



Examining Furniture Preferences of the Elderly in Greece

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Abstract. The purpose of this study is to explore the characteristics of the choices of the elderly, regarding the features of furniture that people use in their daily lives. The study is limited to the age group 55–90 years old in Greece and presents chairs in their homes, which they have been used from 5 to 50 years. An early research question to be answered in this study is How the individuals behave consumeristically based on their experiences. The results at an early stage show that their choices are based on traditional-classic furniture with specific characteristics, concerning parameters such as aesthetics and functionality. Also, secondary elements in the design such as construction details (crosspieces, dimensions, spindles) play a pivotal role in their choices. Particularly important is the fact that a large percentage of the participants responded positively to the technological development of this furniture.

Keywords: Aesthetics in furniture · Chairs for elderly · Furniture for seniors in Greece

1 Introduction

The demographic group of the elderly is growing every year. In Greece (Statistics 2021), at the ages 55–85 + per gender, about 30% were men and 43.5% women in the total population. The elderly present various living problems with chronic diseases such as: dementia, visual and hearing impairment, disabilities, memory disorders, etc. (Hrovatin et al. 2012).

Until recently, the majority of products designed and produced concern other age groups, with the emphasis placed on the most productive of them and they have to cover the needs of the average user, ergonomically speaking. The elderly are a heterogeneous age group (Jonsson and Sperling 2010), which according to various studies is accustomed to using products designed for healthier and younger people. In addition, in a study conducted in Slovenia, 60% of the elderly have not renovated their house for more than 20 years, while 74% seem satisfied with the existing situation, although they are not covered ergonomically (Hrovatin et al. 2012).

The literature review demonstrates that there is a big increase in studies for this age group, which focuses mainly on the following areas:

- a) health,
- b) safety,
- c) creativity and technological development,
- d) emotional care.

The registration of furniture, equipment and measurement systems shows a constant interest in this direction. The proposal for the development of a methodology and construction of furniture for the specific age group based on particular specifications and taking into account quantitative and qualitative parameters, is a necessity for the Greek society, as nothing similar has been developed up to now.

2 Literature Review

The main purpose of designing and manufacturing products, since the end of the 19th century (i.e. since the beginning of the industrial revolution) until today has been the mass production of objects or furniture that improve people's daily lives who constantly use them. Industrial design has contributed significantly to this. Recently, however, concepts such as Participatory Design (often called co-design) are beginning to emerge as a result of differentiation and specialization in furniture production. According to many authors (Aarhus et al. 2010; Gronvall and Kyng 2013), older people exhibit differentiated behaviors and large disparities in the access to new technologies. The above also emphasize the importance of creating an environment in relation to "participatory" design and the impact exerted through areas such as: space organization, participation and assimilation of activities, especially when applied to particularly vulnerable groups.

In the developed countries there is a demographic shift with a significant increase of the elderly. This age group also seems to suffer from chronic diseases (Population Reference Bureau 2011).

By 2060, Europe and Japan are expected to have a population of 151 million over the age of 65. This is due to the increase in life expectancy, for a better quality of life. This age group wants to spend most of their time at home, developing activities that improve health and enhance activity (State of the Art Report for Smart Habitat for Older Persons, April 2019).

The population of the European Union on January 1, 2018 was estimated at 512.4 million. Of these, 64.7% were in the age group of 15 to 67 years old, while the elderly over 65 years old were 19.7%, with an increase of 2.9% compared to the earlier decade (State of the Art Report for Smart Habitat for Older Persons, April 2019).

By 2019, the old-age dependency ratio had been 34.1%. Population projections suggest that the EU-27 old-age dependency ratio will continue to soar and will reach 56.7% by 2050, when there will be fewer than two persons of working age for each older person. In 2019, older people accounted for more than one third (36.7%) of the total population in the central Greek region of Erytria (Eurostat, July 2020). For these reasons, greater security is needed in homes and the creation of a more "friendly" living environment. The same is also valid for the items and furniture that make up a home. The main causes of accidents in this age group are added to this need: 31% of falls in the elderly are due to accidents in the surroundings and 17% of accidents are due to

disturbances and loss of balance (State of the Art Report for Smart Habitat for Older Persons, April 2019).

As Europe's population is growing older, more patents have been filed over the last decade for "smart" and safe furniture (Wordwide.Espacenet, March 2020). A range of protection devices or health measurements are being developed, in order to meet the care needs of the elderly.

