

HOSPITAL ARCHITECTURE AND THE PATIENT'S SATISFACTION WITH THE MEDICAL SERVICES PROVIDED

ARCHITEKTURA SZPITALA A SATYSFAKCJA PACJENTA ZE ŚWIADCZONYCH USŁUG MEDYCZNYCH

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ABSTRACT

Introduction. In recent years in the sphere of medical services a growth of the importance of quality in health care has been observed. The increased awareness of patients and striving for receiving services at the highest level possible involve an increase of expectations towards organisations. Therefore, more and more frequently quality management systems in health care entities are implemented, patients' satisfaction research is conducted and medical services are constantly improved. The functioning of medical entities orientated towards quality is closely connected not only with possessing certificates and employing medical professionals, but also with the conditions in which the medical services are provided and with fitting out medical facilities with modern medical equipment and apparatus.

Aim. The aim of the present study is to show a relationship between hospital architecture and satisfaction experienced by the patients who are the beneficiaries in them.

Material and methods. The study was carried out based on the standardised PASAT questionnaire. The detailed aim of the study conducted was the comparative analysis of the level of satisfaction of the patients hospitalised in certified facilities and those without the quality certificate. The level of satisfaction with reference to the material dimension of the service, which means the factors connected with hospital architecture, was examined.

Results and conclusions. The results of the study show a direct relationship between coming up to patients' expectations in the dimension of the technical infrastructure of the service by certified hospitals and the level of satisfaction with medical services.

KEYWORDS: patient's satisfaction, hospital architecture, quality certificates.

STRESZCZENIE

Wstęp. W ostatnich latach w sferze usług medycznych obserwuje się wzrost znaczenia jakości opieki zdrowotnej. Wzrost świadomości pacjentów, dążenie do otrzymywania świadczeń na możliwie najwyższym poziomie wiąże się ze zwiększeniem oczekiwań wobec organizacji. Stąd coraz częściej wdraża się systemy zarządzania jakością w podmiotach leczniczych, prowadzi badania satysfakcji pacjentów i ciągle doskonali usługi medyczne. Funkcjonowanie podmiotów leczniczych zorientowanych na jakość jest ściśle związane nie tylko z posiadaniem certyfikatów, zatrudnieniem profesjonalistów medycznych, ale również z warunkami, w jakich udziela się świadczeń zdrowotnych, z wyposażeniem placówek medycznych w nowoczesny sprzęt i aparaturę medyczną.

Cel. Celem przeprowadzonych badań była analiza porównawcza poziomu satysfakcji pacjentów hospitalizowanych w placówkach certyfikowanych i bez certyfikatu jakości.

Materiał i metody. Badano poziom satysfakcji w odniesieniu do wymiaru materialnego usługi, czyli czynników związanych z architekturą szpitala. Badania przeprowadzono w oparciu o standaryzowany kwestionariusz PASAT.

Wyniki. Wyniki badań ukazują ścisłą zależność pomiędzy spełnieniem oczekiwań pacjentów w wymiarze infrastruktury technicznej usługi przez szpitale certyfikowane a poziomem satysfakcji z usług zdrowotnych.

SŁOWA KLUCZOWE: satysfakcja pacjenta, architektura szpitala, certyfikaty jakości.

Introduction

Architecture constitutes an art of building, the fundamental task of which is to shape the space suiting human needs. A proper design of the architecture of the surroundings has a vital influence on both a person's activity and on his or her health as well as physical and mental state. Abnormalities occurring in this scope may cause, in turn, the feeling of helplessness and stress in the people using the particular space [1]. The notion

of architecture acquires significance in designing the space around each person who perceives the needs for surrounding himself or herself with a friendly territory layout, equipping this space, the elements which it consists of and their number, colour and design. The space in which a healthy person functions has a substantial influence on his or her well-being. However, in the case of the occurrence of a disease, where it is necessary to leave the previous private space in order to accomplish

the treatment process in a medical facility, the user-patient loses the space created by himself or herself. Furthermore, he or she begins to experience a worse physical and mental state related to finding himself or herself in the situation of a sick person.

