A CASE STUDY OF ELDERLY AND WHEELCHAIR USERS IN TURKEY

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Abstract

The population of disabled people with 5.9 million and elderly with 15 million over the age of 65 is a significant population in Turkey. Each disabled or non-disabled person deserves to live with quality and equality in all aspects of the life due to Universal Declaration of Human Rights, “Life, freedom and personal security are the right of each human being” stated in the United Nations (UN), and also “Disabled individuals have the same personal and political rights with others” stated in the Declaration of the Rights of the Disabled Individuals. However, there are few considerations for making the life easier for elderly and wheelchair users in architecture and environment for improving services, life conditions and social standards.

This study investigates and analyzes the life quality of elderly and wheelchair users with furniture in indoor and outdoor. Afyonkarahisar, Uşak, Ankara Seyranbağları nursing home, Ankara Süleyman Demirel Rehabilitation Center were chosen as a case study. Besides, shopping centers, mosques, churches, and public buildings were also included in the study in terms of looking into topic in detailed investigation for the ease of access and use for elderly and wheelchair users. Observations and questionnaires were applied to the elderly and wheelchair users to identify problems within the framework of rights to live as individuals in Turkey, which is a developing country and a candidate for European Union. As a result, elderly and wheelchair users are forced to use furniture which is manufactured for able-bodied people. They have significant problems with a) furniture and equipments b) interior design features c) location and architectural design of buildings and other structures.

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1. INTRODUCTION

From a broad interdisciplinary perspective, the population of disability with 8 million and elderly with 15 million over the age of 65 is a significant population in Turkey. For Turkey, the rate of people aged over 60 years old and over above the total population was 6.4% (3.2 million) in 1985 while the same rate was 7.1% (4.0 million) in 1990 and 8.4% (5.7 million) in 1995.
2000. This rate is estimated to increase to approximately 9.5% (7.4 million) in year 2005. It is obvious that the services for older people will become increasingly more important within the near future (Nüfus Sayımı, 2003). Besides, there is also an important number of disabled people who becomes disabled in a variety of accidents e.g. traffic and work accidents. According to the report of disability (SR, 2011), in the last decade, over 400 thousand traffic accidents, 48 thousand people lost their life and 273,636 people became disabled through a serious injury. In work accidents, people also became disabled.

Declaration of the Rights of the Disabled Individuals (2003) states: "Everyone has the right to life." The United Nations (1948) in accordance with the Declaration of Human Rights "everyone has right for life, liberty and safety." According to Turkey's Constitution (1982), "Everyone assets life, property, and protection and has the right to development to ensure the rights to life of individuals in order to use the state's primary task. In addition, "Everyone has the right to a healthy and livable environment" appears with the declarations, are guaranteed in national and international image of everyone's right to life. Building environment, building interiors shows a chain to the urban parts of the city, building exteriors and even the surrounding nature. This structure is located within the space to fulfill the functions of all kinds, as well as the design for the user to be accessed depends on the available and viable. However, there are few considerations for making the life easier for elderly and wheelchair users in architecture and environment for improving services, life conditions and social standards.

Briefly, each disabled or non-disabled person deserves to live with quality and equality in all aspects of the life due to Universal Declaration of Human Rights, “Life, freedom and personal security are the right of each human being” stated in the United Nations (UN), and also “Disabled individuals have the same personal and political rights with others” stated in the Declaration of the Rights of the Disabled Individuals.

From this point of views, the large population of disability deserves to be discussed by academicians and have attention by the government, society, city planners, educators and manufacturing sectors. According to the ex-ministry of labor, Imren Aykut states, “up to now, in our country, a survey on the welfare of disabled people, their problems, conditions and needs has not been carried out” (Cinar 1997). This sentence underlines the scope of disability which remains under research. The actual situation in the 2000ties has not been changed except a few attempts. The country has realized the disability in the last three decades with the establishment of the Institute of Disabled People Protection. Another point is that the country as a candidate of the EU is pushed to change regulations and to put the necessities of disability in the government agenda.