From 2009 to 2017, the number of published articles on elderly care multiplied and there is a clear growing trend for scientific research in this area (State of the Art Report for Smart Habitat for Older Persons, April 2019). Various studies refer to the lack of familiarity that older people feel with the use of computers and smart devices, in order to optimize their quality of life. There is a general finding that they are accustomed to using their existing furniture and have a reduced desire for change (Hrovatin et al. 2012).

Bumgardner and Bowe (2002) point out that wood species play a key role in furniture development and are taken into account in the preferences of designers, across the product development spectrum along with other critical choices, such as style and finish. For example, in the USA cedar wood gives the house a feeling of warmth. Pine and cedar wood used in furniture appear from previous studies to receive higher marks in aesthetics and status as opposed to plywood, fiberboard, aluminum and vinyl. Also, in relation to the better quality of furniture, light-colored wood (coniferous) seems to be considered more suitable for more everyday furniture, while darker wood (e.g. mahogany and cherry) seems more suitable for better quality furniture. Respectively, the furniture made of dark colors are considered more expensive and with a higher value. According to Nicholls and Bumgardner (2007), there is a correlation between the types of wood preferred by older and younger people, in relation to income. Younger people seem to choose lighter wood such as spruce wood and maple, while older people with lower incomes opt for oak wood. Also, beech and oak seem to be preferred more by low-income older men. Also, women with higher incomes seem to avoid wood types such as red alder, considering them to be options that give lower status. At higher incomes there is a tendency to prefer cherry wood.

In general, there is a strong scientific, technological and constructional approach and interest, mainly in relation to the specific age group, due to the demographics that are observed, but also in terms of gaining a competitive advantage from companies that will specialize in this field.

Also, various studies regarding the ergonomics of furniture (Simek 2013; Fabisiak and Klos 2012) show that the improvement and redesign of "conventional" furniture, add value to the safety and functional living of the elderly. From the above research, solutions are presented to improve the ergonomics of the furniture, to have a better quality of the upholstery (in order to have a better cleaning of the material) and to improve the access with emphasis on the safety of use.

However, it seems (as in Greece) that more information and awareness are needed in order to adopt their necessity. Also, for furniture companies, innovation and ecology in furniture is an essential competitive outlet (Papadopoulos et al. 2015).

Also, Halilovic (2017) emphasizes that consumers are interested in environmental protection and the first things they consider are comfort, material and quality of furniture.

On a second level they are interested in design and functionality, while the issue of cost is the crucial final factor for the choice.

In the above study there appears to be 9 factors that influence consumer behavior in relation to furniture, which are: gender, age, income, nationality, knowledge of materials, lifestyle, cost, behavior and needs. In relation to the construction material, in the research of Fabisiak et al. (2014), individuals are asked to compare older furniture with more modern ones and it is observed that it is desirable to have more solid wood elements. Also, the material of the upholstery should be easily cleaned and should not be dominated by bright colors, but pastel shades.

Additional parameters, such as the habit of use, the emotional bond with the furniture and the nostalgia (Goulding 2002) are factors of great heterogeneity that require further approach and are an extension of the study presented here. Bumgardner and Bowe (2002) note also that furniture in a home creates associations with emotions, since it contains psychosocial meanings that must be taken into account in the construction and design of the entire product process (distribution, price, brand, etc.).

The emotional demands that furniture could provide for seniors include the emergence of intimacy, satisfaction, inspiration, dignity, reinforcement and connection to the past. The same study shows that in relation to the hierarchy of importance and time of use of the rooms of a house, the kitchen and the living room play an essential role in the time that the elderly spend with next being the bedroom (Jonsson and Sperling 2010). In addition, in the research of Fabisiak et al. (2014), it is observed that the emotions for some furniture played an essential role in the evaluation that people made of it.

A recent survey to investigate the needs of the elderly (Kamperidou 2017) conducted in Northern Greece (Thessaloniki) shows various characteristics and a necessity for furniture design at this age. Dimensions seem to play a decisive role, as it appears that there is a disproportion between the body type of the users and the furniture. In relation to the seats, taller people want deeper seats and vice versa. Hygiene and durability of materials also play a key role, especially in areas of the house such as the kitchen. Furniture should be stable, prevent injuries and be easily accessible to use. Another essential finding from this study is the fact that the 60–69 age group tends to spend more money on furniture. Finally, the lack of communication between manufacturers and this age group is pronounced.