The influence of architecture on human behaviour is a relatively new issue and at the same time it constitutes an interesting area in scientific and research terms. The research centres that became interested in this issue are the American Institute of Architects in The State of Washington and The Academy of Neuroscience for Architecture in San Diego. The studies carried out by them showed that designing hospital buildings in an appropriate way influences the improvement of Alzheimer's disease patients' condition and well-being. Moreover, with the use of non-invasive methods of brain imaging neurologists showed a substantial impact of the visual perception of the surroundings on a person's knowledge assimilation, memory and well-being. Currently, these centres are conducting research on the level of stress of the users in terms of such aspects as: lighting, air-conditioning, colour, noise, the level of privacy and the proximity of windows or walls. The researchers, combining the architects' knowledge and the possibilities of neurology, are developing a new field of architecture, the so-called neuro-architecture. They wish that architecture, enriched by clinical knowledge, has the possibility of eliminating or limiting the development of certain disorders and diseases [2].

Thus, it may be concluded that architecture, the spatial layout of the building and rooms, care of infrastructure and the environment in which the services are provided have an essential influence on the level of a person's satisfaction [3].

Health care entities, in the face of increasing competition on the medical service market, notice the necessity of undertaking actions connected with remaining, surviving and developing, which is possible only when plans of actions directed at the growth of the quality of the services provided are set. This quality should concern all the areas of the health care entity's functioning: from the kind of the services offered, the way and time of performing them to the organisation and course of the whole diagnostic-therapeutic process or the possibility of using modern treatment methods. What is also important is to perceive the role of the patient, focus on identifying and then fulfilling his or her individual needs, which in consequence translates into the level of the satisfaction attained by the patient.

In our times one may observe an intensive growth of the importance of quality in many spheres of life. Yet it is not as vital as it occurs in the case of providing medical services since it refers to human health and life [4].

Thus, quality is more and more frequently taken care of and verified on the basis of the assessments obtained from patients through satisfaction level research carried out by health care entities.

Taking into consideration the division into medical and non-medical factors which determine the quality of medical services, in the process of its assessment three groups of criteria are singled out [5]:

1. The structure criterion – it concerns the factors which allow the medical personnel to perform tasks in accordance with the current medical knowledge with reference to:
 - infrastructure (the equipment of buildings and rooms),
 - material resources (technical equipment as well as medical equipment and apparatus),
 - human resources (the number of people, their competence and qualifications).
2. The process criterion – it concerns all administrative, nursing and medical actions connected with the patient at every stage of health care, to which belong the following ones:
 - the access to medical care (the possibility of obtaining an indispensable service and the waiting time for it),
 - comprehensiveness of the service,
 - the behaviour of the medical and auxiliary personnel,
 - patient service culture,
 - communication with the medical personnel.
3. The result criterion – it concerns the results achieved, which serve as the basis for the assessment of the medical services performed. The following ones are distinguished here:
 - complications (hospital-acquired infections, the number of reoperations, the number of repeat admissions),
 - mortality rate,
 - fitness rate,
 - the average time of stay in hospital,
 - the patient's satisfaction with the medical service received.

The patient in a situation of a disease may expect a high comfort of the stay in hospital, a single or double room with a bathroom, an access to television or the Internet, an unlimited access to the hospital chapel, food and beverage services, a hospital car park for visitors, easy public transport and friendly surroundings of the hospital building with green areas [6].

The standards of providing medical services result from many legal regulations (the directive to the act of medical activity, the act of the profession of a doctor, nurse and midwife legally binding from April 15th 2011).

They refer to the requirements set to medical facilities in terms of [7]:

- building infrastructure – which are related to the norms that they must meet so that services of a particular kind and in a particular scope may be performed. They refer first of all to the establishment surface, the height of the rooms and the obligation to possess driveways for the disabled,
- fitting out with medical equipment – it concerns the minimum quantitative and qualitative requirements of the medical facility equipment in accordance with the speciality and kind of the services provided as well as possessing indispensable certificates and seals of approval confirming the compliance of the apparatus with the binding security norms,
- the medical personnel – it concerns the requirements in the scope of the necessary qualifications and entitlements of the personnel to perform medical services and the determination of the minimum number of the personnel members in the organisation.

As it turns out, the quality of the hospital infrastructure conditions the quality of the services provided and from the point of view of the patient it will have a vital influence on his or her subjective assessment and the level of satisfaction attained.

Material and methods

The study was carried out based on a standardised tool for examining the hospitalised patient's satisfaction – PASAT, which was constructed by the Quality Monitoring Centre in Health Care in Cracow. It consists of 16 questions (or groups of questions) concerning the patient's satisfaction with the stay in a hospital ward and 6 personal questions. On account of its specificity, thanks to the PASAT questionnaire it is possible to assess 5 areas of care:

- medical care and contact with the doctor,
- nursing care,
- standards of living,
- the process of admission to hospital,
- hospital food.