This study investigates and analyzes the life quality of elderly and wheelchair users concerned with furniture and other activities in indoor and outdoor. Istanbul, Ankara and Suleyman Demirel Rehabilitation Centers were chosen as a case study. Observations and questionnaires were applied to the elderly and wheelchair users to identify problems within the framework of rights to live in Turkey which is a developing country and a candidate for European Union.
2. RESEARCH AND MATERIALS

This study aims to determine life quality of elderly people and wheelchair users with furniture in indoor and outdoor. Questionnaires and observations were carried out to look for the problems of elderly and wheelchair users. The methodology focused on identifying ease of use for furniture, equipments, and ease of access to public buildings.

Ankara, Turkey Suleyman Demirel Aged Care Nursing and Rehabilitation Center, Ankara Seyranbağları Nursing and Rehabilitation Center for Aged Care, Aged Care Nursing and Rehabilitation Center Afyon, Usak Nursing Home Elderly Care and Rehabilitation Center were selected for the research. In addition, public buildings; Courthouses, religious buildings and shopping centers are considered as the work area. Official permissions were obtained from selected institutions. The selected institutions were visited individually made oral observations and interviews with the elderly and wheelchair users. Based on observation and interview results it was carried out preliminary surveys and the average assessment. Based on this assessment, to ask questions and survey methods have been identified. Data were collected between June and July 2015.

**Sampling**

In this study, wheelchair users can use their hands comfortably and 6 months was preferred over the people who use wheelchairs. In the elderly, over 60 years of age is preferred. Participants are randomly selected in accordance with the criteria.

The demographic characteristics of the participants are shown in Table 1.

<table>
<thead>
<tr>
<th>Table 1. Demographic characteristics and features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

According to Table 1, the demographic characteristics of participants are classified in all ages, gender, marital status of individuals are interval. The most interesting result is almost 31% people, are illiterate while almost 13% of them had university degree. 56% is the age of between 60 and 70. In this case, in rehabilitation centers, participants might have different needs and it is necessary to take into account the differences in design.

The survey results are evaluated only when the education level of care in nursing homes is that those who benefit from the low individuals. Education levels also were found to be in need of shelter and care of high individual. In face to face meetings, high level of education of individuals who are under-correct practices carried out in nursing homes, expectations and satisfaction levels were observed more easily and clearly stated. The educated participants, issues and expectations also are more conscious about their quality of life was observed easily expressed. Moreover, given the increased level of education in the country in recent years, changes in social structure and increase the level of education can be said that the higher level of expectations against the opportunities provided in nursing homes.

Observations
Elderly people, those living in nursing homes, in public buildings; the courthouse and the surrounding area, places of worship; Located in historic buildings and the general environment in Istanbul were evaluated. Wheelchair user activity observed the physical size of the service area, in my area and transport facilities, access to social problems have been identified. In addition, individual institutions were visited by all service areas obstacles faced by nursing home residents, researchers have tried to understand.

Data Analysis
After data is collected, subjected to re-examination, it appears to be different independently of one another, and the data are listed arranged to form a sense entirety. In the research process, not directly involved with issues kept separate, previously considered, but it is based on data considered to be rearranged content contribute to research. In this sense, Spider method is used to assess the data. Spider Method, was preferred by (Rawlings, 1991), allows the issue to be discussed in a multi-dimensional synthesis and analysis to be made of the reasons

3. FINDINGS AND DISCUSSIONS

3.1. Nursing home participants
Nursing home residents are forced to use existing equipment and furniture. Bath-toilets are the most use of experienced difficulties. Some actions with difficulties, carried out by elderly and wheelchair users in nursing homes, are shown in Table 3.

