%) are in the 30-39 years old range, 16/37 (43%) are in the 20-29 years old range, 5/37 (%14) are in the 40-49 years old range.

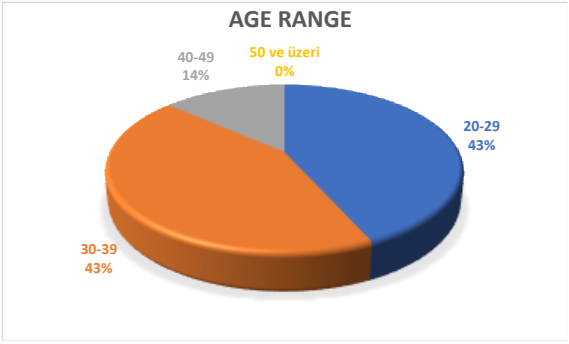

Figure 32. Survey Responses_ Question 2

3. The work experience in ICU of the participants was asked, below 20 years, 4/37 (11%) are in the range of 10-20 years, 8/37 (22%) are in the range of 10-5 years, 25/37 (67%) are in the range of 1-5 years.

Figure 33. Survey Responses_ Question 3

4. The question “Are the spatial dimensions of your rest area sufficient?” was asked and, while 13/37 (35%) of the participants found it sufficient, 24/37 (65%) said it is insufficient.

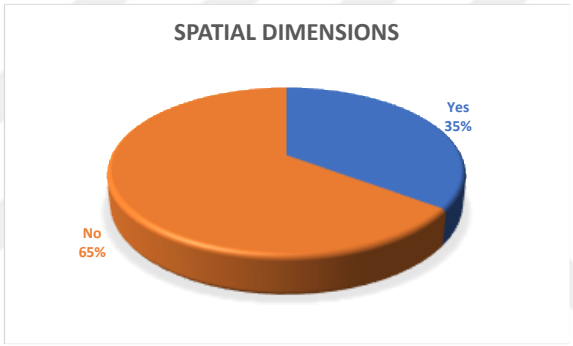

Figure 34. Survey Responses_ Question 4

5. The question "Is the location of your rest area close to the patient bed area?" was asked and 34/37 (92%) of the participants said yes, 3/37 (8%) said no.

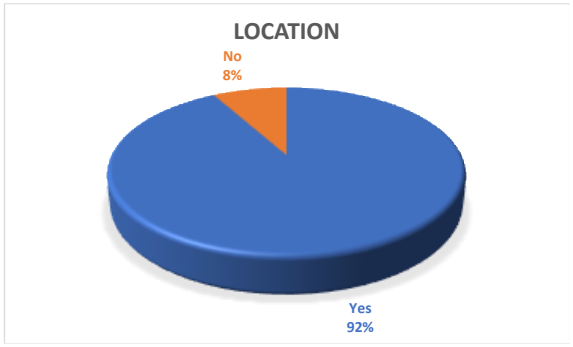

Figure 35. Survey Responses_ Question 5

6. When the respondents were asked about the location of the rest area relative to the patients, they all stated that it should be close to the patient area because the rest periods are very short.

7. The question "Is there a counter area / kitchenette used for eating / drinking in your rest area?" was asked and 31/37 (84%) of the participants said yes, while 6/37 (16%) said no.

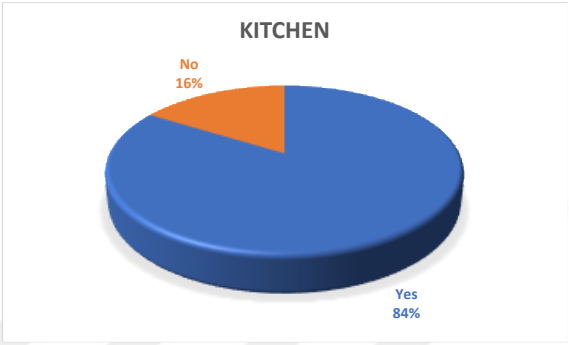

Figure 36. Survey Responses_ Question 7

8. The question about the location of the counter area / kitchenette is answered by participants and 21/37 (57%) of them wants inside of the break room and 14/ 37 (38%) of them wants outside of the break room.

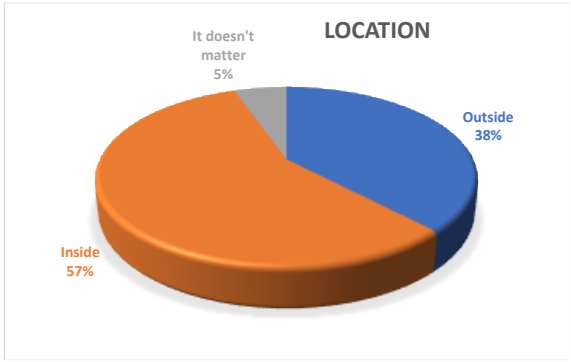

Figure 37. Survey Responses_ Question 8

9. "Does the colors used in the floor, wall, ceiling and furniture in your resting area affect your work / rest / eating activity?" to the question, 13/37 (35%) of the participants answered that it affects, 9/37 (24%) does, 10/37 (27%) is undecided, 11% not affects, and 3% does not.

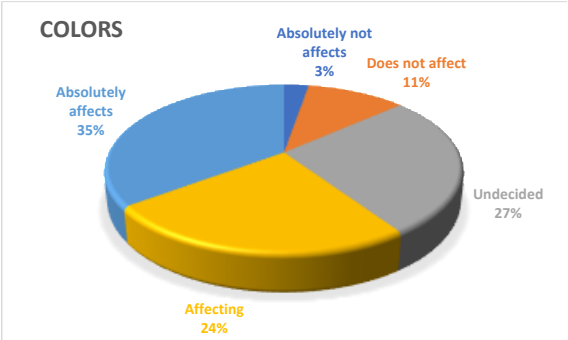

Figure 38. Survey Responses_ Question 9

10. "How important is the color choice in terms of your spatial satisfaction?" to the question 13/37 (35%) of the participants answered that it absolutely affects, 13/37 (35%) does, 11/37 (30%) is undecided, 2/37 (5%) not affects, and 0% absolutely does not.