In the study analysed the focus was on the health care areas connected with standards of living and organisational conditions. The patients made an assessment on the 5-point Likert scales with the points described according to the pattern (1 – very good, 2 – good, 3 – rather good, 4 – poor, 5 – very poor).

The research group consisted of patients from 17 hospitals of a different reference level on the territory of the whole country who stayed in the facilities possessing a quality management system implemented, which

constituted 59% and 41% of the patients from the facilities which did not possess any certified quality management system. Altogether they constituted a group of 800 people. Among the patients 66% of women and 34% of men should be singled out. The level of education of the patients was diversified: 20% of them had higher education, 9% post-secondary, 33% secondary, 28% vocational and 10% primary.

The results of the study were worked out with the use of the SPSS v. 12.0 PL statistical package. In all the analyses the $\alpha=0.05$ significance level was assumed. Furthermore, the U Mann-Whitney non-parametric test of the significance of intergroup differences for the independent data was used.

Results

The study conducted among the patients of the hospitals which possess a quality management system implemented and the hospitals without quality certificates showed a different level of the hospitalised patients' satisfaction with the aspects connected with hospital architecture.

When asked about the motives for choosing a particular hospital as a place in which they wanted to undertake treatment, the respondents marked different answers. The patients of the hospitals which possessed quality certificates relatively more frequently paid attention to the aspects related to the fact if the hospital was fit out with modern medical equipment and apparatus than the patients of the non-certified hospitals. Nevertheless, the most frequent determining factors were: the suggestion of the attending physician, recommendation of the facility by family or friends and highly-qualified medical staff. The patients of the facilities without a quality system implemented were most often directed by a convenient location of the facility (**Figure 1**).

Table 1 shows the opinions obtained from the patients on the subject of the factors responsible for satisfaction with the medical services performed, such as: hospital architecture, functionality and equipment of the rooms, the standards of living in the hospitals.

A list of the results of the tests concerning the significance of the differences between the assessments of the patients staying in certified and non-certified inpatient care facilities was compiled. The U Mann-Whitney non-parametric tests were used here.

Statistically significant differences with reference to the assessments of the functioning of the Admissions of both groups of hospitals were found. As it turned out, the difference in the assessment of the organisation of the way in which patients are admitted to the ward is statistically significant. The patients of the certified hospitals assess higher the organisation of the way of

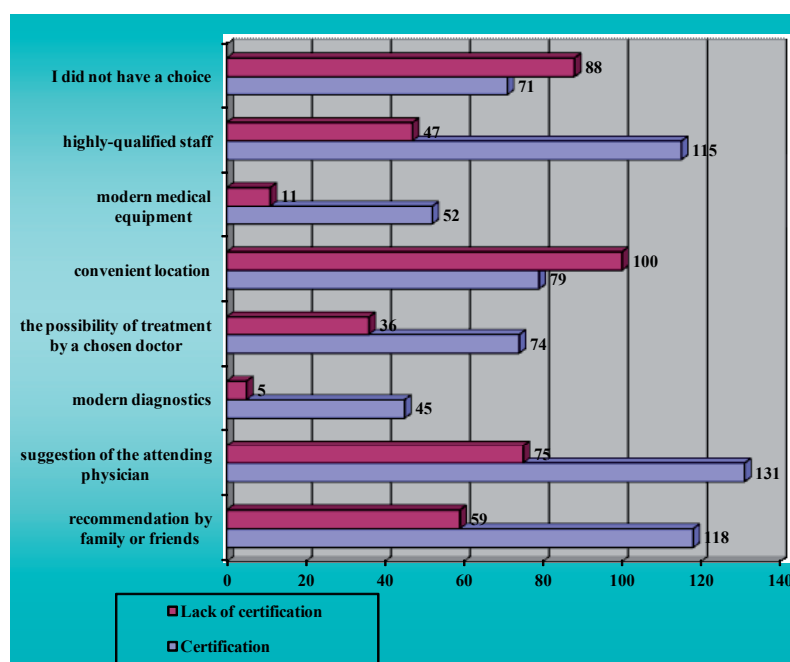


Figure 1. The motives for the choice of the hospital
Source: own study

admission to the ward than the patients of the facilities which do not possess a quality certificate.

Another statistically significant factor assessed in the groups of hospitals examined was providing privacy in the Admissions. Once again certified hospitals obtained better assessments. It is probably caused by the increased care of the conditions and quality of the medical examinations performed, which in turn entails the necessity of providing patients with special examination rooms which enhance their comfort and sense of privacy.

Simultaneously a significant difference occurred in the assessment of the cleanliness in the Admissions; the increased care of cleanliness and order was declared by the patients of the hospitals with a quality management system implemented.