<table>
<thead>
<tr>
<th>Activities</th>
<th>Ort.</th>
<th>SD</th>
<th>V</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toilet - WC</td>
<td>3.07</td>
<td>.704</td>
<td>.495</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Bathroom</td>
<td>2.80</td>
<td>.862</td>
<td>.743</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Door open-close</td>
<td>3.13</td>
<td>.990</td>
<td>.981</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Window open close</td>
<td>2.93</td>
<td>1.033</td>
<td>1.067</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Plugs and sockets</td>
<td>3.07</td>
<td>.961</td>
<td>.924</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

V: variants, SD: Standard Deviation

According to Table 1, nursing home participants, in general, activities of opening and closing doors, electrical switches, sockets, and using toilets were found to be most difficult in the case of ease of use, respectively. As well as opening and closing the windows and bathing were found to be more difficult. In the case of elderly and wheelchair users to access the necessary actions that they can act independently, new design and adaptation should be made in nursing homes. This situation is likely among the elderly and wheelchair users streamline their lives.

Participants in nursing home residents, satisfaction of using furniture in living areas and common areas have been asked and the results are shown in Table 4.

<table>
<thead>
<tr>
<th>Furniture</th>
<th>Ort.</th>
<th>SD</th>
<th>V</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bed</td>
<td>2.87</td>
<td>1.060</td>
<td>1.124</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Wardrobe</td>
<td>2.92</td>
<td>1.038</td>
<td>1.077</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Sofa, armchairs</td>
<td>3.00</td>
<td>1.000</td>
<td>1.000</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Bed sides</td>
<td>3.08</td>
<td>1.038</td>
<td>1.077</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Dining tables</td>
<td>3.30</td>
<td>.949</td>
<td>.900</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>
Most dissatisfied result with furniture for ease of use by wheelchair users was dining tables, wardrobes, dressers and chairs. The use of bed was found to be fewer problems. In particular, dining tables limit the wheelchair users for maneuver around and difficulties to access for reaching. Anthropometric body measurements of the participants for using beds, armchairs and seating groups with compliance with the decisions still are directly related to satisfaction. Slim and small body participants have fewer problems while large body of people may have problems in the use table-chairs and lounge chairs. During the carrying out the interviews, participants attitude were observed. For example, while women give much more importance to furnishings in colors, aesthetics, order and interior design, men do not pay much attention. Therefore, gender, aesthetics and color perception condition may have influenced their satisfaction.

Figure 1. A single room for wheelchair user with bathroom and toilet

According to Figure 1, placement of the closet in the toilet arrangement is incorrect. Seat should be placed based upon a one adjacent wall; the distance between the walls parallel with the central WC should be at least 405 mm. The handles on both sides, and must be positioned parallel to the ground. The handle should be placed in the sink edge. Toilet width distance between the perpendicular walls should be at least 1525 mm. The direction of the door opening should always be towards the outside.

Furniture seating groups used in the social field, tripods, the library; garden furniture consists of benches and pavilions (Figure 2). Seating groups have been donated or purchased from the market. In general, the difficulty of access to or use of seating indoors observed. Materials used in furniture, fabric color, fabric type, furniture design line, a certain unity in space and said not occur in visual harmony with each other. Therefore, there is no space for seating and furniture accessories are compatible with each other room and television room is away from the spatial formations resembling the natural home environment.

Figure 2. Views from rehabilitation centers
3.2. Public Buildings
The data for parking areas, building entrances and exits, interior space, stairs, ramps, building furniture were collected in Ankara and West Ankara Courthouses.

According to the data obtained, West Ankara courthouse conforms to the standard dimensions of ramps and stairs. The ramp size is measured as 130 x 150 cm and inclination angle of 8 degrees. Wheelchair users can comfortably use the ramps for transporting inside. However, the ramp of the Ankara Courthouse with the size of 80 x 120 cm and ramp angle with 47 degrees is impossible to transport. Current ramp is not suitable for absolutely wheelchair user transition.

According to the literature, the ramp slope is between 5 and 10 %. The slope of the ramp can be very short in 12% inevitable. The length of the ramp is more than 6 meters together to put a shelf in the recommended length of 150 centimeters (Kayihan, et al., 2013). Ramp width should try not to be reduced to below 130 centimeters. Both courts have sensitive electronic card inputs and outputs for entering are available. West Ankara Courthouse gives services at the front and consultation desk for people with disabilities but these services are not available in Ankara Courthouse.

