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## **SANATORIUM ARCHITECTURE. CONTEMPORARY RECOMMENDATIONS BASED ON A STUDY OF USER EXPECTATIONS**

The architecture of sanatoria is changing due to the range of therapies, the development of therapeutic techniques or changing social needs. The aim of this study was to conduct an in-depth pre-design study to identify the specific functional-spatial needs of sanatorium users. To this end, an anonymous user needs survey was conducted using an online questionnaire. A total of 118 people were interviewed, defining not only the socio-demographic characteristics of the users, but also their functional-spatial needs. The survey included both open and closed questions, covering not only the functional scope of the designed facilities, but also specific equipment and access to green space. The results can be used as recommendations for architects and designers in the development of programmes for new buildings and for the modernisation, extension or adaptation of existing facilities. Participatory research with target users should be an important part of pre-project studies. The study was preceded by a brief and synthetic introduction including a historical overview of the sanatorium facilities. This is because their form and functional layout is often determined by the available technologies and forms of therapy.

**Keywords:** spa architecture, inclusive design, user needs research, participation

### **1. INTRODUCTION**

#### **1.1. Forms of sanatorium care. Historical outline**

The genesis of various forms of hospitality, including sanatorium care, dates back to medieval times. The forms of the facilities, their architecture and functional scope resulted from the forms of therapies used in modern times. The use of mineral waters, by collecting and managing them for therapeutic purposes, was pioneered by the Romans. However, this solution did not gain popularity until the

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19th century, when the development of such spas was put on the agenda [Sawicki, Mazurek-Kusiak 2016: 73].

Spas were established in areas rich in mineral waters, peloids, gases, but also in such areas that offered rich scenic and climatic qualities for adequate rest. In Poland, the beginning of the development of spas took place in the 13th century when thermal baths were discovered in Cieplice, which began to be used by the princes of Świdnica from the Piast family. According to information recorded in guest books, it was noted that in the 19th century only 1/4 of the visitors using these resorts were Poles. Further discoveries were made in the 18th century, when spas began to be established in Krzeszowice, Swoszowice, and in the 19th century the Krynica springs got their start and were subjected to the first balneology studies [Małecka, Marcinkowski 2007: 139-140]. At that time, hydrotherapy became equally popular treatments, which also began to be subjected to scientific research. Both of these disciplines were spread and applied quite rapidly in Western Europe, and in Poland in 1900 there were 68 localities with the status of spas where hydrotherapy, climatotherapy and balneotherapy were practiced. In Galicia, on the other hand, after 12 years, it was published that more than 70 such localities were functioning there, which shows very well how fast development in spa treatment and hydrotherapy took place between the 19th and 20th centuries [Dembinska, Rutkowski 2017: 765].

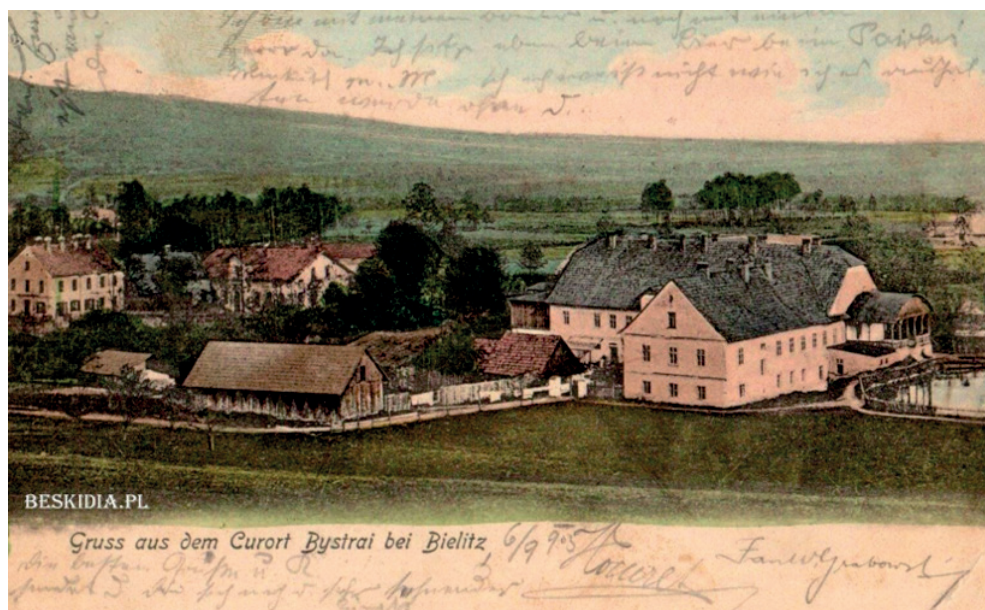


Fig. 1. A view of Bystra from 1899. On the right, Jekels sanatorium [Beskidia.pl 2025]

At present, Poland has 47 localities with the status of a health resort, granted by the Ministry of Health; these places are distinguished by their positive therapeutic effects or have deposits of natural resources used in spas (To the Waters! Architecture in Polish Spas | Article, n.d.).

Over the past few years, investors have been making spa facilities more attractive and expanding their services to reach a larger audience by introducing medical services previously found only in clinics and wellness & spa services [Sawicki, Mazurek-Kusiak 2016: 74].

## 1.2. Demand for sanatorium care

On the basis of statistical analyses carried out (CSO Białystok), the structure of patients of long-term care facilities (including nursing and psychiatric care facilities, hospices and palliative care units) by age group in 2022 was drawn up.

