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Examination of Elderly and Disabled Tourism Buildings in Terms of the Concept of Sustainability

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Abstract

Environmental problems and heavy living conditions, which are the result of industrialization and intense urbanization, affect health negatively. In addition, developments in the level of welfare and health have extended the human lifespan and increased the proportion of the elderly population. These developments, combined with people's efforts to be physically and mentally well, have started a movement to regain their health, and over time, the concept of health tourism has emerged. Buildings for health tourism are mixed-function that includes tourism activities as well as treatment units. In this article, a schema has been created by considering the sustainability concept of the buildings that serve the elderly and disabled tourism, which have a place under the title of health tourism. With the evaluations to be made on the schema obtained within the scope of this study, it is aimed to ensure the development of the facilities and suggestions are forth.

Keywords: *Architecture, old age/senior/elderly and disabled tourism, sustainability, universal design, quality.*

İleri Yaş ve Engelli Turizmi Yapılarının Sürdürülebilirlik Kavramı Özelinde İrdelenmesi

Öz

Sanayileşme ve yoğun kentleşmenin sonucu olan çevre sorunları ve ağır yaşam koşulları sağlığı olumsuz etkilemektedir. Bununla birlikte refah düzeyi ve sağlık alnında yaşanan gelişmeler insan ömrünün uzamasını sağlamış olup yaşlı nüfus oranını artırmıştır. Bu gelişmeler insanların fiziksel ve zihinsel olarak iyi olma çabasıyla birleşerek sağlıklarını kazanmaya yönelik bir hareketliliği başlatmış olup zaman içerisinde sağlık turizmi kavramını ortaya çıkarmıştır. Sağlık turizmine yönelik yapılar tedavi birimlerinin yanı sıra turizm faaliyetlerini de içeren karma fonksiyona sahip yapılardır. Bu makalede sağlık turizmi başlığı altında kendine yer edinen ileri yaş ve engelli turizme yönelik hizmet veren yapıların sürdürülebilirlik kavramı özelinde ele alınarak bir şema oluşturulmuştur. Bu çalışma kapsamında elde edilen şema üzerinden yapılacak değerlendirmelerle tesislerin gelişiminin sağlanması hedeflenmiş olup önerilere yer verilmiştir.

Anahtar kelimeler: *Mimarlık, ileri yaş ve engelli turizmi, sürdürülebilirlik, evrensel tasarım, kalite.*

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1. Introduction

The concept of tourism is defined in two different ways in the Dictionary of the Turkish Language Association. The first of these definitions is “to travel for resting, having fun, seeing, recognizing, etc.” and the second is explained as “Economic, cultural, technical measures and all of the activity to attract tourists to a country or region” (TDK, 2022). It has been defined in different ways in the process, depending on the conditions of the period and the reference point.

One of the first definitions of tourism known in the international literature belongs to Guyer Feuler (1905) and he stated tourism as “a phenomenon unique to modern time which is dependent on the people’s increasing need for change and relaxing, the wish of recognizing the beauties of nature and art and the belief that nature gives happiness to human being and which helps nations and communities’ approaching to each other thanks to the developments in commerce and industry and the communication and transportation tools’ becoming excellent” (Akoğlan Kozak, Evren & Çakır, 2013). In this definition, the economic and sustainability aspects of tourism are not considered. In the following definitions, different aspects of tourism were highlighted with the effect of the conditions of the period.

In 1910, the Australian economist Hermann Von Schullar defined tourism as “the whole activities that relate to the economic direction of the movement that comes from the arrival of strangers from another country, city or region and their temporary stay” (Erkmen, 2019). With this definition, discussions on the economic dimension of tourism began.

Tourism has been expressed as “the whole of relations arising from the event of travel and accommodation made by individuals to another place other than their permanent residence without the purpose of temporary or permanent settlement and earning” at the meeting of the International Association of Scientific Experts in Tourism (AIEST) in 1950 (Erkmen, 2019). Thus, beyond its economic dimension, its social dimension also began to come to the fore.

Especially in the 1980s, the increase in production and use of raw materials, uncontrolled consumption of resources, and environmental problems brought the sustainable tourism approach to the agenda.

As can be seen in Figure 1, the definition of tourism is discussed by emphasizing a certain aspect of tourism in relation to the conditions of the period. Consequently, today the concept of sustainable tourism is an approach that reveals the interdisciplinary aspect of tourism, which includes social, economic, and political situations as well as environmental conditions. Health tourism revealed the relationship of this approach with medicine and science.

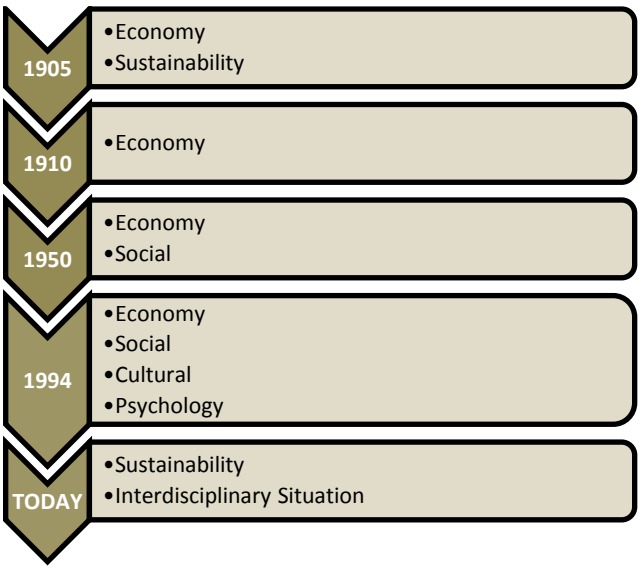

Figure 1. Dimensions of tourism definitions

Throughout history, people have made an effort to maintain their mental, physical, and social well-being, in other words, to maintain their state of being healthy. Since ancient times, they have taken action to treat their diseases. Figure 2 shows the development of health tourism in this context.

Figure 2. Health tourism from the past to the future (Jagyasi, 2010)

Besides the negative factors such as environmental problems, air pollution, stress, and seasonal changes that arise because of industrialization and urbanization, the work and living conditions with the global crisis have a negative impact on the health of people. Apart from mass tourism, people have started to travel to areas where unspoiled nature, environment, climate, and physical characteristics, in order to regain their health or provide fitness (Özer & Sonğur, 2012). This situation has revealed the concept of health tourism over time.

The World Tourism Organization (WTO) defines health tourism as “going to health centers, especially thermal springs, in order to improve the well-being of the individual” (Eriş & Barut, 2020). Health tourism refers to the whole of events and relations arising from travel, accommodation, and organization, which starts with the aim of promoting health, protecting health, and restoring health in general and includes holiday elements as well as health services (Özer & Sonğur, 2012). Although there are many definitions of health tourism, all of them involve people's trips to a different place from where they inhabited to be treated or maintain their fitness.

Health tourism, whose history goes back to ancient times, is among the first tourism activities. During the Roman period, people demonstrated the pioneering activities of health tourism and thermal tourism by going to hot springs and sea baths. Traces of many baths and similar buildings which belong to this period can be seen in different parts of the former domination areas (Deniz & Doğanay, 2016). The Romans cured some diseases with healing water, and they found that the soldiers who were tired of the war became vital with healing water. In this context, they established important facilities for healing water wherever they went (Talşıgil, 1995). At Figure 3, which is known to belong to the Roman period, the remains of the Basilica Therma building, which is located in the Sarıkaya district of Yozgat, support this view.