One by one the patients assessed the infrastructure of the Admissions and whether it was equipped with appropriate seats, outdoor clothing stands, etc. Statistically significant differences were registered in the assessments of the patients staying in certified hospitals and those without certification to the benefit of the first ones. It is probably caused by the increased care of the equipment and facilities for patients waiting in the hospital Admissions.

While assessing in turn the hospital ward and the conditions there, the patients indicate significant dif-

ferences with reference to the equipment of the wards. They assessed such elements as: lighting, appropriate equipment in the wards, among others: stands, tables, cupboards; they also assessed the aesthetics of the furniture. Once again the facilities which possessed quality management systems implemented were assessed higher.

As it turned out, the differences in the assessment of adjusting ward bathrooms to the needs of the patients with indispensable handles, railing or walking frames in certified and non-certified hospitals are not statistically significant.

At the same time a significant difference occurred in the assessment of the sleep and rest conditions at the ward. The patients of certified hospitals assess the level of these conditions higher than the patients of the medical facilities that do not have quality management systems implemented. It may be acknowledged that the increased care of silence as well as good sleep and rest conditions takes place in the facilities which are directed at quality and constantly take care of improving it.

Moreover, significant differences were observed while examining the time determined by the hospital for visiting patients. In the certified hospitals the time for visits by family and friends was assessed higher as appropriate than in non-certified hospitals.

Table 1. The results of the U Mann-Whitney Test for certified and non-certified hospitals concerning the differences in the assessment of the factors responsible for the patient's satisfaction

Factors	Average		Statistics	
	Certi-fied	Non-cer-tified	U Mann-Whitney	Asymptotic significance (bilateral)
The Admissions – organising the way of admitting patients to the ward	1.5866	1.6832	68757.500	.046
The Admissions – providing privacy	1.6424	1.7508	66713.500	.032
The Admissions – cleanliness in the Admissions	1.3739	1.5125	65876.000	.003
The Admissions – the equipment of the Admissions (seats, stands etc.)	1.7241	1.8991	63695.000	.004
Hospital ward - the equipment of the patients' rooms (lighting, furniture and their aesthetics, stands, tables, cupboards etc.)	1.6599	1.8313	72429.000	.002
Hospital ward - adjusting the bathrooms to patients' needs (handles, railing, walking frames)	1.9648	2.0242	76673.500	.295
Hospital ward – sleep and rest conditions	1.6646	1.8333	72629.000	.002
Did the time for visiting come up to the expectations	1.6060	1.8328	69306.500	.010
General assessment of the stay in hospital	1.5179	1.6818	69268.000	.002
Would you recommend the hospital to the family/friends	1.5720	1.8598	63701.000	.000

Source: own study

Another question analysed concerned the general assessment of the stay in hospital. It turned out that there are no significant differences between the patients of certified hospitals and those without certification in the scope of low assessments ('poor' or 'very poor'). Such assessments were given by an identical proportion of patients in both groups. A significant difference is visible in the scope of good assessments, and especially the very good ones (**Figure 2**). In this case the patients of certified hospitals definitely better assess the general stay in the facility. It shows that general satisfaction of the patients remains in a relationship with the fact of possessing a quality certificate by the facilities.

Significant differences are also visible in the scope of the declarations concerning the willingness to recommend a particular medical facility to the family or friends. The patients of the hospitals with a quality management system implemented much more frequently decide to recommend a particular facility to other people from their close surroundings (**Figure 3**) than the patients staying in the hospitals without a quality certificate.

Discussion

The quality of medical services performed in health care entities is connected in a vital way with the fact of possessing or not possessing a certificate confirming conformity to the specific quality management system by a particular facility. Care of the factors connected with the material dimension, which is hospital architecture is, as it results from the study, higher in the facilities with a certificate. Thus, the level of the services provided by certified hospitals is, in the conviction of the participants of the study, higher than in the facilities which do not possess certification. As the results obtained in the study carried out by the Shaw, Groene, Mora and Sunol team show, the functioning of the hospitals that possess a quality certificate or the accreditation of the Quality Monitoring Centre in Health Care differs in a significant way from the functioning of the hospitals which do not possess a quality management system implemented [8]. Certified or accredited hospitals are able to provide the patient with a higher level of security and better medical care.

The situation of hospitalisation is a difficult situation since it entails the necessity of adjusting to the new surroundings, not only social but also physical, the impossibility of fulfilling many important and vital needs as well as experiencing many negative emotions, such as fear, dread and anxiety about one's own condition.