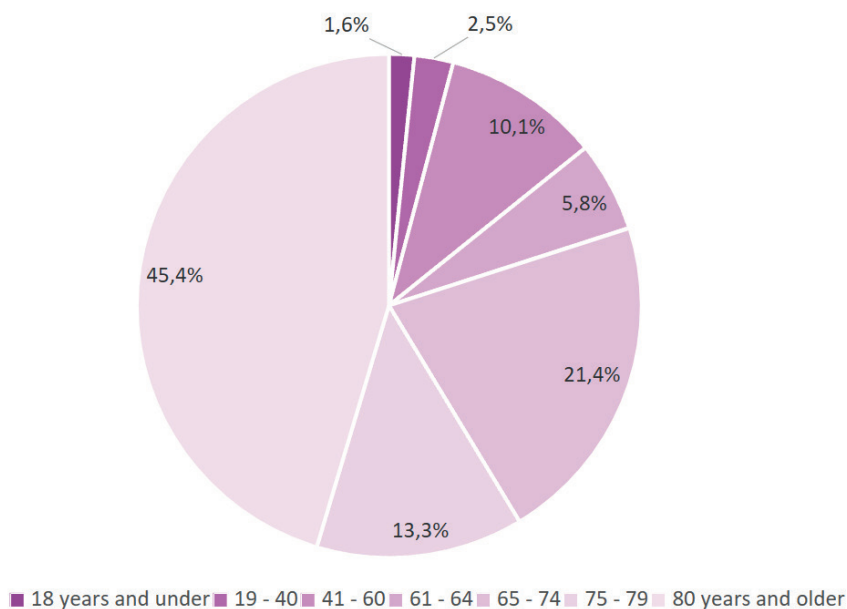


Fig. 2. Structure of patients of long-term care facilities by age group in 2022  
[GUS 2023]

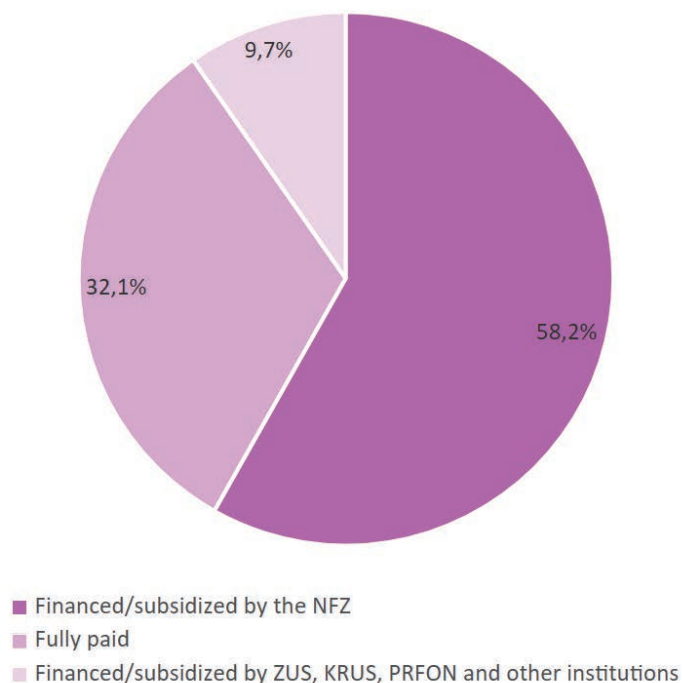


Fig. 3. Structure of spa facility patients aged 65 and over in residential care by mode of financing in 2022  
[GUS 2023]

In 2022, the percentage of patients aged 65 and older decreased from 61.3% in the previous year to 58.2%. In contrast, 32.1% of people in this age group paid for their treatment on their own, down 3.1 percentage points from 2021. The remaining 9.7% of seniors received financial support for their treatment from Social Security, Social Insurance Fund, PFRON or other institutions, up 6.2 percentage points from the previous year (CSO, n.d.-b).

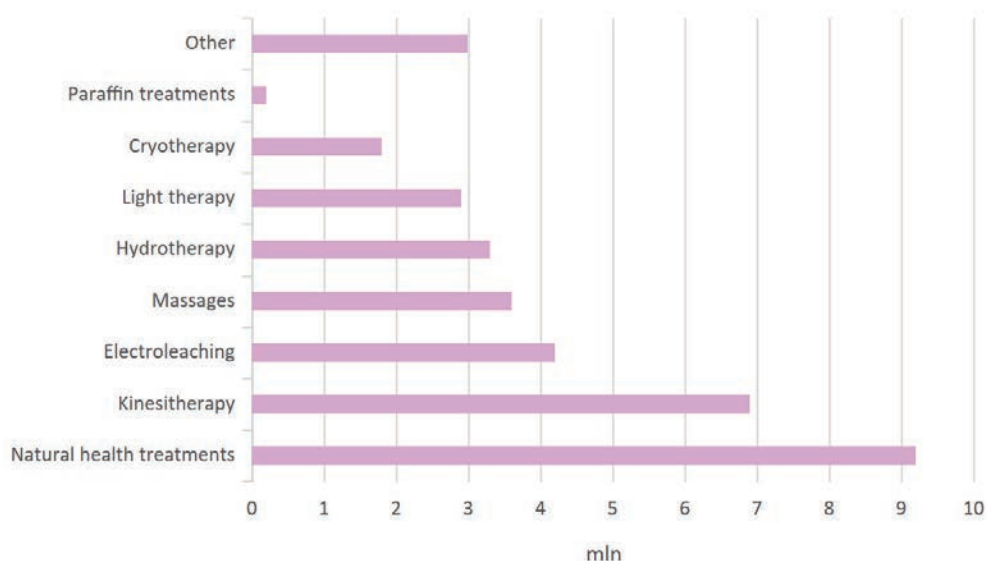


Fig. 4. Treatment procedures performed in spa facilities by type of procedure in 2022  
[GUS 2022]