Figure 3. Basilica therma (Ertuğrul, 2018)

With the Industrial Revolution, cities began to receive large numbers of immigrants. The urbanization process has accelerated. However, the unhealthy environments made it necessary to travel for health as well as traditional travel such as rest and entertainment.

Health tourism, which started in Europe in the 18th century with the spread of going to hot springs among the people, was made in the 19th century in distant colonies regions for therapeutic purposes (İçöz, 2009). The tourism movement carried out in these periods was individual.

While individual activity was dominant in tourism from the beginning of the 19th century to the 2nd World War, mass tourism began to be decisive after that threshold (Tanyeli, 2004). Mass tourism defines a group with a predetermined itinerary and route. Because of the demands of this group, all-inclusive hotel concepts and holiday resorts have emerged.

In the meeting themed “Travel and Tourism in the Case of Epidemic” held by the World Tourism Organization in Madrid in 2009, it is important for all parties to be in constant communication to build trust in the tourism sector, since viruses and epidemics may cause uncertainties; that it is an important issue to enable people to travel by taking some preventive measures regarding epidemics; it is necessary to benefit from technological opportunities while sharing information on diseases; it has been determined that there is the need for more coordination between health authorities and travel companies. The meeting in question, it was started that there could be problems in the communication of the authorities in the places where epidemic diseases occurred; in this case, although the most authoritative institution is the World Health Organization, each country should apply its regulation;

during the implementation of the procedures, situations such as ensuring a regular flow of information among all stakeholders of the tourism industry, putting into practice the inspection system, undertaking basic responsibilities such as applying basic hygiene rules, and using the lessons learned from bird flu to prepare an action plan for other epidemic diseases were discussed (Baynazoğlu, 2015). Although the World Tourism Organization has prepared an action plan for epidemic diseases, individual activities and alternative tourism types have gained importance with the Covid-19 pandemic announced by the World Health Organization in 2020. Health tourism has an important place among alternative tourism types. Considering both the negative effects of the pandemic and the age distribution of the world population, the importance of health tourism is increasing day by day.

The proportion of the population reaching old age and the onset of old age vary according to the welfare level of societies. Elderly people aim to both regain their health and engage in tourism activities within the scope of health tourism.

It is predicted that the elderly population in the world will be 20 billion in 2050 and 80% of this will be in developing countries (Samancı Tekin & Kara, 2018). Considering the aging of the world population and the fact that there is not any young population to care for this population, elderly and disabled tourism will become more common in the coming years. In addition to these, it gains importance that the relationship of sustainability, with environmental issues and buildings be created within the scope of environmental problems. Building serving elderly and disabled tourism should include both health and tourism functions, the structure and operating scheme should be defined and how these schemes will operate should be arranged.

2. Method

The scope and purpose of the study are to determine the minimum conditions of a building that aims to provide services to the elderly and disabled tourism should have in the context of sustainability. In line with this determined scope and purpose, as the methodology of the study, a literature review was conducted on health tourism in the first stage. Content analysis of the obtained documents was made. Consequently, the criteria of the building and operating scheme were determined.

If the buildings serving the elderly and disabled tourism provide design criteria, the design performance and result will also affect the quality level. The physical properties and related requirements for increasing the quality are discussed. In this context, while the physical-ecological criteria were determined to meet the user's expectations from health and tourism, criteria were determined for the person to feel better psychologically. A schema has been created to increase the performance of a design by combining these two criteria. While creating the diagram, a study was carried out considering the mobility of the person and universal design principles, quality criteria, criteria related to the units of the space to be designed, and criteria related to sustainability, as indicated in the diagram in Figure 4.

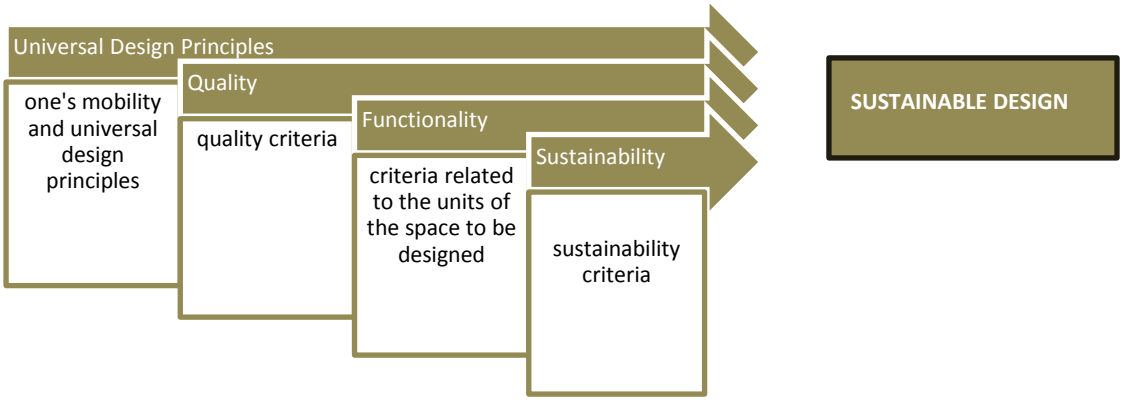

Figure 4. Main Criteria of the schema to be created for sustainable design

Considering the user profile, as a result of the work to be done with the mobility of person and the universal design principles, sustainability towards mobility is achieved by ensuring the good progress or continuity of the individual movements; positive sustainability of the individual's recovery process and the service received by taking into account the quality criteria; sustainability for long-term use of the building with spatial analysis; environmental sustainability is aimed by using sustainable-ecological approaches in design. Sustainable design was achieved with the combination of them, and contribution has been made to the formation of sustainability, environmental sustainability, and schematic sustainability, which are the equivalent of today's tourism definition.

2.1. The Concept of Elderly and Disability

First of all, the concepts of elderly and disability, which are the basic elements of the study, were analyzed in order to ensure that the work to be done in order to meet the spatial design criteria of the buildings serving the elderly and disabled tourism would be efficient.

The life process of a human being consists of infancy, childhood, adolescence, adulthood, middle age, and old age. Old age, objectively, refers to the last stage of human life (Şeker & Kurt, 2018). This process is shaped by environmental factors as well as genetic factors.

As aging is not a one-dimensional process, its definition is handled from different aspects (Özyer, 2016):

- Biological (Physiological) Aging: Biological aging is related to the appearance of the person and decreased function at the organ level and the wear of the tissues. Graying of the hair and wrinkling of the skin staining of the shin are signs of aging, and the ability to use one's limbs decreases.
- Chronological (Calendar) Aging: The age is according to the calendar and the starting point is the birth of the person. It is the answer to the question "How old are you? "According to the chronological age, the onset of old age is 65.
- Psychological Aging: Depending on the increase in experience, behavior and adaptability change with age. During this period, psychological changes occur. Mobility, wish, and desire in the 20s leave their place to the psychology of inefficiency depending on the progress of age.
- Social Aging: It refers to the relation of the individual with his social environment. The person's social relationships, family life, work, roles, and duties change by diversifying, and rich life experiences. It defines the change of social role and status depending on age and the process of adaptation to it.
- Economic Aging: It is the state of being unable to produce an economic benefit as a result of being unable to work with old age, decreasing the income obtained, not being able to resist the decline in income in the face of high inflation, insufficient retirement income, spending more from his income and saving for illness because he will be sick more than in the past.