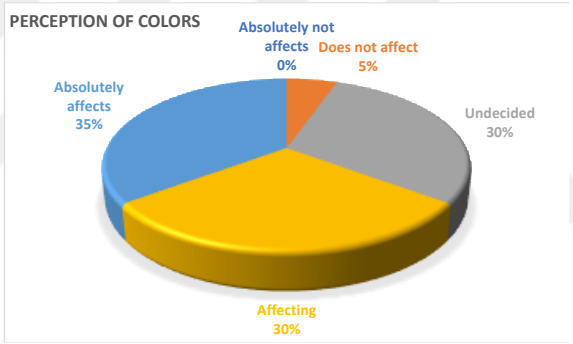

Figure 39. Survey Responses_ Question 10

11. "Which color tones in the visuals do you prefer in your resting area? " to the question 12/37 (33%) of the participants choose visual 5, 10/37 (27%) of the participants choose visual 4, 7/37 (20%) of the participants choose visual 3, 5/37 (13%) of the participants choose visual 2, 3/37 (7%) of the participants choose visual 1.

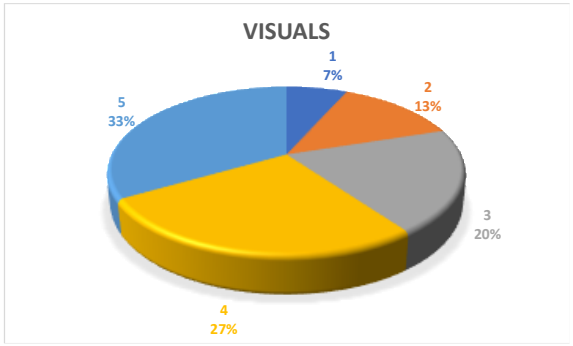

Figure 40. Survey Responses_ Question 11

12. "Which color tones do you prefer in materials in your resting area? " to the question 13/37 (35%) choose white color, 6/37 (17%) choose blue color, 5/37 (15%) choose green color, 4/37 (10%) choose orange color, 3/37 (6%) choose yellow color, 2/37 (4%) choose red color, 2/37 (4%) choose purple color, 2/37 (4%) choose pale pink, 1/37 (3%) choose brown and 1/37 (2%) choose black color for the material in rest area.

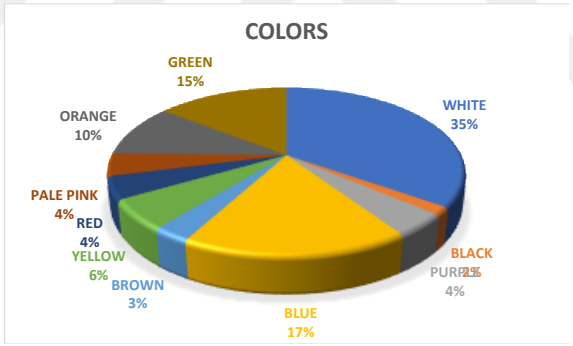

Figure 41. Survey Responses_ Question 12

13. "Do the materials used on the floor, wall and ceiling affect your work / rest / use? (ceramic, PVC, wallpaper, paint, sound-absorbing ceiling material etc...)" to the question 12/37 (32%) of the participants answered that it absolutely affects, 15/37 (41%) does, 8/37 (22%) is undecided, 2/37 (5%) not affects, and 0% does not.

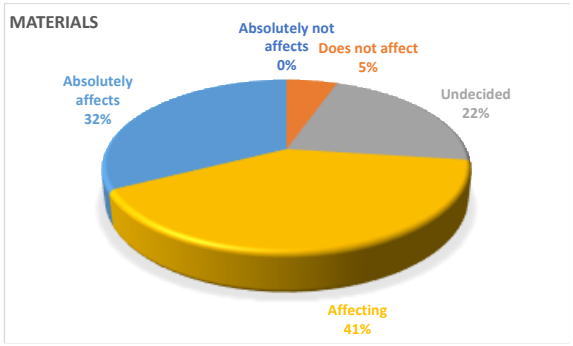

Figure 42. Survey Responses_ Question 13

14. "Are the materials used on the floor, wall and ceiling in your resting area suitable for usability / hygiene?" to the question 12/37 (32%) of the participants answered that it absolutely affects, 15/37 (41%) does, 8/37 (22%) is undecided, 2/37 (5%) not affects, and 0% absolutely does not.

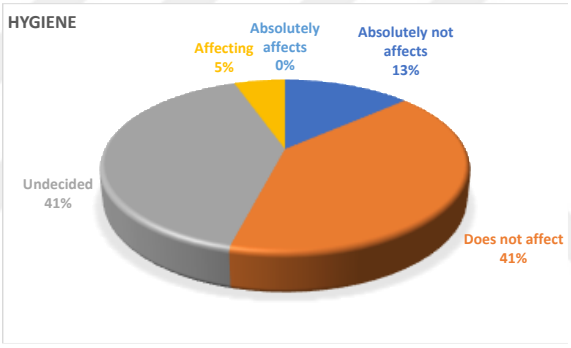

Figure 43. Survey Responses_ Question 14

15. "Is the furniture used in your rest area suitable for your physical use?" to the question 12/37 (32%) of the participants answered that it affects, 0% does, 3/37 (9%) is undecided, 17/37 (47%) not affects, and 1/37 (3%) does not.

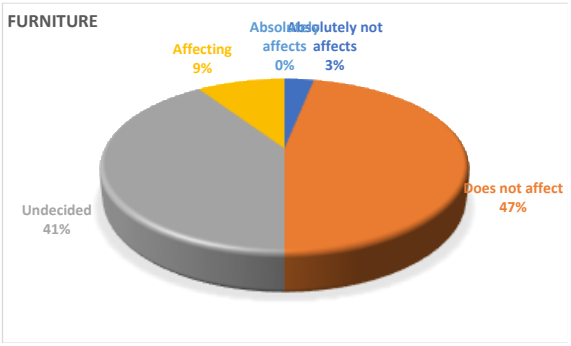

Figure 44. Survey Responses_ Question 15

16. "Does the placement of the furniture used in your rest area provide flexibility?" to the question, it was determined that 9/37 (24%) did not affect it clearly, and that the majority of the total percentage, together with the others, thought negatively.