In 2022, the number of therapeutic procedures carried out in health care centers reached 35.1 million, an increase of 34.9% compared to 2021. As in the previous year, the largest number of procedures was for natural therapies (26.3%), where treatments using mud and mineral baths predominated. The next largest number of treatments performed were kinesitherapy (19.6%), electrotherapy (11.9%), massage (10.2%) and hydrotherapy (9.4%) (CSO, n.d.-a).

## 2. SURVEY OF SPATIAL EXPECTATIONS

### 2.1. Method

Given the demand for sanatorium care, new facilities are being created to meet the diverse needs of forms of care and therapy.

In order to understand the needs, expectations, satisfaction and problems encountered by patients using spa and sanatorium facilities, a survey was conducted using an anonymous survey questionnaire.

118 respondents took part in the survey. The selection of survey questions was designed to primarily characterize the respondents in terms of their age, gender, length of stay and its frequency.

This type of survey makes it possible to determine which services, treatments and amenities are most frequently chosen and preferred by guests. This makes it possible to tailor the offerings of spa facilities to the current needs and expectations of visitors.

The quality and preference of accommodation conditions, the way meals are served, and the most frequently used therapeutic treatments and services offered by the spas were also assessed. The data collected allows identification of areas for improvement.

This study also helps to understand what are the main motivations for using long-term care facilities, whether they are, for example, health needs, relaxation, rehabilitation or preventive health care. Learning about these motivations allows better adaptation of designed facilities to real needs.

The questionnaire consisted of 12 questions, arranged in the following forms:

- closed limited-choice,
- semi-open,
- conjunctive,
- disjunctive,
- an open-ended question allowing the respondent to raise issues not included in the questionnaire, but which are important to the respondent.

## 2.2. Results and interpretation

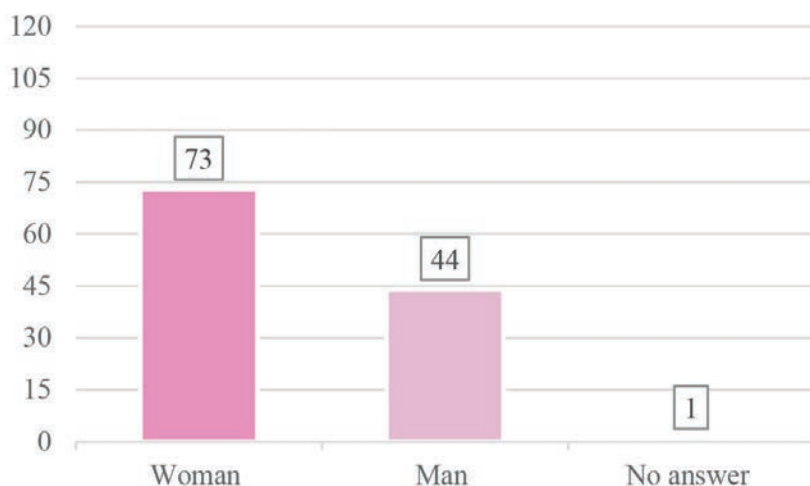


Fig. 5. Distribution of respondents by gender  
[own elaboration based on surveys]

The results obtained show that almost 62% of those surveyed are women, with only 8.5% of women declaring that they have not used sanatorium or spa services; more specifically, women confirming the use of such facilities account for 63% of all those declaring that they have ever stayed in these sanatorium facilities. Thus, there is a noticeable advantage in the popularity of spa facilities among women, but it should be noted that such a difference may also be due to the environment in which the surveys were conducted. However, comparing

with the results of surveys conducted by the Central Statistical Office in Poland, the advantage is correctly noticeable.

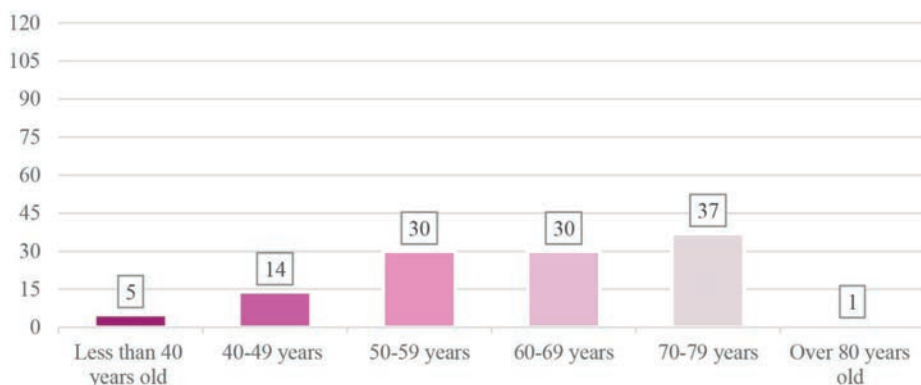


Fig. 6. Distribution of respondents by age  
[own elaboration based on survey]

Based on an analysis of the age of the visitors, it can be concluded that the majority of the surveyed population, 58%, is in the age group of over 60, and the largest group was observed in the 70-79 age range. In addition, it can be noted that the group of respondents between the ages of 50 and 59 accounted for the same number as the respondents aged 60-69, while ranking second in terms of group size. In the graph of the survey results, it is also noticeable that there is an upward trend in the demand for long-term health care as the age of the patients increases (see fig. 6).