The World Health Organization defines aging as a "continuous decrease in vital functions, decrease in the productivity of the whole organism and decrease in its ability to adapt to environmental factors." They are grouped as "young old age" between 65-74, "old age" between 74-84, and 85 over as "advanced old age" (Özel İhtisas Komisyon Raporu, 2018). The World Health Organization has made a mathematical evaluation on the subject. However, the proportion of the population reaching old age and the onset of old age vary according to the welfare level of the societies.

The developments in the last century have led to the prolongation of life expectancy and the increase in the average age of the world population. In the globalizing world, besides the economic, cultural, social, political, spatial, and technological phenomena, the aging population also manifests itself as a new phenomenon. When the graph in Figure 5, which was created by considering the data of the Turkish Statistical Institute (TSI, 2023) and showing the age distribution of the Turkish population in 2022, is examined, it is seen that the population in our country is getting older day by day.

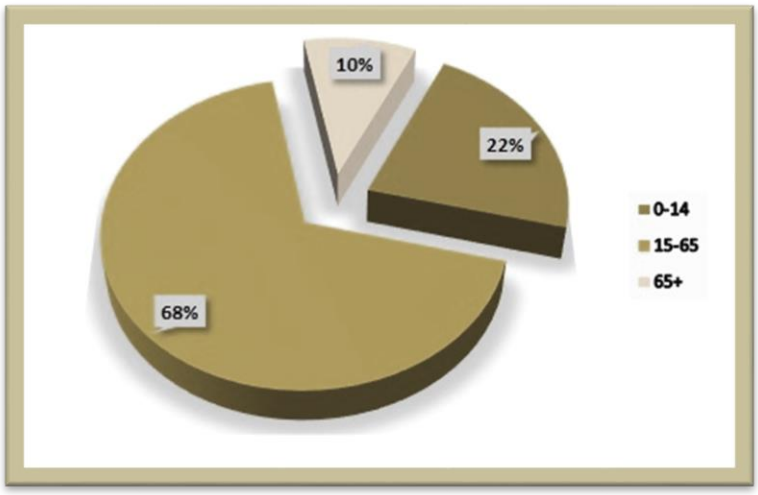

Figure 5. Age distribution of the Turkish population in 2022

The concept of disability is defined in two different ways in the Dictionary of the Turkish Language Association. The first of these definitions is "disabled, afflicted" and the second is explained as "a person who has lost his physical, mental, spiritual, sensory or social abilities to various degrees from birth or later for any reason, and has difficulties in adapting to social life and meeting his daily needs" (TDK, 2022). Although there are many definitions for the concept of disability, it can be generally considered a disability.

2.2. Evaluation of Buildings, Which Are Aiming to Serve Elderly And Disabled Tourism, Within The Framework of Standards and Regulations

Today, elderly and disabled tourism is identified with buildings where thermal tourism and physical therapy services are offered together. In this context, a study has been carried out on the standards related to thermal tourism and physical therapy centers while discussing the standards.

There is limited information about the spatial arrangement of physical therapy centers in the Regulation on Physiotherapy and Similar Institutions which is published in the Official Gazette in 1957 for the spatial arrangement of physical therapy centers. When the graphic in Table 1 is examined, there is information about the place in the 3rd and 7th articles of the regulation.

ARTICLE 3	*Physiotherapy institutions should minimum include electrotherapy, light therapy, massage, and movement therapy section, as well as examination and rest rooms. These sections will be of sufficient width.*
ARTICLE 7	*The spa, which will be accepted and approved as a treatment institution by the Ministry of Public Health and Welfare to granted operating license, will contain at least the following facilities:* *a)Public pool,* *b)Private bathrooms,* *c) Shower,* *d) Physical therapy means (Diathermy, Ultraviolet, Infra-red, Galvanization etc.),* *e) If available, installment for mud application and electric mud bath,* *f) Massage department,* *The building or buildings, which will contain all these department, will be built and furnished in way that is wide enough, has sanitary and scientific conditions.*

Table 1. Articles related to space of the regulation on physiotherapy and similar institutions

There are two main headings, which are related to spaces, in the 6.14. Physical Therapy and Rehabilitation Services chapter of the Turkish Healthcare Buildings Minimum Design Standards 2010 Guide, which is published by the Ministry of Health. These titles are common areas and treatment areas (Standards, 2022). Table 2 contains information on the spatial characteristics of the area, which are defined as common areas.

6.14.2. COMMON AREAS	*3. 10.1.3 Headquarters or Nurses' Station* *3.10.1.10 Stretcher and Wheelchair Stroge Area* *3.10.2.5 Housekeeping / Cleaning Room* *3.10.2.9 Staff Dressing Room*
	6.14.2.2 All areas used for transportation, examination, treatment and care of patients should be arranged in a way that allows to wheelchair and stretcher access.
	6.14.2.3 Office and secretarial space should be provided for filing and patient records.
	6.14.2.4 Reception and control station(s) allowing visual control of the waiting and activity areas (these can be combined with the office and secretaries area) should be provided.
	6.14.2.5 Patient waiting area(s) which is suitable for wheelchair and stretcher usage, should be provided outside the service traffic.
	6.14.2.6 Easy access to toilets and lockers should be provided.
	6.14.2.7 The department must have a meeting room. The meeting room should be arranged in such a way that all types of patients (wheelchair, stretcher, or other paralyzed patients) can access.

Table 2. Common areas of physiotherapy and rehabilitation service

Table 3 includes information on treatment areas. In this section, information about the qualities and quantities of spaces is given.

6.14.3. TREATMENT AREAS	*6.14.3.1 Treatment Boxes / Rooms should consist of individual treatment areas where privacy is ensured. In each of these areas require a table or stretcher. The empty floor of these areas should not be less than 6,5 m². If they are planed as a single room, the size of the room should not be less than 8 m². The door width of rooms or department should not be less than 120 cm. Sliding glass doors, or a different mechanism can be used in these areas. Ceiling heights of all therapy areas must be at least 4m. Treatment areas are noisy places. For this reason, sound insulation should be done well.*
	6.14.3.3 Clean Cover and Towel Storage: In order to provide materials for including clean cloth and towel cabinet, there should be a clean cloth and towel storage that acts as an interim storage.
	6.14.3.4 Dirty Cover, Towel and Material Storage: There should be a room where the covers and towels are used in the treatment areas are stored for a short time before being transported to their storage.
	6.14.3.5 Patient Dressing-Room: Patient should have an area, where privacy is ensured, to change their clothes before and after treatment. Lockers, toilets, and shower should be provided in these areas. Since some patient who come with stretcher to treatment, space design should be made in accordance with such patients.
	6.14.3.6 Treatment Areas: The type and number of treatment areas are listed below should be as prevenient. *– Electrotherapy/Ultrasonotherapy; should be in the form of a prevenient number of boxes. Each box must be for one person and at least 8 m². Each box must have very good sound insulation.* *– Hydrotherapy: dimensions and characteristics of bathtubs and pools must be prevenient. There should be a mechanism for transporting patients to the pool or bathtub. Areas that provide privacy and allow patients to undress and dress should be planned. They include towel/cloth cabinets.* *– Whirlpool, 4-cell galvanized pool, contrast bath, sauna, paraffin room and Turkish bath; they can be within the hydrotherapy field or in combination. Common areas can be shared.* *– Gym; there should be a hall that allows patient treatment in various branches, is a common area by sharing both material and manpower. The hall must be at least 45 m². The hall includes tools and equipment such as exercise ladder, exercise bike, fitness equipment, full-length mirror, parallel bar, weights with pulley system.*
	6.14.4.1 Where occupational therapy service is provided, it should include work areas, benches and equipment, which are suitable for wheelchair use, besides there should be a system such as an area/building/department where there are various mechanisms that will accustom patients with a different disability to daily life and that they can make exercises.
	6.14.5 Prosthetic and Orthotics: Where the Prosthetic and Orthotics services is provided, at least the following areas should be available: *6.14.5.1 Workspace for technicians,* *6.14.5.2 Evaluation and fitting area with patient privacy,* *6.14.5.3 Space for an environmentally controlled prosthetic/orthotic laboratory for fabrication/modification of devices.*
	6.14.6 Speech and Hearing Therapy: When speech and hearing therapy is provided, at least the following areas should be available: *6.14.6.1 An evaluation and treatment area away from a noisy environment with an acoustic arrangement.*