A voice guidance device and a floor plan (Figure 5-A) written with Braille alphabet for blind people were located at the entrance of West Ankara Courthouse, however, it was seen that the voice guidance device was not operating because of the sound disturbances and was unplugged. West Ankara has special visual impairments signs up to go to any court for the visual determination of the direction of persons with disabilities (Figure 5-b), accessible waiting room (Figure 5-C), accessible corridor (Figure 5-d), and lift/evaluator with notifying Braille alphabet. Guidance, information or sign language was not available in the Ankara Courthouse. Use and access difficulties related to furniture and other interior elements in public office buildings were identified during the interviews. Placing furniture and goods in the offices and corridors constitutes a danger to wheelchair users and visually impaired individuals (Figure 5-e, f).

There are disabled toilets in both of the courthouses. However, it was identified as disabled toilets locked in Ankara Courthouse. Participants with disabilities demand a special section for them in the refectory. The lack of special sections for people with disabilities and not given them a convenient shuttle service, as well as taking food entering unobstructed individuals have been identified they cannot use the cafeteria necessary. People with disabilities stated that they bring the food by ordering in or bringing from their houses.
3.3. Praying areas

Istanbul area referred to as Europe's cultural capital was chosen as the study area. In this regard, often historic visit as places Blue Mosque in Istanbul (Figure 6), New Mosque (Figure 7), Şehazede Mehmet Mosque (Figure 8), Ataköy Omar Mosque (Figure 9 and 10), Saint Antoine Catholik Church (Figure 11), Aya Yorgi Church (Figure 12), Holy Mother of God Church (Figure 13), the Latin Catholic Church (Figure 14), the Surp Stephanos Armenian Church (Figure 15) are investigated.

Sultanahmet Mosque (Blue Mosque, Figure 10), has a large area across the courtyard. However, the abdesthanes sitting area, ablution taps does not provide for the use of people with disabilities. Abdesthana part of all is not the kind that meet the needs of wheelchair users. Worship, after abdesthane is designed to be introduced on three sides on the forecourt. Entrance is only used on stairs. Ramp for wheelchair users, platform and elevator system was not applied. However, to be assisted by officials of the mosque and entering the place of worship for people with disabilities are provided. There is a special area for praying with 3 wheelchairs. On the other hand, the mosque is extremely limited route followed for adverse effects on quality of life.
**New Mosque** is located on a flat area courtyard. However, main entrance is obtained with providing a multi-step stairway to the courtyard. It has been allocated a section for elderly people in the mosque and the opportunity was given to realize their worship on stools. Ramps, elevators and platforms are not included and designed with the technological equipment for wheelchair users. There is sidewalk in front of Abdesthane section. Ablution is located between the wall and sidewalk on the lower level. Wheelchair access is not possible.

![Figure 7. New Mosque, entrance, abdesthabe and praying area.](image)

**Şehzade Mosque**, a system, was not created, allows wheelchair users ease of use for lavatory in abdesthane. Worship entry consists entirely stairs. Any ramp and lift system has not been implemented. Wheelchair user does not provide the opportunity to worship in its current form.

![Figure 8. Şehzade Mehmet Mosque entrance, and abdesthabe.](image)

**Ataköy Omar mosque** does not allow wheelchair users to the ablution. Abdesthae section does not provide the possibility to reach the sidewalk instead of ablutions wheelchair users. Wheelchair users’ adaptations were made in 2007 to provide easy access. In order to enable wheelchair users to move; transport, elevator, ramp / platform were added. In addition, special worship areas in providing maneuverability for wheelchair users’ mosque have been allocated (Figure 10). Ataköy Mosque elevator made in Spinal Cord Injury Association (OFD) was used by the members.

![Figure 9. Ataköy Omar Mosque entrance, and abdesthane](image)
Catholic Saint Antoine Church, prepared for ramps for wheelchair users, there is no access to the church's front door. Entrance consists entirely of stairs. Wheelchair users include transfers are provided by official workers. Church worship area is without a ladder which allows wheelchair to maneuver qualities.