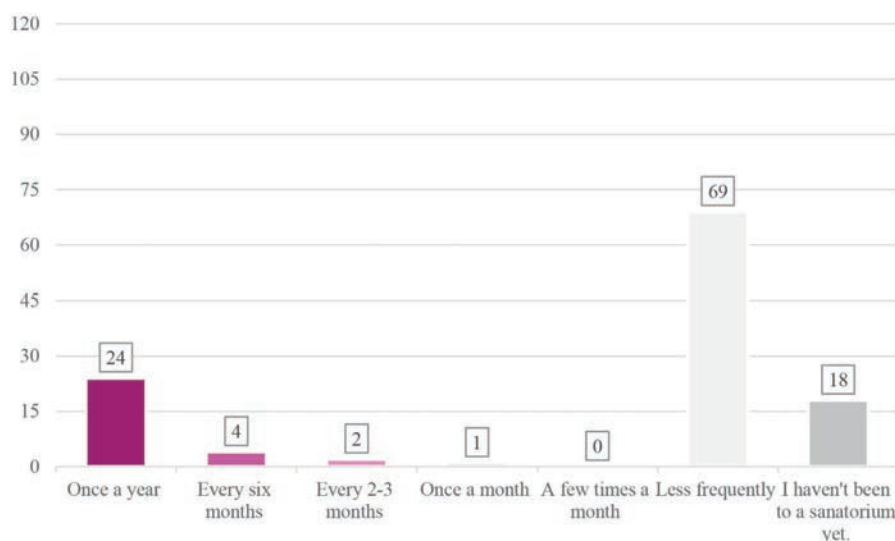


Fig. 7. Distribution of frequency of trips to sanatoriums  
[own elaboration based on surveys]

The results from the survey indicate a preponderance of people (almost 59% of those surveyed) who report using sanatorium and spa facilities less frequently than the once-a-year period. In addition, these people often stressed in the questionnaire that this was due to the long wait in line under the National Health Service, which most often limited their use to once every two years. “The difficulty is receiving a referral electronically and the long waiting time for eligibility from the National Health Fund” (anonymous respondent). The next most numerous group are those who go to the sanatorium once a year, they account for about 20% of those surveyed. 85% of those surveyed say they have used sanatorium services at least once.

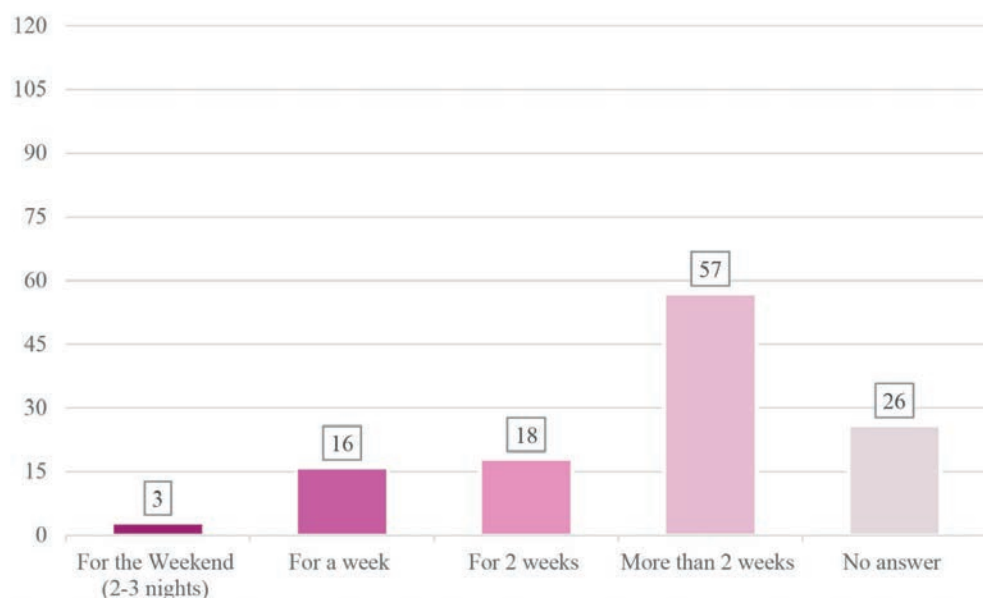


Fig. 8. Breakdown of respondents by declared length of stay at the sanatorium  
[own elaboration based on surveys]

Analyzing the most frequently chosen length of stay in the sanatorium by the patients, a surprising result was obtained, indicating that as many as more than 48% of the respondents declared that they come to long-term care facilities for more than 2 weeks. In addition, in second place, respondents chose the answer “2 weeks stay”, this group accounted for more than 15% of people. Only the weekends are the least chosen, with only 2.5% of respondents. More than 22% of visitors did not specify the length of their stay in the survey. Comparing the results obtained in this question with those specifying the frequency of trips, the following conclusions can be made that trips of at least 14 days are more profitable due to the difficulty of obtaining referrals under the National Health Service for sanatorium care, and the long waiting time for free appointments with doctors and in spas.