Table 3. Treatment areas of physical therapy and rehabilitation department

In the Hot Springs Regulation published in the Official Gazette in 2001, basic spatial features have been included and units to be included in hot springs and mineral springs. The definitions of the Regulation regarding the Physical Therapy and/or Rehabilitation unit are given in Table 4.

ARTICLE 12 →	*The physical therapy and/or rehabilitation units in the spa facility should have the following features. The physical therapy and/or rehabilitation unit includes locker-dressing cabinets, showers, toilets, and resting places.* *a) Exercise unit; An area of at least 50 square meters is arranged for collective exercises and instrumental exercises.* *b) Massage unit; the floor area of single rooms or cabins must be at least 5 square meters.* *c) Physical therapy unit; the floor area of single rooms or cabins must be at least 5 square meters.* *d) Hydrotherapy unit (rehabilitation pool unit); It should consist of pools with an area of 2.5 X 2.5 square meters and a depth of 150 centimeters.*

Table 4. Physical therapy and/or rehabilitation units in the hot springs' regulation

In the Health Quality Standards (Current Standards, 2020) fascicle published by the General Directorate of Health Services of the Ministry of Health in 2020, information on the variety and functioning of the service to be provided is given in section 6.14 Physical Therapy and Rehabilitation Services. Regarding the spatial arrangement in this fascicle, the *"Necessary physical and medical equipment should be provided according to the characteristics of the services provided."* statement is included.

Even though there is no regulation regarding the places that will serve the elderly and disabled tourists, the regulations and laws regarding tourism or physical rehabilitation centers and spas are a guide. There is information about the places that the buildings, which will serve this purpose, should contain at a minimum level although there is not a detailed spatial definition in these laws and regulations.

2.3. Sustainability in Elderly and Disabled Tourism

Key parameters are needed to evaluate the buildings that aim to serve the elderly and disabled tourism within the scope of the concept of sustainability. In this context, sustainability, universal design, and quality standards of the facilities were examined and criteria were determined.

2.3.1. Determination of sub-parameters within the framework of universal design principles

Depending on the increase in life expectancy with the developments in technology, even if the individual does not have a health problem, neurological functions begin to regress in the advancing period. However, there is no loss in the limbs, there is a limitation in performing daily activities. In this context, it is important to carry out a study using universal design criteria, considering the mobility of the person in the spaces created.

Especially in the last twenty-five to thirty years, universal design approaches have been discussed in a way that covers everyone, with the legal regulations made in many countries regarding the built environment, products, and services (Aközer, 2007). Universal design aims to ensure usability for everyone.

While making spatial arrangements in our country, standards are used to ensure a universal design. In this context, the standards (MKU, 2022) in Table 5 are mainly used for spatial design. These standards are guidelines and define what is required at a minimum level.

Founded by Ronald L. Mace in 1989 and renamed the Center for Universal Design at North Carolina State University in 1996, the center presented seven principles in 1997 to make universal design more understandable and real. These principles are listed in Table 6 (Dostoğlu, Şahin & Tanyeli, 2009; Hacıhasanoğlu, 2003).

TS 9111/April 1991	**Rules for Arrangement of Buildings for Disabled Persons to Residence** *(Within the scope of this standard, it is stated that the entrances of the buildings should be appropriate width, comfort and danger-free, and the points for comfortable circulation in the building both horizontally and vertically are specified in addition to all these, minimum dimensions are specified to ensure access and comfortable use.)*
TS 12576/April 1999	**Urban Roads-Design Rules for Structural Measures on Streets, Avenues, Squares and Roads for Disabled and Elderly People** (Within the scope of this standard, there is information to ensure that people with limited mobility can move freely in areas such as street, avenue and square. It contains information on the regulations that will allow the use of urban furniture and equipment.)
TS 12460/April 1998	**Urban Roads – Rail Transport System** (Within the scope of this standard, necessary regulations are included people with mobility restrictions on city roads and public transportation. It includes information on the regulations regarding both access to transportation vehicles and their comfort in the process of using transportation vehicles.)

Table 5. Turkish standards for spatial arrangement

Equitable Use	It allows the design to be used by individuals with different abilities. It is foreseen that all users benefit from the design equally. A privileged situation between users should be prevented. Security, privacy, and safety should be offered equally to all users. The design should have the quality to create the same level of attractiveness for all users.
Flexibility in Use	The design should be capable of responding to the preferences and abilities of different individuals. The user should be given the opportunity to choose the one that suits him. Equal use should be provided according to the right- and left-hand dexterity of the person. Measures should be taken to ensure the correct and sensitive use of the user. The product should be suitable for the user's speed.
Simple and Intuitive Use	An easily perceptible design should be made regardless of the user's experience, knowledge, language abilities and current concentration level. Unnecessary confusion in designs should be removed. It should respond to the user's expectations and intuitions. The design should appeal to a wide user group in terms of literacy level and language proficiency. Information should be transferred gradually according to its importance. Stimulants that are effective during or after the use of the product should be active.
Perceptible Information	The design should be able to effectively provide the information necessary for the user, regardless of the environmental conditions and the sensory abilities of the user. To ensure the readability of basic information and for this, different methods of expression (such as pictorial, verbal, textural) should be used. To increase the perceptibility of the product information by the user, it should be separated. (For example, decomposition of directions and instructions for use) The product should be capable of covering the tools and techniques used by users with sensory limitations.
Tolerance for Error	Damage that may occur because of accident or involuntary movements in the design should be minimized. The danger and error margins of the elements used in the design should be minimized, the elements that will be used intensively should be most easily accessible, and the dangerous elements should be eliminated or taken under control. Warning against danger and errors should be clearly stated. There should be mechanisms to prevent the error. In cases that require attention, arrangements should be made to limit the unintentional movement of the user.
Low Physical Effort	The designed product and space should be used comfortably by the user with minimum effort. It should be designed to protect the natural body position of the user. The product must require an acceptable power usage. Repetitive behaviors should be minimized. Situations that require prolonged physical effort should be minimized.
Size and Space for Approach and Use	Access and use should be provided in a way that adapts to the user's body size, posture, and mobility. Provide unobstructed view of key usage items for both sitting and standing users. Usage items should allow access while the user is standing or sitting. It should provide a variety of use according to different hand size and holding ability. Necessary space should be provided for people or assistive devices (such as wheelchairs, walking aids) to assist the user.