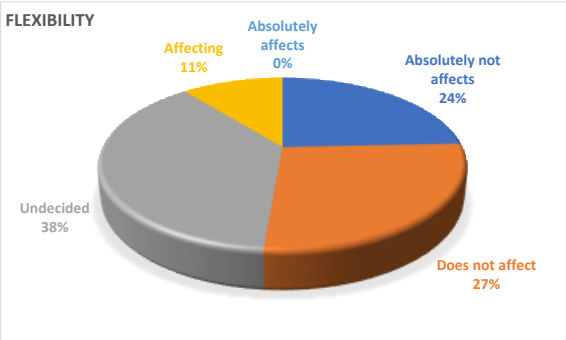

Figure 45. Survey Responses_ Question 16

17. "How important is furniture in terms of your spatial satisfaction?" to the question 17/37 (46%) of the participants answered that it absolutely affects, 10/37 (27%) does, 8/37 (22%) is undecided, 2/37 (5%) not affects, and 0% absolutely does not.

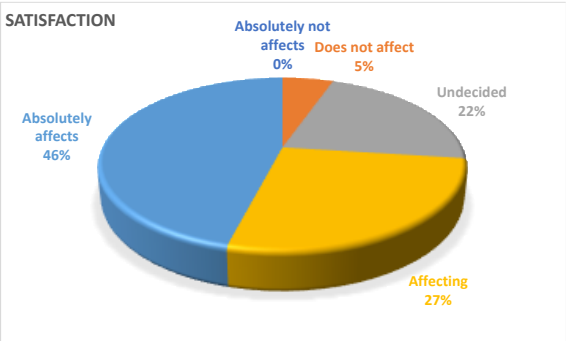

Figure 46. Survey Responses_ Question 17

18. "Which do you think is more important in the materials used in the space?" to the question 29/37 (78%) of the participants choose ergonomics, 7/37 (13%) of the participants choose cleanability, 1/37 (3%) of the participants choose visuality, 0% of the participants choose durability.

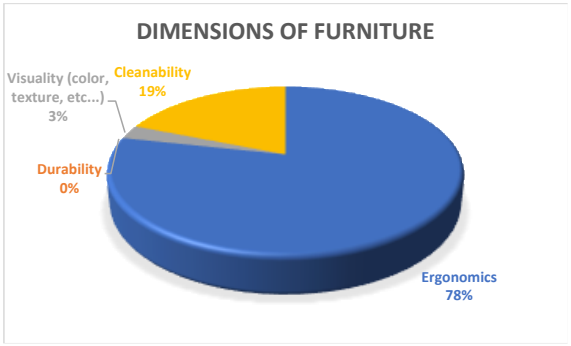

Figure 47. Survey Responses_ Question 18

19. "Does the furniture meet the need in terms of size and number?" was asked and 21/37 (57%) of the participants said yes, while 16/37 (43%) said no.

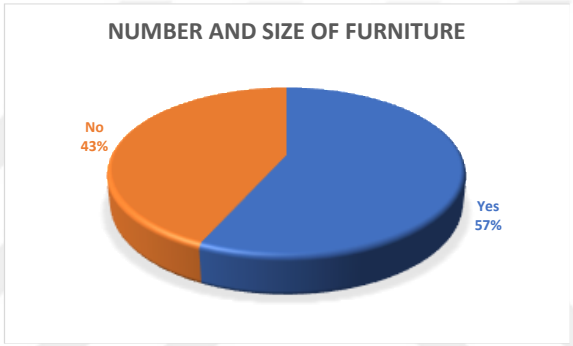

Figure 48. Survey Responses_ Question 19

20. "Do you think there is more furniture than it should be?" was asked and 35/37 (95%) of the participants said yes, while 2/37 (5%) said no.

Figure 49. Survey Responses_ Question 20

21. "Is it important to you whether the lighting is natural or artificial?" was asked and 2/37 (5%) of the participants said yes, while 35/37 (95%) said no.

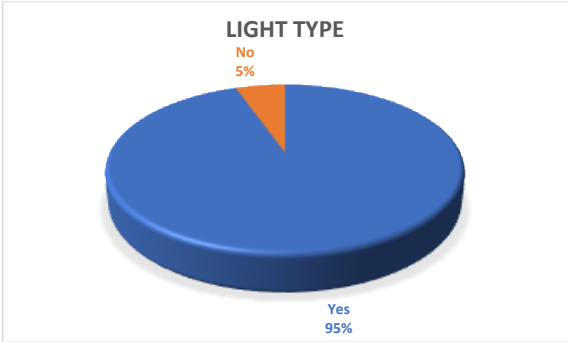

Figure 50. Survey Responses_ Question 21

22. "Is natural and artificial lighting sufficient for you in your relaxation area?" was asked and 25/37 (68%) of the participants said yes, while 12/37 (32%) said no.

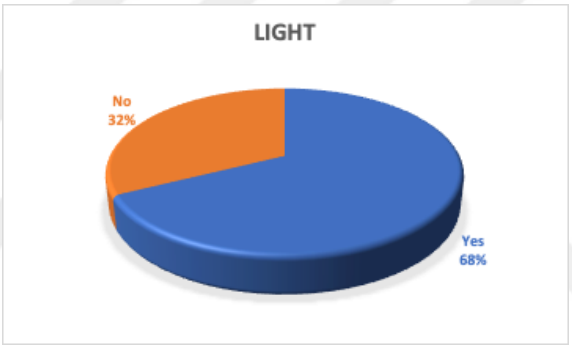

Figure 51. Survey Responses _Question 22

23. "If the lighting is not enough, why don't you see enough? For which function would you expect it to increase?" was asked an most of them want natural light in-side the room.

24. "How important is noise control in your relaxation area to you?" to the question 29/37 (78%) of the participants answered that it affects, 8/37 (22%) does, 0% is undecided, 0% not affects, and 0% does not.