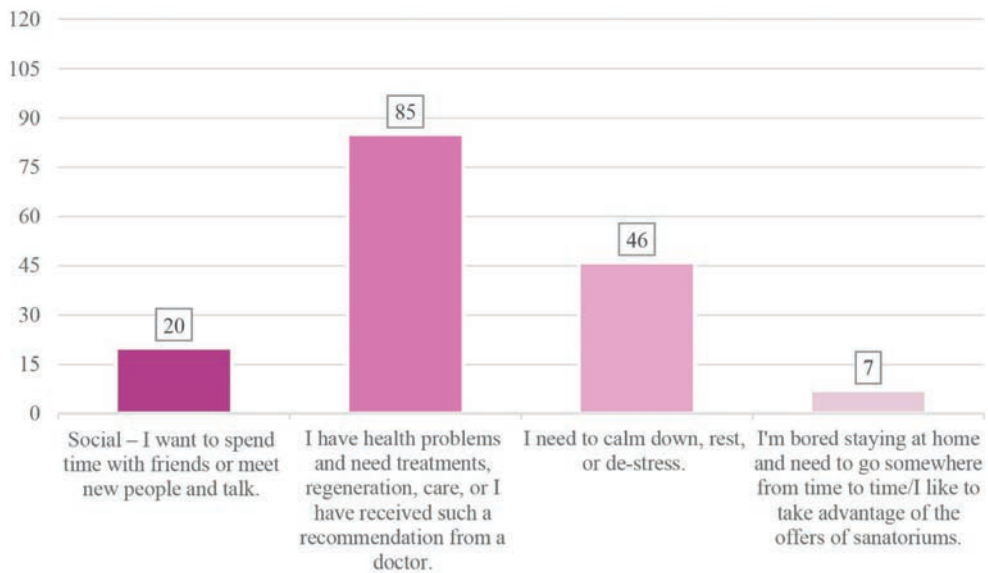


Fig. 9. Purpose of trips to sanatoriums  
[own elaboration based on surveys]

Another question aimed at spa-goers allowed them to select more than one answer, thus earning a total of 158 responses. When asking respondents about the purpose of trips to sanatoriums, more than 72% of them indicated that the reason was their health problems that required prolonged treatment, or they had received a referral from a doctor for treatment. The next most frequently selected answer was the need to calm down, relax or get away from the daily routine of life, in this case the result was almost 39% of people. Nearly 6% of visitors also indicated that trips to spas enable them to get rid of boredom from their lives, and they sometimes need such trips to take advantage of the attractive offers that spas provide. In addition, the need to be in the company of others, both acquaintances and for spa-goers to establish new relationships, also proved to be an important issue.

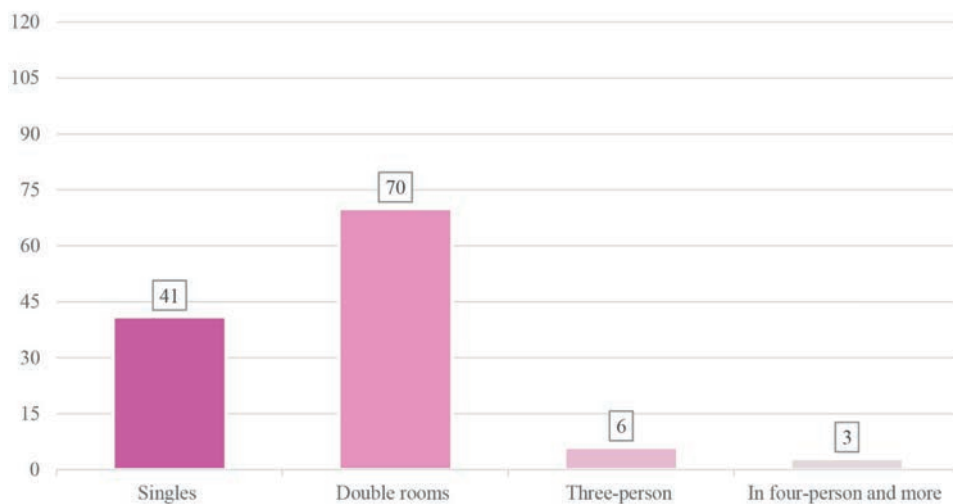


Fig. 10. Preferred room sizes  
[own compilation based on surveys]

Checking the preferences of visitors as to the size of the stay rooms in the sanatoriums, it is clear that rooms with three beds and more are the least satisfactory choice, with only 7.6% of people opting for this option. The most comfortable rooms turned out to be double rooms, which gained more than 59% of the votes of those surveyed. Single rooms, on the other hand, gained in second place with almost 35% support among respondents.