Table 6. Universal design principles

Another aspect of the universal design is that it adapts to the changing needs of the user throughout his life. Thus, in a sense, it allows to ensure continuity (Hacıhasanoğlu, 2003). In this context, the creation of spaces that will serve the elderly and disabled tourism in line with universal design principles ensures the continuity of the individual mobility of the users as well as the design.

2.3.2. Creating a minimal function chart

The places that will serve the elderly and disabled tourism today appear as a combination of spa centers and physical therapy centers. On the other hand, the positive effect of natural spring waters on health is used, also it is desired to benefit from the advantages of technology. This situation reveals a mixed-functional design. In this context, when a facility is organized, the minimum requirements for both functions must be met.

Thermal tourism, one of the health tourism activities, is a type of tourism that provides the transportation, accommodation, and hospitality needs of tourists for the use of cold and hot mineral waters for drinking and external applications for health purposes. Thermals are the use of nature-based waters in health activities by making use of their properties such as heat, minerals, and radioactivity, and these activities are handled with scientific principles (Akbulut, 2010). In the Spa Regulation, facilities that serve thermal tourism are generally defined under two main headings as indicated in Table 7.

ARTICLE 5	
→	***Spa facility:*** *It is a facility created according to the nature of the thermal or mineral water or peloid used, with a thermal treatment pool and row baths or peloid therapy units and inhalation or drinking cure units depending on the type.*
→	***Thalassotherapy facility:*** *It is a facility that has a thalassotherapy treatment pool and row baths, and thalassotherapy application units such as natural, inhalation, algae, peloid therapy, heliotherapy.*

Table 7. Thermal springs regulation – types of facilities serving thermal tourism

Spa tourism, which is categorized by the characteristics of the water used today and the types of treatment, is the developed state of the treatment places and bath culture of the old times. Asklepions are the best examples of these.

Historical research and archaeological findings show that the first examples of health structures are the Asclepions consisting of porticoed courtyards surrounded by patient rooms, built in the name of Asclepius, known as the god of physicians in Greek mythology since the 5th century BC. In this building, which we can call the first hospital, patients were tried to be treated with herbs, spiritual suggestions, music, muddy water baths, and psychotherapy, hydrotherapy, and physical therapy methods were used (Diren, 2018). During the Roman period, the importance of hot springs increased even more.

In the Roman period, natural hot water springs and structures began to be resting, morale, and entertainment centers for tired and injured soldiers as well as for treatment (Baykan, 2012). The bath culture continues today. The bath section, where hot water is used, basically consists of three main spaces. These spaces are the cold room, which includes the entrance and dressing section of the building; the warmness section, which provides the transition between coldness and warmth and is also a resting place; and the temperature section where water is used and washing areas are located. (Figure 6)

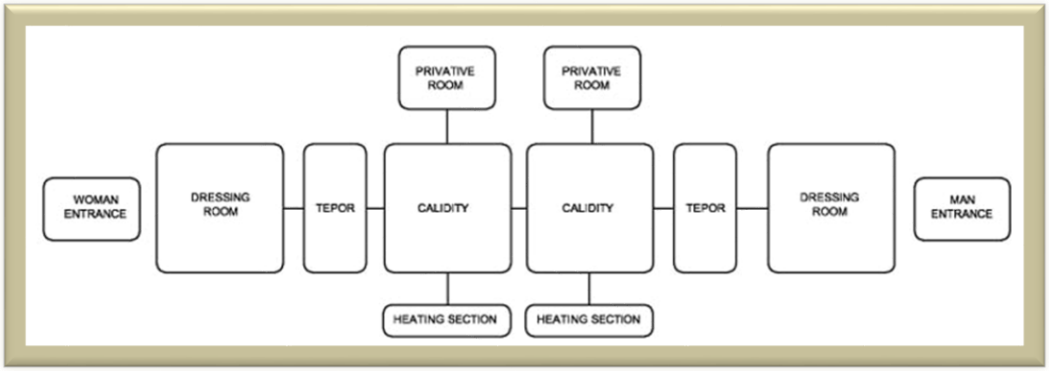

Figure 6. The interior arrangement of Turkish Baths (Apaydın Başa, 2009)

Today, the bath culture manifests itself with spa & wellness centers and these facilities are under the heading of thermal tourism or health tourism. With its vitality-enhancing feature and positive contribution to health, it supports elderly and disabled tourism.

Spa & wellness centers are mostly located within the hotel, and the design approach that is effective in hotel design makes itself felt in the spa & wellness center. Spa & wellness centers include a reception counter and reception area, waiting room, administrative offices, men's and women's locker rooms, dry treatment rooms, wet treatment rooms, and cafe-vitamin bar. Apart from these, it may optionally include meditation areas, fitness and aerobics halls, swimming pools and water sports, beauty salons, service areas (laundry, etc.), and storage areas (Apaydın Başa, 2009). Figure 7 shows the general plan schema of the spa & wellness center.

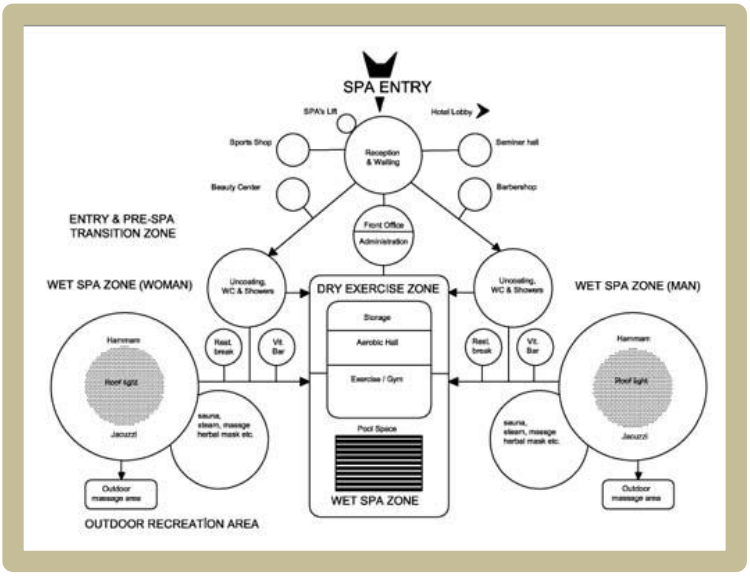

Figure 7. Spa & Wellness Center Schema (Apaydın Başa, 2009)

With the developments in technology, branching in health has increased and branch hospitals have emerged. In the Operating Regulation of Inpatient Treatment Institutions, private branch hospitals are defined as "health institutions where the observation, examination, diagnosis, treatment, and rehabilitation of patients of a certain age and gender group of those suffering from a certain disease, or patients of an organ or organ group are carried out" (MBS, 2022). Physical therapy and rehabilitation hospitals are evaluated within this scope.

Some hospitals aim to determine and treat permanent or temporary disabilities, reduced neurological function of the person for any reason, congenial or later due to illness or trauma. During the treatment process, the person is supported psychologically, socially, and professionally and becomes independent in daily life, which is a part of the treatment (Aydın, 2009). These facilities, where hot water resources can also be used due to their location today, show themselves as facilities that will contribute especially to the tourism of the elderly and disabled, as well as the treatment services.