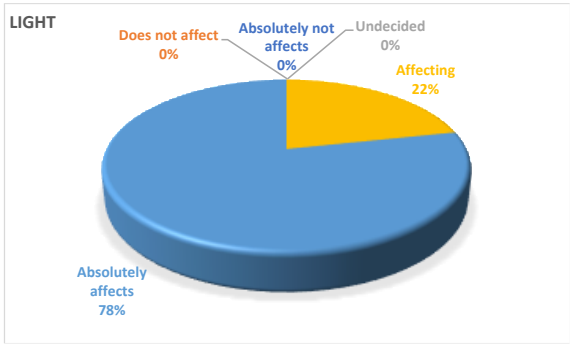

Figure 52. Survey Responses _Question 24

25. "Do you have any problems with noise control?" was asked and 32/37 (86%) of the participants said yes, while 5/37 (14%) said no.

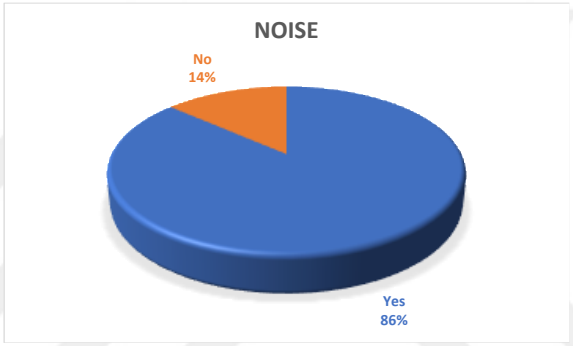

Figure 53. Survey Responses_ Question 25

26. "Do you have a problem with scent control? Is the ventilation system sufficient for these areas (Fresh / Clean air)?" was asked and 21/37 (57%) of the participants said yes, while 16/37 (43%) said no.

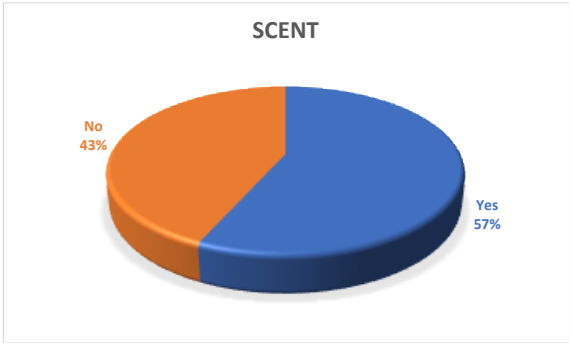

Figure 54. Survey Responses_ Question 26

27. "If you have a problem with odor control, fresh/fresh air (ventilation), do you have a suggestion for a solution?" The question was asked to be answered optionally. The participants stated that the direct fresh air coming from the window is important, that the ventilation systems should be checked frequently and that it is problematic, that different ventilation options should be offered, that it should be far from the patient area, and that they want the ventilation system to be of high quality and technological.

28. "Which art objects do you prefer in your relaxation area?" was asked. There are seven choices but only two of them are chosen. 30/37 (81%) of the participants choose nature related objects, 7/37 (19%) of the participants choose abstract work.

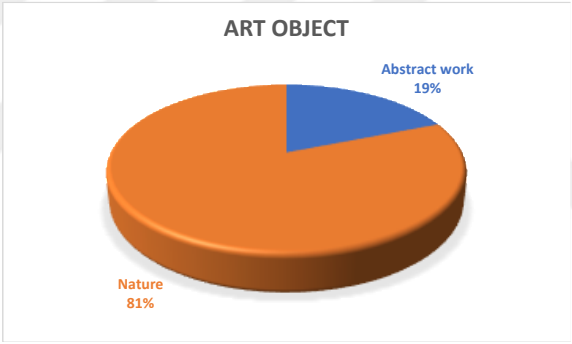

Figure 55. Survey Responses_ Question 28

29. "Which of the natural elements do you prefer in your relaxation area?" was asked. The following options were presented to the respondents to the questions of which artistic object would you like to have in the recreation area: nature, Still life, Human, Animal, abstract work, Relief (Relief works), Statue. Only two of these were requested. 30/37 (81%) are objects related to nature and 7/37 (19%) are abstract works.

30. "Do you feel a sense of belonging to your rest area?" was asked and 21/37 (57%) of the participants said yes, while 16/37 (43%) said no.

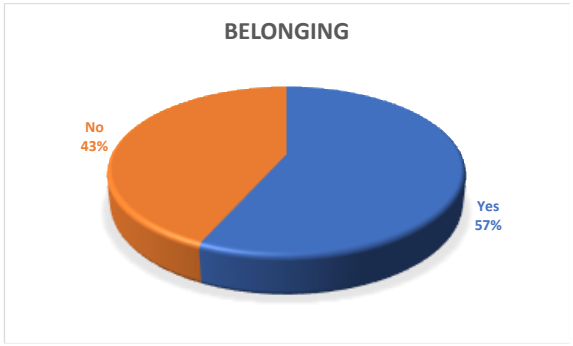

Figure 56. Survey Responses_ Question 30

31. "How important is the feeling of belonging in your relaxation area to you?" to the question 17/37 (46%) of the participants answered that it affects, 13/37 (35%) does, 7/37 (19%) is undecided, 0% not affects, and 0% does not.

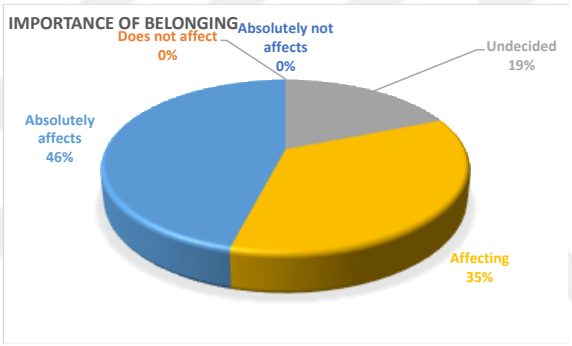

Figure 57. Survey Responses_ Question 31

32. "Do you prefer electronic devices such as TV / Music broadcasting for recreation / relaxation in your resting areas?" was asked and 33/37 (89%) of the participants said yes, while 4/37 (11%) said no.