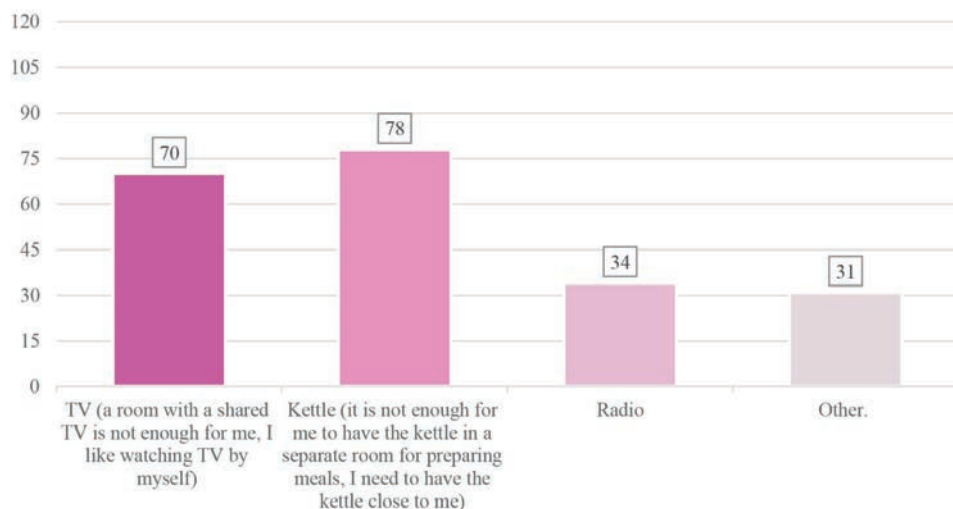


Fig. 11. Type of equipment in the rooms  
[own compilation based on surveys]

The purpose of the next question was to check the respondents' needs in relation to room facilities in treatment facilities, 66% of them showed the need for a kettle in the room, the vision of a public kettle in a common room for all patients was not satisfactory. Fewer respondents, on the other hand, voted for the availability of a television, which was also not sufficient in common rooms; nevertheless, this answer was voted for by more than 59% of respondents.

Due to the form of this question, which also allowed people to express their needs in an open-ended response, more than 26% of visitors took advantage of this opportunity. Most of the responses related to the location of private toilets in residence rooms and access to Wi-Fi in the facility. In addition, a lounge set or chair with a reading area, a comfortable and convenient bed, and a desk also appeared in the responses. Individual responses also referred to such amenities as an iron and laundry dryer, as well as towels, dishes, a refrigerator and a closet with hangers. Such responses may indicate that not all of these items are standard equipment in sanatoriums.

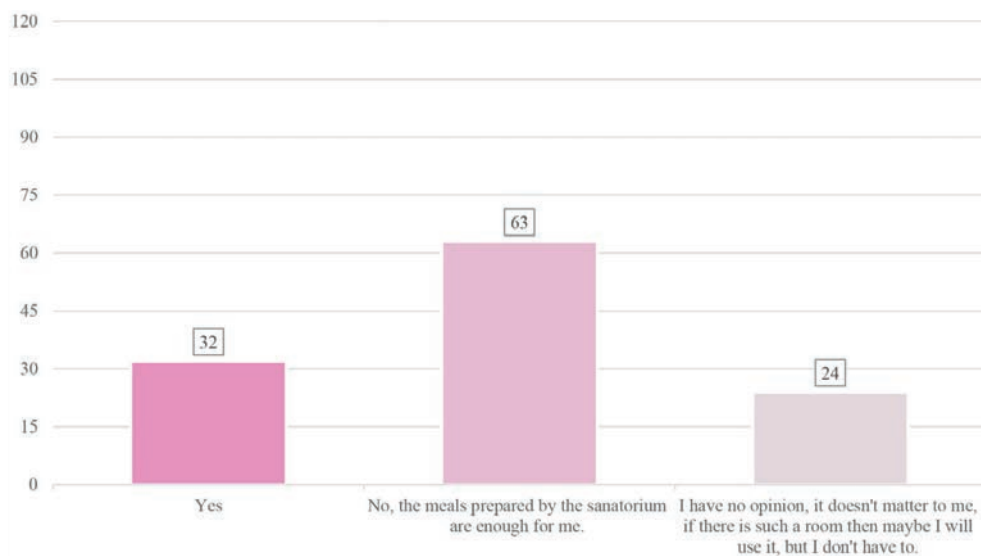


Fig. 12. Diet of patients  
[own elaboration based on surveys]

It was surprising to find that fewer and fewer patients expressed the need for access to kitchenettes, with as many as 53% of respondents stating that meals prepared in long-term care facilities, are a sufficient form of nutrition, and more than 20% of respondents having no opinion on the subject. Drawing conclusions from this information, it can be concluded that an essential element of a resort facility will be a kitchen along with a canteen area that will offer daily meals.

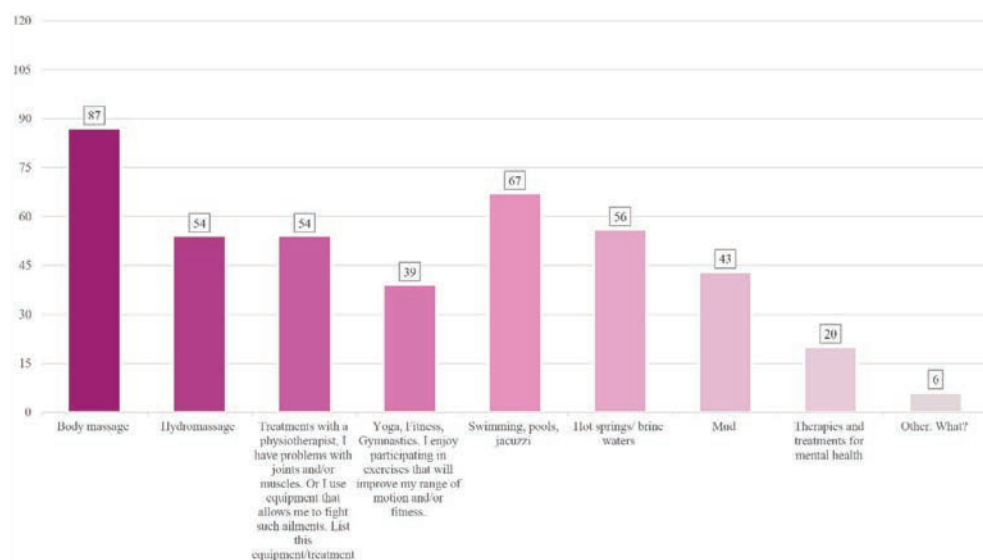


Fig. 13. Demand for treatment procedures  
[own elaboration based on surveys]