In a comprehensive physical therapy program, electrotherapy, shock wave, radar, shot wave, ultrasound, cold-hot pack, vacuum interference, tens, diadynamic currents, infrared, electrical stimulation, traction, fluidotherapy (knee and waist), paraffin, massage, cell bath, large galvanic tub, and venues offer a wide variety of treatment services such as instrumental exercise programs and hydrotherapy (Aydın, 2009). Figure 8 shows the general plan chart of the physical therapy and rehabilitation center. The therapy halls and therapy pools in the schema are shaped for the treatment services to be provided.

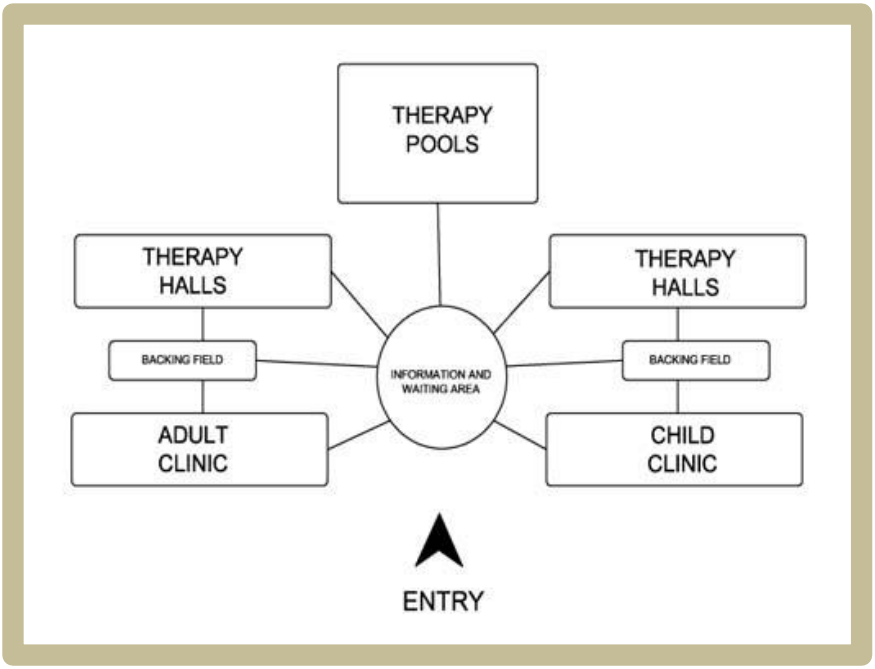

Figure 8. Physical therapy and rehabilitation center schema

2.3.3. Sustainability criteria

The concept of sustainability in the report titled "Our Common Future" published in 1987 by the World Commission on Environmental Development working within the United Nations, the concept of sustainability is defined as "Humanity; it can make development sustainable by meeting their daily needs without compromising the ability of nature to respond to the needs of future generation" (Ekolojist, 2021). The concept of sustainability essentially regulates the future with resource management. In this context, if we consider the concept of sustainability through architectural practice, we can express it as the transformation of the designed building in a way that both meets the conditions of the day and responds to the needs that will arise in the future.

The concept of sustainable architecture defines a process starting from the selection of the site where the construction will be located, local conditions, a design that will respond to current and future needs, the construction process, energy and water consumption, transportation, and waste control organization. Certain standards were needed to evaluate the effects of this process. It would be appropriate to use the criteria defined for hospitals in LEED and BREEAM certificates, which are widely used today, for facilities that will serve elderly and disabled tourists.

The Health Institutions category of the LEED certificate, adapted according to the project type and the use of the building, consists of the parameters of sustainable lands, water efficiency, energy and atmosphere, materials and resources, interior quality, innovation in design, and regional priority credits (Table 8). LEED certification is awarded according to the scoring of the headings in its main criteria (USGBC, 2021).

Sustainable Sites	It aims to protect the regional ecosystem by integrating with the project.
Water Efficiency	It includes studies for water saving indoors and outdoors. Reducing the consumption of clean water is an important thing.
Energy and Atmosphere	In this context, the use of new system includes reducing energy consumption and using renewable energy.
Materials and Resources	It aims to minimize energy consumption during the time period when the material turns into the final product from the production process.
Indoor Environmental Quality	It includes indoor issues, such as air quality, temperature, visual and acoustic comfort. Building with interior quality also protect the health and comfort of building occupants.
Innovation in Design	It is the integration of a new approach in sustainable design into design and the action of different project teams.
Location and Trasportation	It includes the primary consideration of geographical and environmental issues. Its goal is to present projects for innovative building features and sustainable building practices.

Table 8. Health Institutions criteria of LEED

The category of Health Buildings of the BREEAM certificate, which was developed to suit different building types, consists of energy, health and comfort, innovation, land use, material, management, pollution, transportation, waste, and water parameters. (Table 9) BREEAM certificate is awarded according to the scoring of the titles in its main criteria (BREEAM, 2021).

Energy	It supports systems that provide efficient use of energy. It encourages the building to increase its natural energy efficiency and reduce carbon emissions.
Health and Comfort	It is aimed to increase the quality of life by creating a healthy and safe indoor/ outdoor environment for users.
Innovation	It offers the opportunity to go beyond the existing criteria. It provides an opportunity to recognize innovations.
Land Use	The management of biodiversity through sustainable land use is discussed.
Material	It includes materials that have a direct impact on the life of buildings, including the manufacture and recycling of materials supplied in the formation of the building.
Management	It covers the section starting from the design of the building, including the operation process.
Pollution	It is aimed to reduce the wastes arising from the construction and usage process of the building.
Transport	It encourages better access to means of transport. Reducing vehicle roads; it is aimed to reduce carbon emissions by focusing on the accessibility of public transportation vehicles and other alternative transportation solution.
Waste	It promotes sustainability through building and waste and future maintenance and repairs of these wastes in relation to the building. It aims to reduce the amount of waste resulting from the construction and operation of the building.
Water	It aims to minimize the consumption of potable water throughout the life of the building.

Table 9. Health buildings criteria of the BREEAM certificate

Considering the intersecting and different parameters in the LEED and BREEAM certification systems, we can consider the buildings that will serve within the scope of health tourism under ten main headings (Figure 9).