Aya Yorgi Church, gives only possibilities to enter the church by stairs. Wheelchairs cannot enter without any help. On entering the front door, a step and a mat in front of the worship is located. However, the initiative has been started to provide the opportunity for individuals with disabilities in the church worship. Projects are in the completion phase.

Surp Asdvadzadzin Church, Holy Mother of God Church is composed of entrance stairs. It is not possible to enter without assistance. The back door is arranged at the entrance of a low curb and walk-in door entry gives permission to enter the church. However, because of the narrow streets in the church, wheelchair transport and transit challenges for users almost absent.
Latin Catholic Church, there is no any adaptation or improvement for wheelchair users. Due to the threshold of the entrance wheelchair cannot be entered without assistance.

Surp Stephanos Armenian Church, there are two steps stairway. There is no ramp or a special platform. Lack of ramps or platforms with a simple reason for wheelchair users may come in with the help of someone else. There is one rug in the hallway after the entrance door. This increases the degree of difficulty for wheelchair users. The length of the corridor is to make transition to the worship movement after passing a cascading staircase. A special area for wheelchair users has not been made for the worship space.

3.3. Shopping center Access
Roads and sidewalks have ramps for wheelchair users to give ease of access in the case of increasing the quality of life in the streets of Ankara. However, the majority of sidewalk ramps are not in the appropriate size. While those in the appropriate size to be used by neglect, wheelchair users to stay more excluded in community life and housing gives rise to failing.
According to the observations made in Ankara, it was not well enough thought to the needs of disabled people in urban planning. Many of the overpasses are not suitable for wheelchair users. Recently done by flyovers despite the result of the irresponsible use a wheelchair suitable for users of the community can remain unavailable. In 6 of the 15 overpass to be investigated only works when there are two of them handicapped lift, is a thought-provoking data. Not long eliminate defective ones, it is directly related to their local governments to fulfill their responsibilities. Also in this case the local government shows interest and concern for the disabled.

Disabled toilets in some of the shopping malls in Ankara, disabled parking, elevator and many designs suitable for disabled grounds are outstanding.

Disabled alone without help from anyone ever in urban areas (often gets help from a person) is nowhere to be benefiting from urban activities. It is observed that in some cases cannot even meet the humanitarian needs.

![Image](image1.jpg)

![Image](image2.jpg)

![Image](image3.jpg)

**Figure 16.** Elevator, ramps for wheelchair users and disabilities.

### 4. DISCUSSION

Access to public buildings is a crucial step for people with disabilities as it could enhance their active participation in the community and allow them to contribute both socially and economically. The term ‘accessibility’ refers to the degree to which an environment (e.g., a site, facility, workplace, service or program) can be approached, entered, operated in, or used safely and with dignity by people with disabilities (ADA 1996). It is commonly quantified using the percentage of compliance, which is calculated as the number of facilities complying with wheelchair accessibility requirements over the total number of facilities measured. Ahn et al. (1994) conducted to identify architectural barriers in public buildings identified three major areas of activities that were affected, namely parking and entrances, goods and services.
and restrooms. Uheh et al (2001) singled out parking and entrances. Their results and the results of this study are similar.

In promoting rehabilitation, wheelchair users themselves as well as professional in this practice area strongly advocate wheelchair accessibility in public places (Motivation Sri Lanka, 2007) through user self-help organizations that promote integration into the workforce. These campaigns have progressively attracted the attention of both the public and the government, leading to the sprouting and implementation of various wheelchair accessibility codes and guidelines. Wheelchair accessibility to public buildings is often regulated by the legal system. An example of this would be the Americans with Disabilities Act (ADA) of 1990, which was an outcome of the independent living movement and the disability rights movement (McClain 1990). In 1993, the United Nations General Assembly adopted standard rules to equalize opportunities for persons with disabilities (Rivano 2004). Rule 5 specifically targets accessibility, declaring that ‘states should introduce programs of action to make the physical environment accessible’. In addition, individual governments have taken steps to ensure accessibility for disabled persons, and a gradual reduction in architectural barriers has occurred as a result. However, difficulties still remain for wheelchair users in using public building facilities throughout the world. Transforming public buildings so that they are wheelchair accessible is still in the developmental stages, thus, wheelchair users may continue to be prevented from accessing public buildings and hence may often be unable to participate fully in their community. It is important, therefore, for professional in this practice area to have a role in advocating that their clients participate fully in community life and have access to all public buildings.