In the next part of the study, it was decided to determine patients' demand for treatment procedures. To do this, respondents were asked to mark all the treatments they use most readily or would like to use. The most popular answer was body massage, which garnered almost 74% of the votes. The second most popular treatment was swimming, pools and hot tubs (almost 57%). More than 47% expressed the need for hot springs or salt water. Hydromassage and treatments with a physiotherapist to improve joint mobility or muscle function also remained at a similar level. A surprising result of this survey was also the level of interest in therapy and treatments for mental health conditions, which was almost 17%.

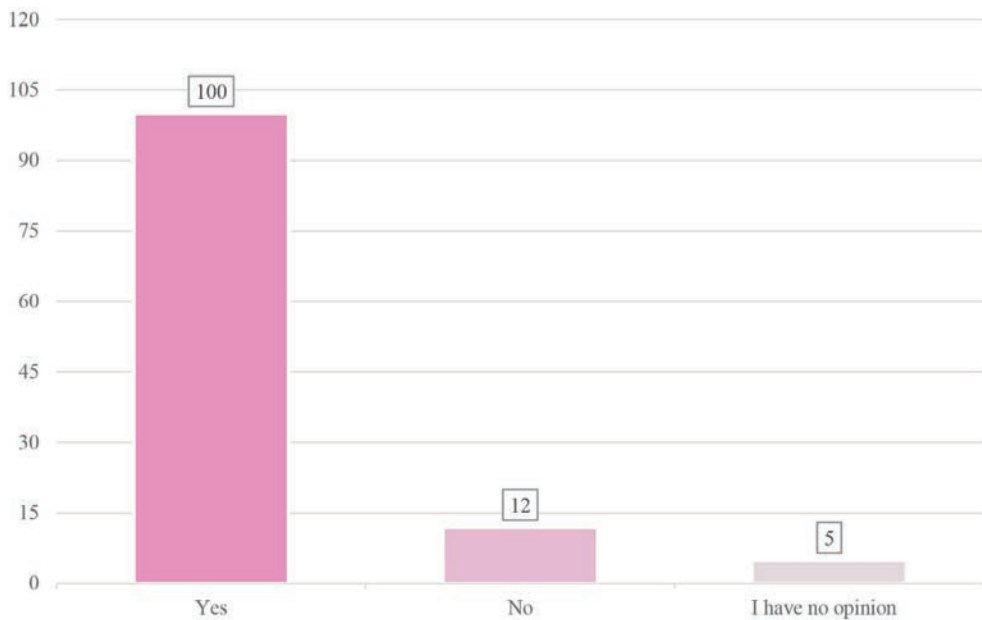


Fig. 14. Demand for proximity to the natural environment  
[own elaboration based on surveys]

When examining the needs of visitors for close contact with nature, almost 85% of respondents confirm that it is important to locate spa facilities in direct contact with the natural environment, in order to calm down from the hustle and bustle of the city. In contrast, only about 4% have no opinion on the subject. It is important to note the beneficial effects of nature on patients' health, vegetation, especially trees, can improve air quality by reducing pollutants, although some plants can also produce allergens that affect respiratory health. Access to green spaces encourages physical activity, which is key to physical health and disease prevention. Natural environments can foster social interactions and social bonds, contributing to mental and emotional health. In addition, exposure to natural surroundings has been shown to have stress-reducing, blood pressure-lowering, and mood-enhancing effects on overall mental health [Hartig et al. 2014].

The journal BMC Public Health, in one of its articles reviewing research on the effects of natural environments on human health and well-being, compared the effects of natural and synthetic environments on people. The study found that short-term exposure to natural environments, such as public parks and green university campuses, has a positive effect on emotions. People who stayed in such places reported better mood compared to those who spent time in synthetic environments, such as indoor facilities and built-up urban spaces. In addition, the authors found that being in natural environments can contribute to lower blood pressure. Contact with nature, such as a walk in the park, has a relaxing effect, which can reduce

tension and stress, leading to lower blood pressure. However, the results of studies are variable, and not all have found significant differences compared to synthetic environments. Additionally, exposure to natural environments can lead to a reduction in cortisol levels, which promotes overall well-being. However, as with blood pressure, research results have been variable and have not always shown significant differences between natural and synthetic environments [Bowler et al. 2010].