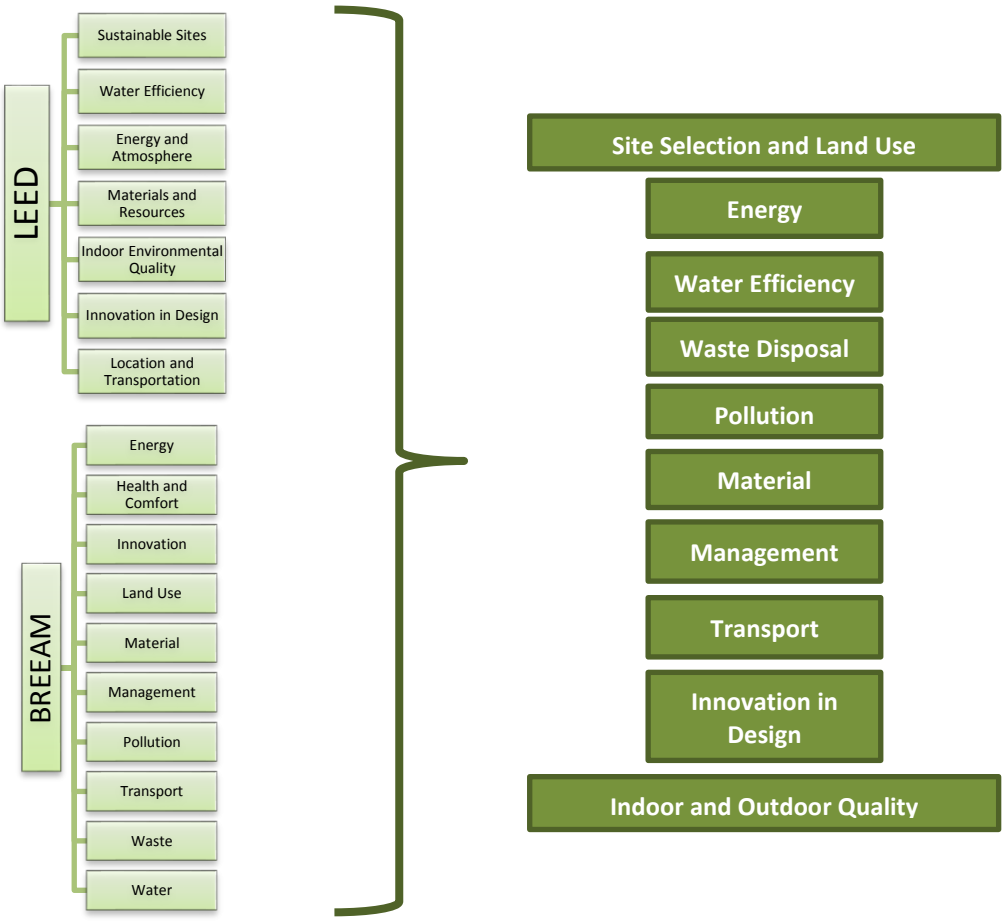

Figure 9. Sustainability criteria

2.3.4. Quality standards

Building that serve health tourism have a priority place in society because they are buildings that provide health services as well as tourism services. Its main purpose is to improve people and make society healthier. In these buildings, where the anxiety levels of the users are high, the indoor and outdoor design should be considered together to provide the best service to the users. These buildings first welcome their users with their facades and close surroundings. Entrance and landscaping should provide an environment where the person will feel safe and reduce their anxiety. In this context, the concept of architectural space should be reconsidered.

Schulz considers architectural space as a piece of space that meets the physiological, psychological, and social needs of the users living in it. Kuban state that architectural space should include the features of human life as well as formal, and that space can exist with movement and light (İnceoğlu & Aytuğ, 2009). These definitions allow that beyond the buildings that define the boundaries of the space, it is an entity that is defined and shaped by the behavior of society. The way they respond to the function they host has enabled these spaces to be addressed with the concept of quality over time.

Quality is the whole of the features that allow the needs to be met. Lynch collects the expected quality criteria in urban spaces under the headings of accessibility, adequacy, suitability, diversity, adaptability, openness, safety, stress, and efficiency (İnceoğlu, 2007). The quality parameters in the architectural space vary according to the usage practice of the space.

There is a prevailing view that well-designed environments provide benefits for both patients and staff. The design is said to reduce anxiety, lower blood pressure and relieve pain. In order to increase the

positive effect of the physical characteristics of the health areas on the treatment process, the outdoor spaces should be handled with the same sensitivity.

The open areas of the facilities that will serve the elderly and disabled tourism should be created by considering the effects not only on the patients but also on other users (patient relatives, health personnel, auxiliary personnel, administrative personnel). Considering that the users of these areas are constantly changing and have very different profiles, arrangements should be made. These spaces should not only meet Lynch's urban quality criteria, but also allow active and passive use, and should be well-lit and soundproofed.

The application of the criteria in Table 10 in the design of the built environment will contribute to the creation of an improving environment (Healthplace, 2020).

Active transport for all people	It includes non-motorized forms of transportation that involve physical activity such as walking and cycling.
Aesthetic	It indicates the combined effect of elements such as the architectural and landscape design quality, visibility, and material quality of the site.
Connection	It is the directness of the relationship between the destinations.
Environments for all people	It means that it is safe and easily accessible to all individuals, regardless of age, ability, or income, with an appropriate range of facilities and services that everyone can benefit from.
Mixed density	It is the coexistence of different units.
Mixed land use	Constructing different units and different transportation options together
Parks and open spaces	Natural environments that allow sports and recreation.
Security and surveillance	The person should be made to feel safe.
Social inclution	It should allow the full participation of all individuals.
Supporting the infrastructure	It should include infrastructure units that provide active life such as walking, cycling and public transportation.

Table 10. Built environment quality criteria

In line with the characteristics of a patient-centered healing hospital, accessibility, accessibility and road to the building, the approach to the building, the presence of sufficient parking area, and the convenience, ease, and safety of all functions and equipment in the spaces for all users, including emergencies, children, families with babies and the disabled should be questioned (Sungur Ergenoğlu, 2006). Providing these criteria contributes to the healing process by reducing the level of anxiety.

Considering the above criteria, we can discuss the interaction between exterior and interior space under seven main headings (Table 11).

Location Selection	Facilities that will serve the elderly and disabled tourism should be in easily accessible location. It should have an arrangement to ptrevent the patient from being affected by adverse weather conditions at the the entarence and exit
Transporting and Parking	In the facilities that will serve the elderly and disabled tourism, the continuity of the pedestrian and vehicle roads should be ensured, and the most accurate and shortest way should be provided. Areas where they can park their motor vehicles or transportation vehicles such as bicycles should be created.
Signs	There should be directional signs that can be read easily at all hours of the day in facilities that will serve the elderly and disabled tourism.
Lighting	In the facilities that will serve the elderly and disabled tourism, lighting should be provided in a rate that the person can perceive comfortably and feel safe.
Aesthetics and Comfort	Facilities that will serve the elderly and disabled tourism should be created with recreational areas for users. All individuals should be able to access these areas unaided, and the aesthetic features of the design should be considered.
Material Selection	The selection of material and spatial design should provide comfort conditions, give a sense of hospitality, and help reduce the anxiety level of the person and shorten the recovery period.
Perception of Space	Facilities that will serve the elderly and disabled tourism should be solved in a way that does not allow confusion in a function by considering the user profile.

Table 11. Indoor and outdoor quality criteria of facilities to serve elderly and disabled tourism

3. Assessment of the Schema

The idea of sustainability in every aspect is at the heart of the places that will serve the elderly and disabled tourists. The purpose of its formation is to ensure the continuity of the health of its users positively. The facilities created in this context should be considered in terms of sustainability, universal design, and quality standards.

In the research, it has been seen that some of the sub-parameters of these three criteria overlap with each other in terms of content, although not completely. (Figure 10) Location selection, transportation, and parking, material selection parameters are included in the sub-headings of both sustainability and quality criteria. The innovation parameter in design is within the criteria of sustainability and universal design with an emphasis on flexible design. The readability of the space, signs and signage, and perceptible information paradigms can find a place in the sub-criteria of both universal design and quality criteria.