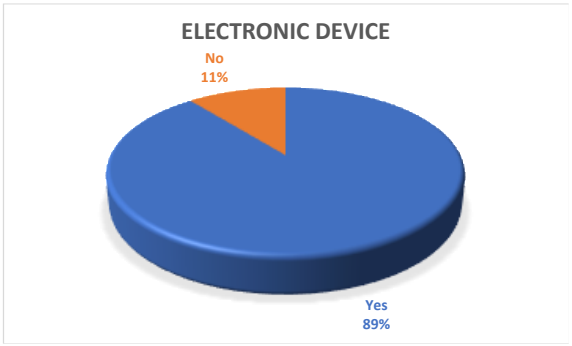

Figure 58. Survey Responses_ Question 32

4.2. Evaluation

Within the scope of this thesis, four separate staff-nurse-doctor resting areas, three hospitals and one additional intensive care unit, were examined. In addition to the observations, a survey was conducted with the intensive care unit staff in line with the examined issues.

Intensive care units, which are evaluated with 14 criteria, can get a minimum of 0 points if the staff rest areas meet all the standards at the optimum level according to the scoring system, and a maximum of 15 points if there are standards and they provide a better place. 9 areas were scored as Staff-Nurse-Doctor rest areas. As a result of scoring (Figure 59); It was observed that 4 areas received standard scores, and 5 areas received non-standard scores.

Kanuni Sultan Süleyman Education & Training Hospital	General Nurse Rest Areas	2
	General Doctor Rest Areas	2
	Additional Nurse Rest Areas	-1
	Additional Doctor Rest Areas	-4
İzmir Private Kent Hospital	Nurse Rest Areas	-5
	Doctor Rest Areas	0
	Staff Rest Areas	-2
Büyükçekmece Mimar Sinan State Hospital	Nurse Rest Areas	0
	Doctor Rest Areas	-2

Figure 59. ICU Staff Rest Areas Score Results

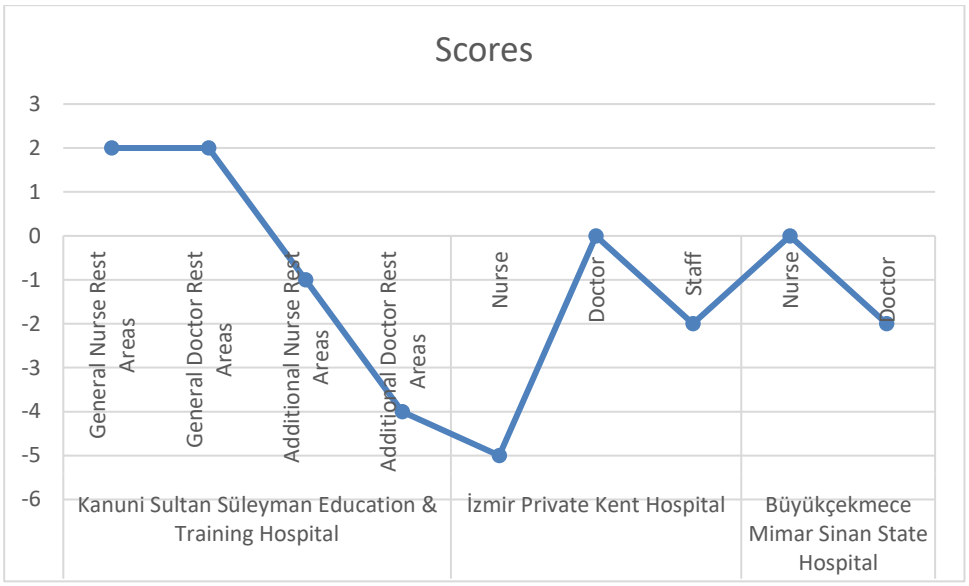

Figure 60. ICU Staff Rest Areas Score Graph

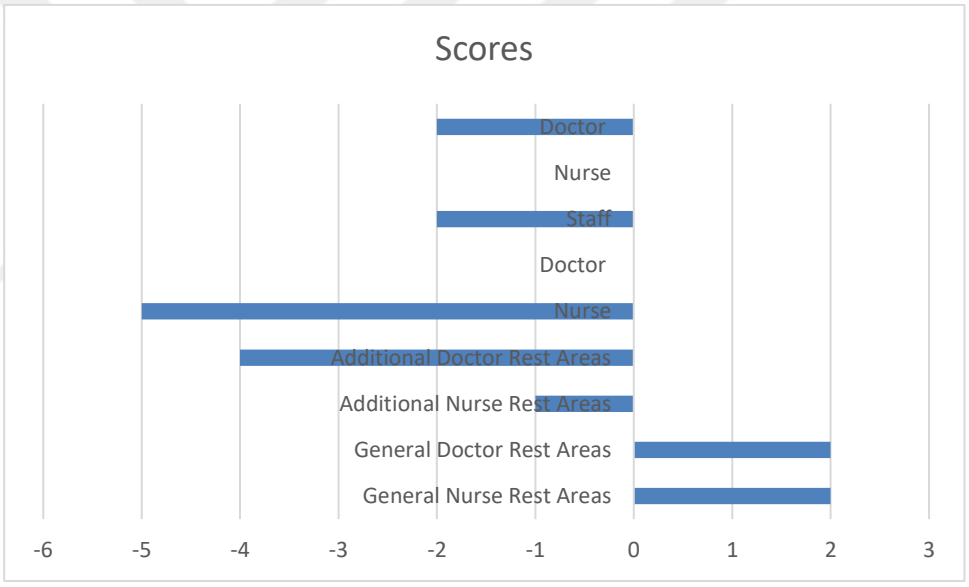

Figure 61. ICU Staff Rest Areas Score Interval

Kanuni Sultan Süleyman Training and Research Hospital Doctor and Nurse Rest areas were evaluated as the closest places to the ideal with plus 2 points. Due to the pandemic conditions and density in the same hospital, the staff rest areas located in the additional/newly opened intensive care unit were evaluated as insufficient spaces with minus scores below zero. Within the scope of the newly opened unit, the resting area conditions for the staff are considered insufficient.

In İzmir Private Kent Hospital, there is a general staff resting area in addition to the doctor and nurse rest areas. According to the given scoring system, it is seen that the nurse rest areas received the lowest score with -7 points in the evaluation. The doctor's rest area could not reach the ideal with -1 point. The area serving as the general staff rest area, on the other hand, received zero points and remained at the limit of the ideal evaluation.