3 Research Methodology

The research is based on the observation with an unstructured interview using photos of furniture from the homes of the respondents. A percentage of the interviews were conducted remotely, via telephone (17) and some live (8). Individuals were asked to choose a piece of furniture that they use daily (in this particular research a dining chair) and to explain the reasons why they made this choice. The sample in the first phase of the research consists of 25 people aged 56 to 87 years, with heterogeneity in educational level and income.

The tools of observation are the image of the furniture and the interview.

The main axes of the interview approach are:

- Construction material
- Construction color
- Furniture design
- Functionality-ergonomics
- Other reasons for which they are related to the specific furniture (e.g. best value for money, weight, harmony in relation to the space, etc.)
- Interest in technological or constructive development in furniture.

4 Discussion – Results

4.1 Individuals Profile

The survey was limited to Athens with a study of two more cases in the cities of Thessaloniki and Karditsa and 1 case in the area of Magnesia (Fig. 1).

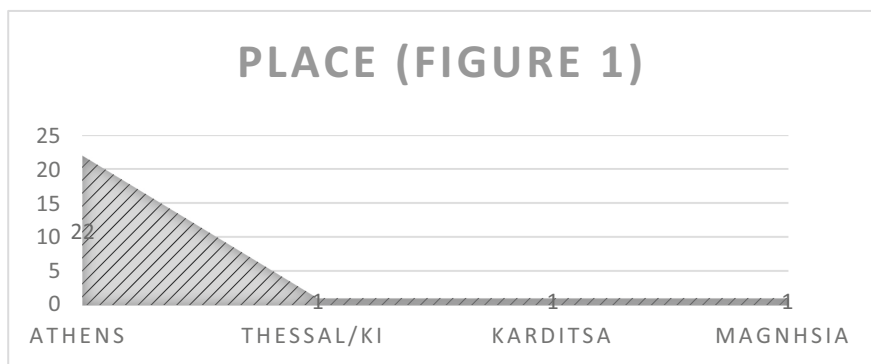


Fig. 1. The permanent residence of the individuals.

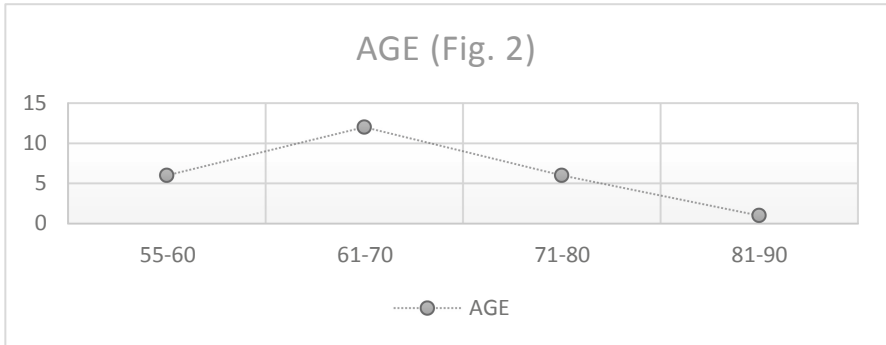
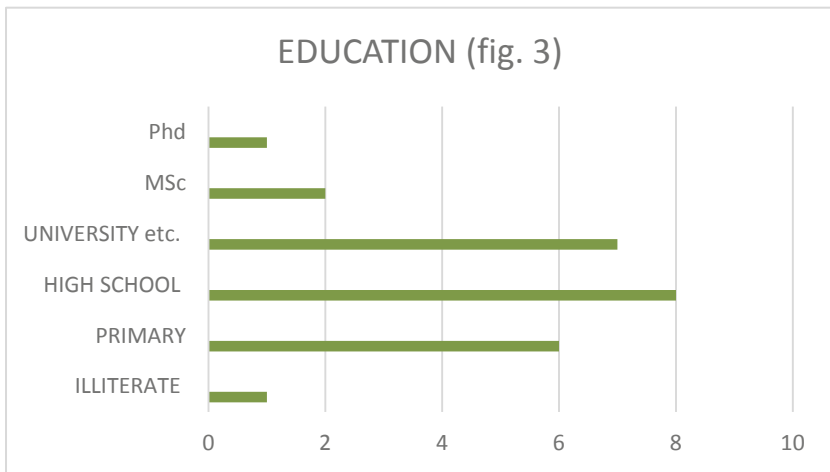
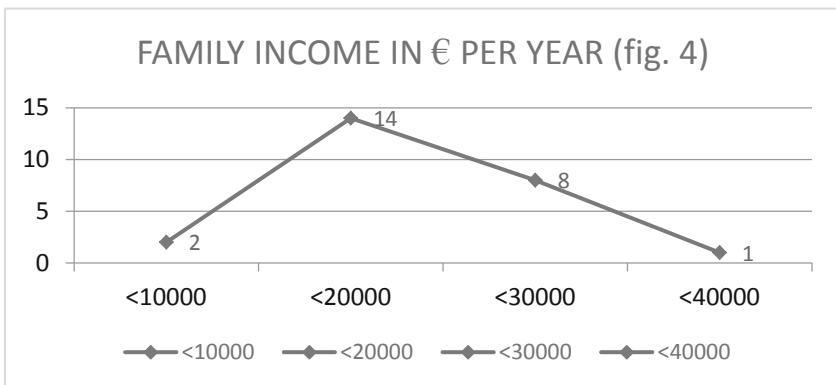
The participants in this survey consisted of 11 women and 14 men. It is worth mentioning, that in 6 cases the interviews were realized in pairs. In relation to the age groups (Fig. 2), 6 people were between 55–60 years old, 12 people between 61–70 years old, 6 people between 71–80 years old and 1 person in the age group 81–90 years old.