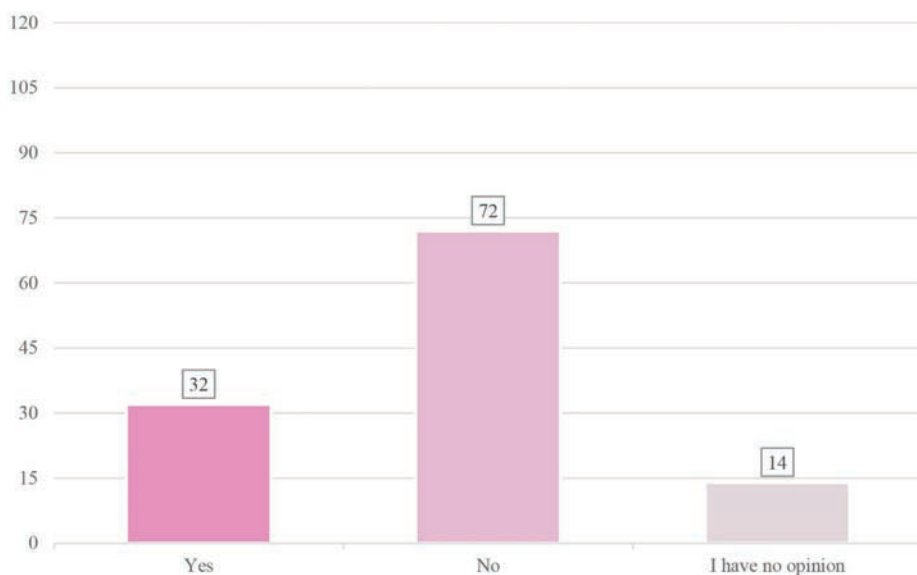


Fig. 15. Demand for proximity to urban spaces  
[own elaboration based on surveys]

Only 27% of those surveyed indicate the need to locate spa facilities near or in the center of town. These people may be mostly driven by the need for easier access to stores and the ability to visit cities, but they are also guided by the belief that this will make it easier to come to the center by public transportation, since not all patients may own a car. When designing spas away from cities, it is important to keep in mind to meet the basic needs of patients, related to food, but also to provide various forms of recreation and places for integration. It is also important to keep in mind the facility's connectivity with nearby towns and cities. In an open-ended question, more than 30% of those surveyed chose to elaborate on the problems they noticed or positive observations they managed to make during their stays in sanatoriums. The most frequently noticed problem turned out to be the lack of passenger elevators for patients in the buildings, more than 10% of the respondents pointed this out in the survey. Another important issue turned out to be the location of the residence rooms in separate buildings, further away from the treatment rooms, which makes it difficult to move around especially during winter periods, when it is necessary to walk between buildings through the outdoor area.

“A very positive thing was the corridors connecting the various buildings belonging to a particular sanatorium complex. Moving from the place of accommodation to treatments, one does not have to dress in coats and hats. However, for people with mobility problems, excessive distances are very inconvenient” (anonymous respondent).

Problems in distances were also evident in moving to the dining room, which was often placed a long distance away. Patients also expressed the need for places for recreation, socializing and relaxation areas. Important to them are activities that could also take place in the afternoon, including dance evenings. “For the more able-bodied, organize dance evenings or any competitions. For single people it would be a break from the monotony of everyday life” (anonymous respondent).

“If it were possible it would be good for the sanatorium to have a psychologist working there. Talking to a psychologist helps a lot, and there are people who are closed in on themselves, they don’t participate in any activities except rehabilitation, they are people who have passed” (anonymous respondent).

### 3. SUMMARY

The survey showed that the largest age group in sanatoriums are people over 60 years old (58%), who show a great need to regenerate the body, but especially to improve fitness and physical fitness in the areas of movement. The design of the sanatorium should take into account locating rooms for various types of massages, but it is also worth thinking about designing swimming pool and wellness & spa areas, which show interest, as much as 57% of people. In addition, it is worth considering locating the facility in the natural environment, in order to allow calming and stress reduction of visitors, which was supported by 85% of respondents. Residence rooms should be designed mainly as double and single rooms.

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## ARCHITEKTURA SANATORYJNA. WSPÓŁCZESNE REKOMENDACJE NA PODSTAWIE STUDYJNEGO BADANIA OCZEKIWAŃ UŻYTKOWNIKÓW

### Streszczenie

Architektura obiektów sanatoryjnych ulega transformacjom ze względu na spectrum form terapii, rozwój technik terapeutycznych czy zmieniające się potrzeby społeczne. Celem niniejszego badania było przeprowadzenie pogłębionych studiów przedprojektowych, które wykażą specyficzne potrzeby funkcjonalno-przestrzenne użytkowników obiektów sanatoryjnych. W tym celu wykonano anonimowe badanie potrzeb użytkowników, wykorzystując kwestionariusz ankiety online. Przebadano łącznie 118 osób, definiując nie tylko cechy socjodemograficzne kuracjuszy, ale również ich potrzeby funkcjonalno-przestrzenne. W badaniu uwzględniono zarówno pytania otwarte, jak i zamknięte, obejmujące nie tylko zakres funkcjonalny projektowanych obiektów, ale również specyficzne wyposażenie oraz dostęp do zieleni. Wyniki mogą stanowić rekomendacje dla architektów oraz projektantów na etapie tworzenia programów dla budynków nowo projektowanych oraz dla modernizacji, rozbudowy czy adaptacji obiektów istniejących. Badania partycypacyjne z udziałem docelowych użytkowników powinny być ważnym elementem studiów przedprojektowych. Badanie poprzedzono krótkim, syntetycznym wprowadzeniem obejmującym rys historyczny obiektów sanatoryjnych. Wzięto bowiem pod uwagę, że ich forma oraz układ funkcjonalny są często determinowane dostępnymi technologiami oraz formami terapii.

**Słowa kluczowe:** architektura sanatoryjna, projektowanie inkluzywne, badanie potrzeb użytkowników, partycypacja