There are two separate resting areas in Büyükçekmece Mimar Sinan Hospital. It is a newly built hospital compared to other hospitals. However, the recipients do not exceed the standard score. It was observed that the doctor's rest area in the intensive care unit received -2 points and scored non-standard points. The nurse rest area in the same unit, on the other hand, received a minimum score in the evaluation standard by getting zero points.

As a result of the field study; although the hospitals where the study was carried out were not very good ICU staff resting areas, it was observed that Kanuni Sultan Süleyman Training and Research Hospital General ICU resting areas were the closest to the ideal. Kent Hospital Nurse rest area is insufficient for the design of ideal staff resting areas due to the lowest score it received.

On the other hand, a questionnaire consisting of 32 questions was conducted with the Intensive Care Unit Staff. The questions cover the titles that make up the spatial, physical and psychological factors in the content. The percentages of the results obtained and the suggestions in the questions are stated. The scores given to the venues and the answers to the questionnaires were analyzed as three main topics:

4.2.1. Spatial Features

When evaluated spatially, the minimum area square meters that should be according to the intensive care size and density of the ICU Staff resting areas is given. According to these criteria, Kanuni Sultan Süleyman Training and Research Hospital General Intensive Care Unit doctor and nurse rest areas, İzmir Private Kent Hospital doctor and general staff rest areas and Büyükçekmece Mimar Sinan State Hospital doctor rest area are in the dimensions of the area that should be. Kanuni Sultan Süleyman Training and Research Hospital Additional Intensive Care Unit doctor and nurse rest areas, İzmir Private Kent Hospital and Büyükçekmece Mimar Sinan State

Hospital nurse rest areas do not meet the standard by getting minus points. Accordingly, 5 areas are sufficient. 4 areas do not provide the required measure.

In addition, to the question about the adequacy of the resting areas asked to the personnel in the survey study, 65% of the people stated that the areas were insufficient. On the other hand, 35% gave the appropriate rate.

ICU Staff rest areas, which are used according to both the results of the scoring in the hospital ICU areas and the rate of the answers given by the users in the survey results, are insufficient. It is also seen in the survey percentages that the field standards are given in the table (Figure 5) should be followed. Compliance with the space calculation rule determined for ICU personnel to rest and do leisure time activities during their busy times will provide more satisfaction for the staff.

On the other hand, the location of the ICU staff rest areas was evaluated according to the distance of the patient bed areas, the patient areas and their location. It has been accepted as a positive feature that the resting areas are close to the bed area so that they can reach the patients in emergency and necessary situations. According to these criteria, Kanuni Sultan Süleyman Training and Research Hospital General Intensive Care Unit doctor and nurse rest areas, İzmir Private Kent Hospital nurse and general staff rest areas and Büyükçekmece Mimar Sinan State Hospital doctor rest area are in the position they should be. Kanuni Sultan Süleyman Training and Research Hospital Additional Intensive Care Unit doctor and nurse rest areas, Kanuni Sultan Süleyman Training and Research Hospital Additional ICU doctor rest area and İzmir Kent Hospital nurse and general staff rest areas provide the standard with plus points. Accordingly, 5 areas are in the proper position. 4 areas do not meet the required standards.

In addition, to the question about the proximity and suitability of the location of the rest areas to the patient area, which was asked to the staff in the survey study, 92% of the people stated that the location was close and appropriate to the patient area. 8% gave the appropriate rate. When asked about the importance and preference of the rest area for the users to be close to the patient area, they stated that the rest periods are limited and therefore it should be close. It has been observed that the ICU Staff rest areas, which are used both according to the scoring results in the hospital ICU

areas and the rate of the answers given by the users in the survey results, are close to the patient bed area and are in communication.

Among the spatial features, the presence of a kitchen in the ICU Staff rest areas was a positive result for the staff. According to the investigations, there are counters for the kitchen area in the nurses and general staff rest areas of Izmir Kent Hospital and in the nurse resting area of the Büyükçekmece Mimar Sinan State Hospital. In the other 6 areas, there is no kitchen counter, but table tops or mini-fridges are used for eating and drinking needs. The need for kitchen space in the room was also supported by the survey. 57% of ICU users stated that kitchen countertops are needed in rest areas. On the other hand, 38% preferred to be out of the room. The majority of the percent preferred the kitchen area in the rest areas. Therefore, the presence of a kitchen counter in the room can be considered a positive feature for the user.

The importance of having window openings in the spaces was also stated spatially, and the only area that was not found was determined as the nurse rest area of İzmir Kent Hospital.

4.2.2. Physical Conditions

According to the criteria determined physically, the presence of natural lighting in addition to adequate artificial lighting in the spaces is foreseen as a positive feature. The only area where there is no natural light together with artificial lighting is the nurse rest area of İzmir Kent Hospital. In the survey studies, it stated that the type of light with 95% of it is not important. 68% of them stated that the natural light in the area is sufficient and 32% is insufficient. In addition, when asked whether the light system in the area is sufficient, the majority stated that the presence of natural light in the room would contribute. With the results of the survey, it was observed that there should be natural light in the ICU Staff rest areas.

The furniture that should be in the ICU staff rest areas is also important in terms of its placement, sufficiency and type. It was stated that there should be seating groups in terms of dining area, table area and comfortable resting, and score was made according to these criteria. In the survey study, it was tried to reach the results with the questions about the use of furniture, the adequacy, placement and type of

furniture groups. To the question asked in terms of furniture satisfaction of the users, 46% of the participants stated that the use of furniture is important.

Regarding the ventilation system, it was stated that it is important to have a natural ventilation system in addition to mechanical ventilation. The only area that does not have a natural ventilation system together with mechanical ventilation is the nurse rest area of İzmir Kent Hospital. Due to the pandemic conditions, natural ventilation has gained more importance. Therefore, it is a must-have feature for evaluation. According to the survey question about the ventilation system directed to the ICU Staff, the majority of the answers are that fresh air is required as well as an adequate ventilation system. It has been observed that it will also contribute to the survey.

The effects of the noise level on people and their precautions were mentioned. When the sound levels of the ICU staff rest areas of the selected hospitals were measured, all of them exceeded the maximum value of 85-90 dB and got negative points. In the survey questions, 78% of the staff stated that the sound level affects the resting well-being, and with another question, 86% stated that sound control in the resting areas is not appropriate. Both the survey results and the measured values showed that the desired measures were not taken for sound control in the resting areas.