Based on the educational level, we have a heterogeneity with the majority of people (8) being high school graduates, 6 people primary school graduates and 10 people with higher education (Fig. 3).

As far as family income is concerned (Fig. 4), most of the people (14) are in the scale <20000€ per year and 8 people in the scale <30000€ per year.

4.2 Construction Material

The majority of the respondents (84%) prefer furniture with wooden frame. The wooden chairs chosen and presented in Chart 1 are mainly made of beech wood. The material of the seat is also interesting, as it consists of either upholstery (with modern foam

**Fig. 2.** Age**Fig. 3.** The educational level.**Fig. 4.** Family income per year.

materials) at a percentage of 56%, or cane (36%) and the addition of a cushion, usually made by them in a big number of cases. Furthermore, it is noteworthy that in a potential new purchase (in a percentage of 80%), wood would still be chosen as construction material. Emphasis is placed on the construction material (robustness is needed) but also in some cases lighter materials. In half of the cases, chairs with wooden frame and upholstery were selected.

4.3 Construction Color

The shades of wood play an essential role in the choice made by the people, with the shades of beech with the colorless varnish finish dominating, followed by the darker shades of paints (walnut and cherry), at 70% of the cases. The rest of the options consist of beige and in one case a combination of black-white and dark brown-beige. From the above, we can deduce that the classical style prevails and the selection of more modern seats, as far as their material is concerned, is limited to two cases, in which black and white are chosen (combined with metal) and ecru (combined with wood). It is particularly interesting that in case of a new purchase and in conjunction with color, people would choose the same furniture as the one they selected and similar furniture with a darker shade of wood. In a case of a total renovation of the house, white paint would be chosen. In one case also, brighter colors are selected.

4.4 Design, Furniture Form and Constructive Elements

By means of design, simple lines prevail, without many edge profiling and carvings (although in many cases there existed more elaborate chair designs in the house, the chairs with simpler forms were chosen by the respondents). In some cases, chairs with curved elements are presented (with cross sections made in lathe either steam bent). An important element is that some chairs presented differentiations in the crossrails between legs (stretchers), which were reported as a deterrent factor in the functionality of the chair by individuals. It is also noteworthy that the chairs are used by people with an average about 22 years, with minimal structural connection problems, which are observed mainly in the detachment of tenon-mortise joints. Furthermore, it is worth pointing out that there is also damage to the material of the seats and the back. The solid beech wood was used more in the construction of the chairs and on a second level the plywood or fiberboard in the elements of the back and the seat. Also, the metal in 2 cases.

4.5 Functionality – Ergonomic Parameters

It turns out from the interviews that people are familiar with the specific characteristics of furniture and they mention them as predominant parameters in order to justify their preference. It is noteworthy that the chairs were measured during the interviews and no deviations in constructive level were found. Most people seem satisfied in terms of ergonomics in relation to their choice, and only in pair interviews there were disagreements in terms of ergonomics in relation to the difference in body type between men and women. Another important element is that the lack of some constructive elements from the furniture creates problems in their use (stretchers, rails etc.).