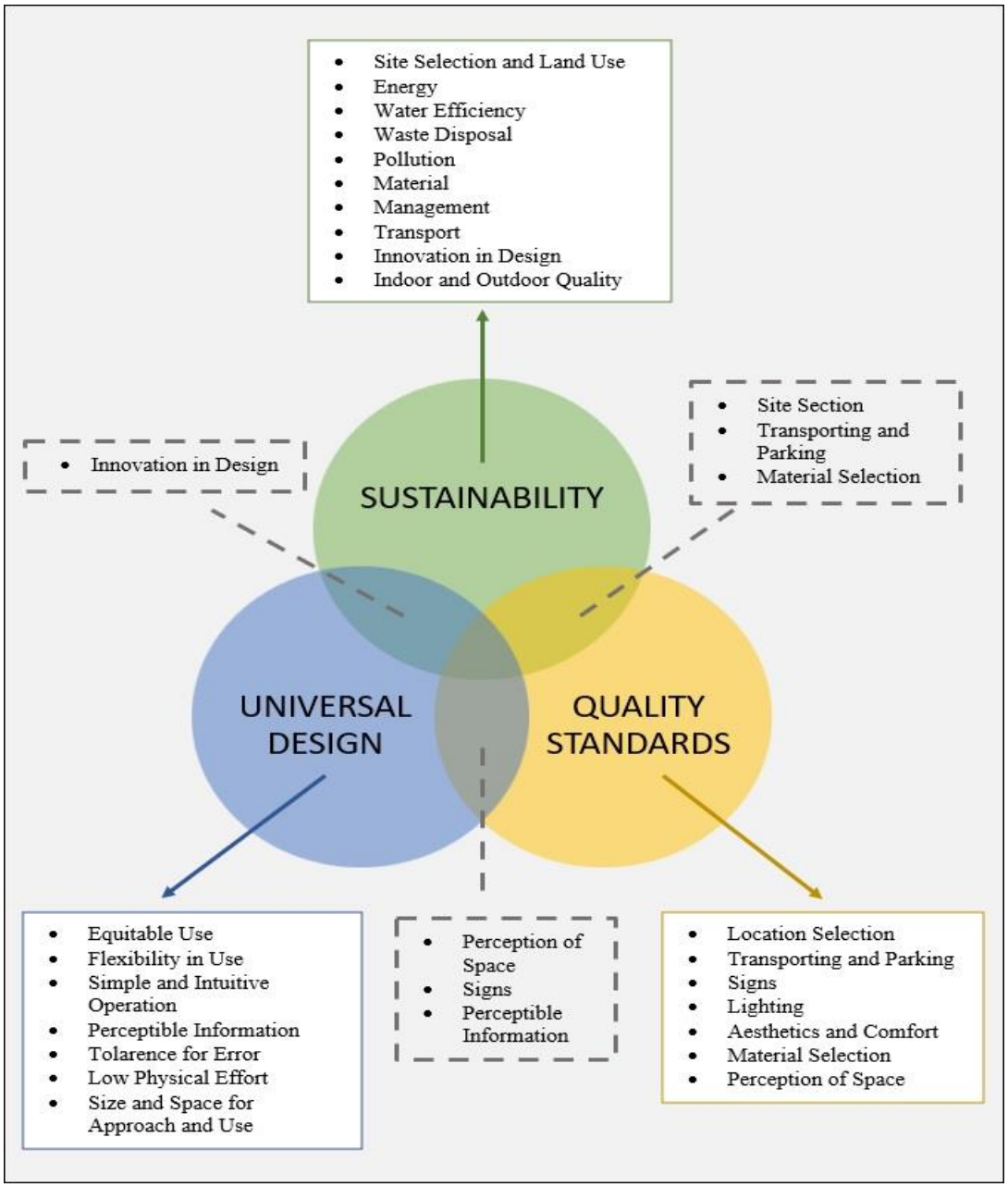

Figure 10. Sustainability-universal design-quality criteria sub-paradigms and common denominators

While creating places that will serve the elderly and disabled tourism, they are created in accordance with the regulations and standards in force. However, regulations and standards generally define minimum levels of qualification. This limits the control of sustainability, universal design, and quality standard in design. A checklist is needed in this context. Evaluation of the design within the scope of the checklist (Table 12) will inform the designer about the level of sustainability, universal design, and quality standards that are met in the study.

The design checklist is coloured for ease of use and the sub-paradigms of the main criteria are identified by the colour of the criterion they intersect, considering the intersection with other criteria. Ideally, all criteria in column 1 of the design checklist in Table 12 should be met. However, it is rarely possible to design that meets all criteria. The parameters marked in column 2 are the criteria that must be present in all cases. When sustainable design is targeted, all of the criteria in the second section must be fulfilled. Considering the intersections of the parameters in the 3rd, 4th, and 5th columns, ideal design examples were obtained. Designs that fulfill any of these pillars are the closest to the ideal. This list can be used in the design phase as well as in the determination of the works to be carried out for the improvement of the facility by determining the status of the facilities already in service.

DESIGN CHECKLIST						
		1	2	3	4	5
SUSTAINABILITY	Site Selection and Land Use	✓		✓	○	✓
	Energy	✓	✓	✓	✓	✓
	Water Efficiency	✓	✓	✓	✓	✓
	Waste Disposal	✓	✓	✓	✓	✓
	Pollution	✓	✓	✓	✓	✓
	Material	✓		✓	✓	○
	Management	✓	✓	✓	✓	✓
	Transport	✓		○	○	✓
	Innovation in Design	✓		○	✓	✓
	Indoor and Outdoor Quality	✓	✓	✓	✓	✓
UNIVERSAL DESIGN	Equitable Use	✓	✓	✓	✓	✓
	Flexibility in Use	✓		✓	○	○
	Simple and Intuitive Operation			○	✓	○
	Perceptible Information	✓		○	✓	○
	Tolarence for Error	✓	✓	✓	✓	✓
	Low Physical Effort	✓	✓	✓	✓	✓
	Size and Space for Approach and Use	✓	✓	✓	✓	✓
QUALITY STANDARDS	Location Selection	✓		○	✓	○
	Transporting and Parking	✓		✓	✓	○
	Signs	✓		✓	○	✓
	Lighting	✓	✓	✓	✓	✓
	Aesthetics and Comfort	✓	✓	✓	✓	✓
	Material Selection	✓		○	○	✓
	Perception of Space	✓		✓	○	✓

Table 12. Design checklist

4. Conclusion

Within the scope of the study, it is aimed to define the design criteria in the context of spatial requirements and to create a scheme to increase its performance in the design of a building that aims to serve the elderly and disabled tourism. These buildings contain many different dimensions and require the designer's mastery of various subjects.

The checklist created for advanced elderly and disabled tourism facilities provides convenience to the designer by providing control of these multi-faceted structures during the design phase. It will enable the deficiencies of the design to be quickly identified and solutions to be offered. It allows the control of multidimensional and complex requirements in a certain order in the preliminary work phase and other stages in the design process. In addition to the service provided, it will contribute to shortening the recovery period with a positive effect on the place. As a result of that, it will be possible to achieve a sustainable design in all aspects, especially ecological, universal design, and quality. The spaces created with such an approach will help to support the healing hospital approach. It will contribute to the update of knowledge and experience sharing by recognizing the products. Additionally, it makes a great contribution to the designer for revealing and exhibiting the planning.

Acknowledgments and Information Note

The article complies with national and international research and publication ethics. Ethics committee approval was not required for the study.

Author Contribution and Conflict of Interest Declaration Information

All authors contributed equally to the article. There is no conflict of interest.

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