All ICU staff rest areas are provided for 3 of the 4 items that should be included in the examinations made according to the material information that should be in hospital conditions. According to the survey questions directed to the users, the majority of the materials; stated that it is suitable in terms of usability, hygiene and durability. The observation and survey study also confirmed the suitability of the materials used in the areas.

4.2.3. Psychological Effect

In all of the areas, the choices of color preferences, which are at the top of the issues affecting psychology in the environments, are examined; It has been observed that color combinations are preferred by using light tones on walls, floors and ceilings, and warm tones in furniture. In addition, 35% of the respondents stated that color preferences affect the spaciousness in the rest areas. Among the visuals of the rest area, which has five different color options, the area dominated by white and light tones was chosen with the highest percentage of 27%. Among the color chart options, the 35% percent white color was deemed suitable for rest areas by the staff.

Both on-site observations and user preferences have confirmed that the use of light-warm color tones is appropriate in ICU rest areas. The choice of light colors, which is preferred in our hospitals, is positive as it creates spacious environments.

In the observations, there are 4 areas with landscape outdoor views in ICU staff rest areas, spaces with window openings, Izmir Kent Hospital doctor and general staff rest area, Büyükçekmece Mimar Sinan State Hospital doctor rest area and Kanuni Sultan Süleyman Training and Research Hospital general ICU doctor rest area. The other 5 areas do not have a landscape outdoor view. In addition, users also stated that they prefer the most natural landscape view in the resting areas.

Although it was stated that the art objects in the spaces had positive effects on the psychology of the people, it was observed that they were not in any of the ICU staff rest areas. For this reason, all staff rest areas are evaluated as negative points. When asked about the subject of art objects, which were directed to the staff, 81% stated that they preferred nature-themed objects and 19% preferred abstract works. For this reason, these choices can be taken into consideration for the art objects to be selected in the ICU staff rest areas.

It has been stated that including technological devices (TV/music broadcast) that will contribute to the thinking of ICU staff so that they can have a comfortable time during rest will contribute positively to space. However, there is a desktop computer only in the KSSEA Hospital Annex ICU doctor and nurse rest area. Technological devices are not allowed in other personnel rest areas. In addition, according to the survey question directed to the ICU staff, 89% stated that it is important to include such electronic devices for entertainment purposes in the resting areas. This issue was evaluated negatively due to the lack of equipment selection in other areas except for one hospital.

CHAPTER 5: CONCLUSION AND RECOMMENDATION

Well-designed hospital interiors have a positive and healing effect on staff and patients. Within the scope of the thesis, the data obtained through the evidence-based design were translated into design criteria to guide through the design process. These results will be of great benefit to the health field in many respects and will also contribute to designers.

Especially since the working hours and intensity of the personnel working in the intensive care units are quite high, the physical environment they are in should not impose an additional burden on them. On the contrary, making their lives easier and making them feel good in every sense will make a positive contribution to the employees and therefore to the patients. This study will make significant contributions to the creation of standards and new design ideas that will guide the design of ICU staff resting places. Observations in the hospitals where field studies were carried out also show that ICU areas need resting areas for their staff where they can relax.

The hospitals worked in the project consist of two hospitals located in the busiest areas of the European side of Istanbul and a comprehensive private hospital in Izmir. Although the areas seem limited, it is anticipated that the results of this project will be effective in the interior design studies of the ICU staff resting areas at the city and country scale in the future.

Considering the deficiencies in the on-site observations and the survey conducted with the personnel, the research was supported both quantitatively and qualitatively. Improvements to negative scoring criteria should be considered. More attention should be paid to materials with sound-absorbing properties in rest areas where noise levels are observed to be high. In these areas, noise levels can be reduced by the use

of coating materials with sound insulation. In addition, elements such as scenery and art objects that will provide a natural appearance in the space should also be considered. On the other hand, attention should be paid to the square meter limit determined according to the density in terms of usage (eating, resting, entertainment, spending time), and it should start from the minimum values. In addition, furniture groups in this area must also meet the needs. Due to the limitation of resting times,

the location of the intensive care staff break area should be related to the inpatient area following the determined standards.

Additionally, the study can be advanced by using the Kano model for the user-oriented use and development of ICU staff rest areas. The Kano model is a theory and practice of product development and customer satisfaction developed by Professor Noriaki Kano in 1980 (Wikipedia, 2010). The kano model is used to determine customer/user expectations regarding the result. It is also used to analyze needs and determine product requirements. However, it is very important to distinguish between needs. Since not all needs are equal, different customers/users have priorities depending on their needs. Therefore, the kano model can be used as a tool to ensure customer/user loyalty and ensure the continuous and steady growth of new customers/users who want to be satisfied with the result. This model can be used in different ways depending on the focus area (Rotar and Kozar, 2017).

In conclusion, it is thought that the results of this thesis study may have a good impact on the improvement of the physical and mental health of ICU users. It also has the potential to fill an important gap in terms of raising awareness about design that supports their work in healthy, happy, safe and comfortable environments. In addition, with this study, in addition to the existing studies, design criteria for the design evaluations to be made in the staff rest areas were created and a sample method was presented for future studies.

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APPENDICIES

Appendix A:

Questionnaire for ICU Staff

Appendix B:

Ethics Committee Approval

Appendix A: Questionnaire for ICU Staff

Yoğun Bakım Üniteleri Personel Dinlenme Alanlarının Bina Performans Ölçütleri Açısından Değerlendirmesi Üzerine Bir Çalışma

Sayın Katılımcı,

Bu anket çalışması İzmir Ekonomi Üniversitesi Güzel Sanatlar Fakültesi Mimarlık Bölümünde yürütülmekte olan bir yüksek lisans tez çalışmasına veri sağlamak amacıyla hazırlanmıştır. Anket rastgele örneklem metodu ile gerçekleştirilmekte ve hiç bir kişisel veri istenmemektedir. Verilen cevaplar yalnızca tez çalışması kapsamında değerlendirilecektir. Tezin amacı yoğun bakım ünitelerinde yer alan sağlık personeli tarafından kullanılan dinlenme alanlarının yeterliliğinin incelenmesi ve iyileştirme önerilerinin hazırlanmasıdır.