Chart 1. The furniture chosen by the participants in the sample is presented and an analysis of their preferences is following.

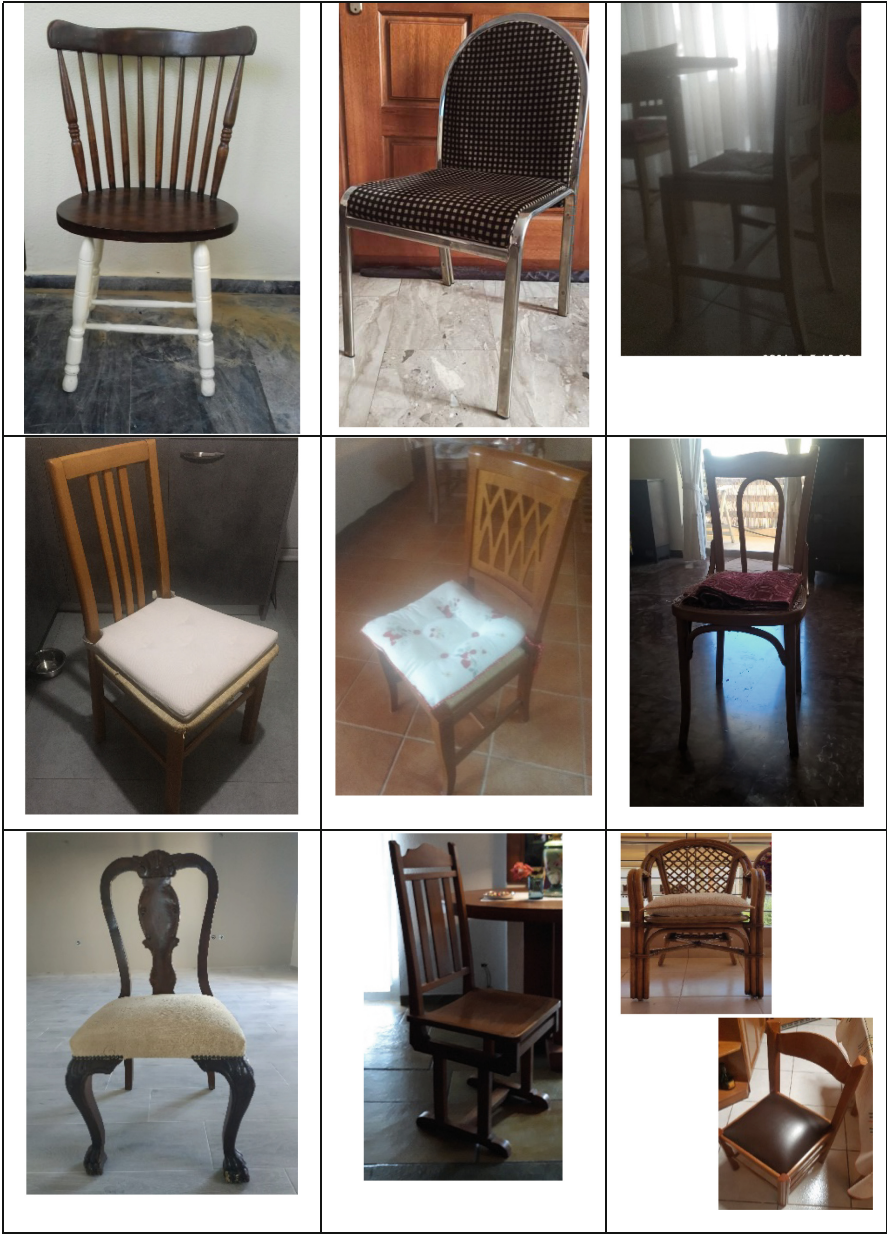


Chart 1. continued

5 Conclusions

The results illuminate that the Greeks by and large choose furniture with a good construction quality and which are expected to last for several years (in some cases the names of the manufacturers by whom they have bought them are mentioned). Furthermore, there is a tendency for minimal changes in case of buying new furniture, which suggests a sense of habit in their choices.