According to Crown et al.(2004), enforced accessibility guidelines would be necessary to ensure that wheelchair users have the opportunity for social integration and access to community resources. Five major areas have been identified as important areas of accessibility (USAB, 2007); namely parking, routes, ramps, entrances and restrooms. These areas are essential for wheelchair users to be able to enter buildings and participate in required activities (Ahn et al. 1994). Thus, it is important that professional in this practice area promote wheelchair accessibility modifications in all of these areas. Because of the gap between needs and reality, professional in this practice area such as rehabilitation professionals, architects, urban planners, interior architects can serve as mediators through which individuals with disabilities can contact and negotiate with authorities. This could include joining public concern groups and holding public conferences together with wheelchair users to promote their needs. Furthermore, professional in this practice area like occupational therapists can provide accessibility advice when new buildings are constructed or existing ones are renovated. To complement the efforts of wheelchair users themselves, their own self-help organizations, as well as all relevant professional in this practice area can act as advocates for persons with disabilities and strive to influence building managers, architects and engineers in order to bring about important changes.

Community integration program can include social outings for groups of wheelchair users that have different objectives, such as instructing individuals how to use bank facilities or public transportation. Through such outings, therapists can expose clients to the different architectural barriers and help them to find ways of overcoming these barriers. Rehabilitation technology has greatly improved the quality of wheelchairs, but the value of even a state-of-the-art, well-fitted wheelchair is greatly diminished when wheelchair access to buildings is inadequate. Therefore, wheelchair accessibility must be improved alongside the development
of high-tech assistive technology so that wheelchair users can fully participate in the community. To achieve this goal, professional in this practice area must increase their own involvement in the early stages of building construction and modification (Hamzat and Dada 2005). Community integration involves multiple concerns, including environmental, psychological and social factors.

Housing, interior elements, furniture, environment, roads, social facilities, factors such as public transport, the arrangements made in the interior and exterior wheelchair users that create obstacles in use, which complicates their lives and is that obstacles to the exercise of the right to life by limiting their quality of life. In addition, the overall structure of society, education and culture wheelchair users to see disabled and unable to work as individuals leads to social pressure and cultural formation affecting the disability. Wheelchair users can sometimes literally helpless due to the built environment and housing. This desperate situation is affecting the lives of wheelchair users and people living in these people’s homes bring social life take place and the situation of people with no right to life. However, for personal circumstances to overcome despair and toss their participation in the social life of wheelchair users make the appropriate design for all of these people will allow them to see themselves as part of society. Then, in theory, as expressed in national and international declarations, wheelchair users can use the right to life in practice. Giving these people the right to life and the roles of factors in the continuation of the daily life of every organization, institution, industry, and individual roles and responsibilities of individuals is suggested that the execution of people centered approach

5. CONCLUSIONS AND DISCUSSION

This study aimed to determine life quality of elderly people and wheelchair users with furniture in indoor and outdoor. The elderly and wheelchair users have crucial problems for fulfilling physical and social needs. Most problems are found for bathrooms, operations such as opening and closing windows, furniture and equipment elements in the wardrobe, and also the difficulties for transporting the religion places, shopping malls etc. The furniture was not designed for the needs of wheelchair users. In this respect, these results compiled with the results of Çınar (1997), stated that there were neither furniture design nor production for disabled people.

In conclusion, elderly and wheelchair users are forced to use furniture which is manufactured for able-bodied people. They have significant problems with a) furniture and equipments b) interior design features c) public buildings, and architectural design of buildings and other structures.

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