Cevaplama süresi yalnızca 10 dakikadır.

Değerlendirmeniz ve katkınız için teşekkür ederiz.

* Gerekli

Adsız Bölüm

1. Cinsiyetiniz nedir? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Kadın
- ◯ Erkek
- ◯ Belirtmek istemiyorum

2. Yaş aralığınız nedir? *

Yalnızca bir şıkkı işaretleyin.

- ◯ 20-29
- ◯ 30-39
- ◯ 40-49
- ◯ 50 ve üzeri

3. Bu alanda toplam kaç yıl tecrübeniz bulunmaktadır? *

Yalnızca bir şıkkı işaretleyin.

- ◯ 1-5
- ◯ 5-10
- ◯ 10-20
- ◯ 20 ve üzeri

4. Dinlenme alanınızın mekânsal ölçüleri yeterli midir? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

5. Dinlenme alanınızın konumu hasta yatak alanına yakın mı? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

6. Yakınsa / yakın değilse hangisini tercih ederdiniz? Neden? *

_____

7. Dinlenme alanınızda yemek / içmek için kullanılan tezgâh alanı / mutfak var mı? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

8. Mutfak kullanımını dinlenme alanı içinde veya başka bir alanda mı olmasını tercih ederdiniz? *

9. Dinlenme alanınızda zemin, duvar, tavan, mobilyada kullanılan renkler çalışmanızı /dinlenmenizi / yemek yeme etkinliğinizi etkiliyor mu? *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Hiç Etkilemiyor	◯	◯	◯	◯	◯	Çok Önemli Derecede Etkiliyor

10. Renk seçimi mekânsal memnuniyetiniz açısından ne kadar önemli bir role sahip? *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Hiç Önemi Yok	◯	◯	◯	◯	◯	Çok Önemli

11. Dinlenme alanınızda görsellerde yer alan hangi renk tonlarını tercih edersiniz? *

Yalnızca bir şıkkı işaretleyin.

1. seçenek

2. seçenek

3. seçenek

4. seçenek

5. seçenek

12. Dinlenme alanınızda malzemelerde hangi renk tonlarını tercih edersiniz? *

Uygun olanların tümünü işaretleyin.

- [ ] Beyaz
- [ ] Siyah
- [ ] Mor
- [ ] Mavi
- [ ] Kahverengi
- [ ] Sarı
- [ ] Kırmızı
- [ ] Uçuk Pembe
- [ ] Turuncu
- [ ] Yeşil

13. Zemin, duvar ve tavanda kullanılan malzemeler çalışmanızı / dinlenmenizi / kullanımınızı etkiliyor mu? (seramik, PVC, duvar kağıdı, boya, ses emici tavan malzemesi vb...) *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Hiç etkilemiyor	◯	◯	◯	◯	◯	Çok Önemli Derecede Etkiliyor

14. Dinlenme alanınızda zemin, duvar, tavanda kullanılan malzemeler kullanışlılık / hijyen açısından uygun mu? *

Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

15. Dinlenme alanınızda kullanılan mobilyalar fiziksel kullanımınıza uygun mu? *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Hiç uygun değil	◯	◯	◯	◯	◯	Çok uygun

16. Dinlenme alanınızda kullanılan mobilyaların yerleşimleri esneklik sağlıyor mu? *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Hiç sağlamıyor	◯	◯	◯	◯	◯	Çok sağlıyor

17. Mobilyalar mekânsal memnuniyetiniz açısından ne kadar önemli bir role sahip? *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Hiç önemli değil	◯	◯	◯	◯	◯	Çok önemli

18. Sizce mekan içerisinde kullanılan malzemelerde hangisi daha önemli? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Ergonomi
- ◯ Dayanıklılık
- ◯ Görsellik (renk, doku, vb...)
- ◯ Temizlenebilirlik

19. Mobilyalar, büyüklük ve sayı olarak ihtiyacı karşılamakta mıdır? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

20. Olması gerekenden fazla mobilya olduğunu düşünüyor musunuz? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

21. Aydınlatmanın doğal ya da yapay olması sizin için önemli midir? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet önemlidir.
- ◯ Hayır önemli değildir.

22. Dinlenme alanınızda doğal ve yapay aydınlatma sizin için yeterli midir? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

23. Aydınlatma yeterli değil ise neden yeterli görmüyorsunuz? Hangi işlev için artmasını beklersiniz? *

24. Sizin için dinlenme alanınızda gürültü kontrolü ne kadar önemlidir? *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Hiç önemli değildir.	◯	◯	◯	◯	◯	Çok önemlidir.

25. Gürültü kontrolü konusunda herhangi bir sorun yaşıyor musunuz? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

26. Koku kontrolü konusunda bir sorun yaşıyor musunuz? Havalandırma sistemi bu alanlar için yeterli midir (Taze / Temiz hava) ? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

27. Koku kontrolü, taze/temiz hava alma (havalandırma) konusunda bir sorun yaşıyorsanız bunun çözümü için bir öneriniz var mı? (İsteğe bağlı)

_____

28. Dinlenme alanınızda hangi konuyu ele alan sanat objelerini tercih edersiniz? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Doğa
- ◯ Natürmort
- ◯ İnsan
- ◯ Hayvan
- ◯ Soyut çalışma
- ◯ Rölyef (Kabartma eserler)
- ◯ Heykel
- ◯ Diğer: _____

29. Dinlenme alanınızda doğa elemanlarından hangisini tercih edersiniz? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Doğal ışığın aktif kullanımı
- ◯ Doğal havalandırma
- ◯ Suya dokunma
- ◯ Doğa seslerini dinleme
- ◯ Suyu izleme
- ◯ Doğayı koklama
- ◯ Diğer: _____

30. Dinlenme alanınıza karşı aidiyet hissediyor musunuz? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

31. Dinlenme alanınızda aidiyet hissi sizin için ne kadar önemlidir? *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Hiç önemli değildir	◯	◯	◯	◯	◯	Çok önemlidir

32. Dinlenme alanlarınızda dinlence / rahatlama amaçlı TV / Müzik yayını gibi elektronik amaçlı cihazlar tercih eder misiniz? *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır
- ◯ Diğer: _____