There is a tendency for traditional furniture, which is not designed for this age group. However, since they were informed, they deem the technological development of furniture positively, but without pronounced difference in aesthetics and style (in most cases the traditional one). We can observe a preference in wood as a material and the chairs must be perfectly constructed without lacking elements. From a color perspective, there is a tendency for a colorless finish and dark brown color. In some cases there is a disagreement in ergonomics, primarily in interviews between couples.

Finally, we should not underestimate the fact that the survey should include more geographical and social data in the future, in order to be a “tool” of social policy and business action.

References

- Aarhus, R., Gronvall, E., Kyng, M.: Challenges in participation: users and their roles in the development of home-based pervasive healthcare applications. In: Gerhauser, H., Siek, K., Hornegger, J., Lueth, C. (eds.) *Pervasive Health 2010*, Munich, Germany. IEEE (2010). <https://doi.org/10.4108/ICST.PERVASIVEHEALTH2010.8794>
- Eurostat. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Ageing_Europe_-_statistics_on_population_developments. Accessed 13 May 2021
- Nicholls, D., Bumgardner, M.: Evaluating selected demographic factors related to consumer preferences for furniture from commercial and from underutilized species. *Forest Prod. J.* **57**(12), 79–82 (2007)
- Halilovic, M.: Consumer behavior: a case study on consumer behavior in furniture stores in Shanghai. Linnaeus University, School of Business and Economics, Department of Organization and Entrepreneurship, p. 13 (2017)
- Bumgardner, M., Bowe, S.: Species selection in secondary wood products: Implications for product design and promotion. *Woodand Fiber Sci.* **34**(3), 408–418 (2002)
- Jonsson, O., Sperling, L.: Wishes for furniture design among persons in the third age-interviews with users in their homes. In: Judith, G., Sato, K., Desmet, P. (eds.) *D&E 2010*, Chicago, vol. 7. IIT Institute of Design (2010)
- Kamperidou, V.: Critical points in the of aged people furniture. *Pro Ligno* **13**(4), 466–470 (2017)
- Fabisiak, B., Klos, R.: Comparative analysis of difficulty of activities performed in kitchen by people aged 40–60 and over 60 years with visual impairment in the context of furniture design. *Ann. Warsaw Univ. Life Sci. SGGW For. Wood Technol.* **1**(77), 216–221 (2012)
- Fabisiak, B., Klos, R., Wianderek, K., Sydor, M.: Attitudes of elderly users towards design and functionality of furniture produced in Poland in the second half of the XXth century and nowadays. *Ann. Warsaw Univ. Life Sci. SGGW For. Wood Technol.* **86**, 98–103 (2014)
- Greek Statistics. https://www.statistics.gr/documents/20181/1515741/GreeceInFigures_2021Q1_GR.pdf/e891b0b8-82a3-30be-8f9e-1de20a6db469. Accessed 13 May 2021
- Gronvall, E., Kyng, M.: On participatory design of home-based healthcare. *Cogn. Technol. Work* **15**(4), 389–401 (2013)

- Goulding, C.: An exploratory study of age related vicarious nostalgia and aesthetic consumption. In: Broniarczyk, S., Nakamoto, K. (eds.) NA - Advances in Consumer Reaserch 2002, Valdosta, GA, vol. 29, pp. 542–546. Association for Consumer Research (2002)
- Hrovatin, J., Širok, K., Jevšnik, S., Oblak, L., Berginc, J.: Adaptability of kitchen furniture for elderly people in terms of safety. *Drvena Industrija* **63**(2), 113–120 (2012)
- Papadopoulos, I., Trigkas, M., Karagouni, G., Dedoulis, E., Papadopoulou, A., Blanas, G.: Techno-economic analysis of furniture innovation: developing a green and smart furniture for mass production. In: Andreopoulou, Z., Bochtis, D. (eds.) HAICTA 2015, Kavala, Greece, vol. 1498, pp. 393–400 (2015)
- Simek, M.: Analysis of sitting furniture for elderly people. Faculty of Forestry and Wood Technology, Department of Furniture, Design and Habitation, Mendel University in Brno (2013) PRB. https://www.prb.org/wp-content/uploads/2011/07/2011population-data-sheet_eng.pdf. Accessed 14 May 2021
- State of the Art Report for Smart Habitat for Older Persons, p. 77, 153–155, 181, 184, 185, 200, April 2019
- Worldwide Espacenet. <https://worldwide.espacenet.com/patent/search?q=furniture%20for%20elderly>. Accessed 13 May 2021