According to the reports from the studies, a patient-oriented approach (his or her individual needs and expectations towards the health service and the conditions in which it is provided) brings many benefits regarding the health care entity: it increases the patient's satisfaction with medical care, it speeds up his or her convalescence and also enhances stress and pain resistance and tolerance; it additionally favours the continuation of treatment as well as the search for and the use of the medical care available [9]. Furthermore, the studies indicate that the most important predictor of the patient's satisfaction during hospitalisation is to fulfil his or her expectations [10].

In addition, the increase of patients' satisfaction as well as their loyalty remains in a relationship with the quality of medical services and a positive image of the facility in its surroundings. It translates, in turn, into an increasing number of patients interested in using the

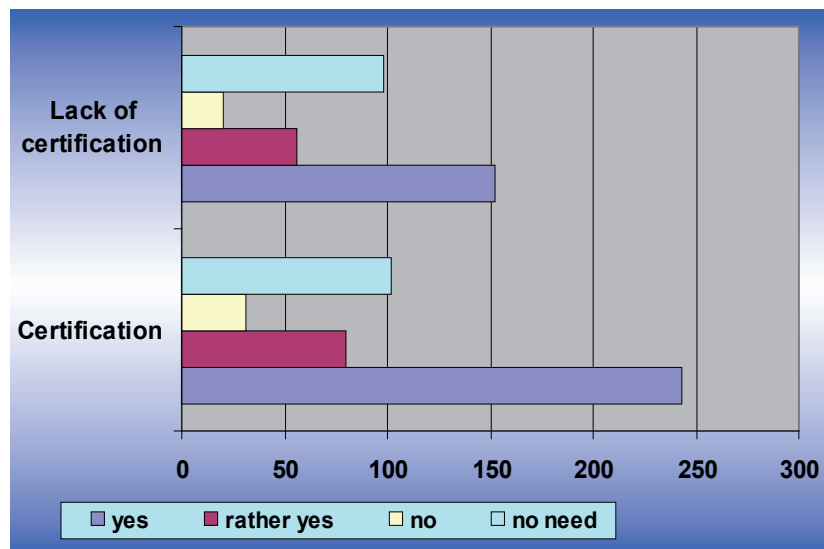


Figure 2. The general assessment of the stay in hospital
Source: own study

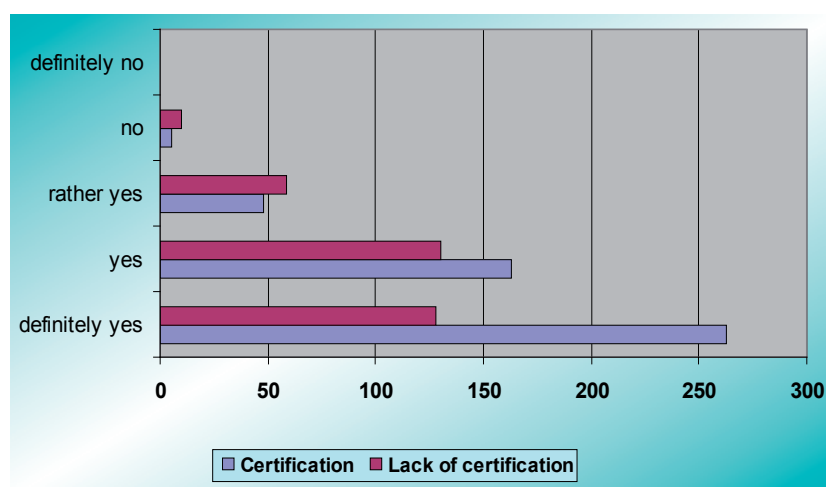


Figure 3. The readiness to recommend a particular hospital to the family or friends
Source: own study

services performed by the facility. Moreover, the development of the quality and care of enhancing the patient's satisfaction correlates with the decreased number of claims made by patients regarding the unit [11]. It is extremely important as it points to the fact of the increase of the quality standards in the unit.

Moreover, the results of many studies show that a permanent and systematic improvement of the functioning of the inpatient care facilities affects the increase of the quality of the medical services offered and similarly, also the increase of the satisfaction attained by the patients.

Satisfaction is mainly connected with the level of fulfilling the expectations regarding the medical service with reference to its various dimensions. As the study conducted shows, patients expect a high quality of services offered in the conditions of a friendly hospital infrastructure.

The degree of the patient's satisfaction will depend on the extent of the divergence between his or her expectations concerning the service and the perception of how it was performed after it is over. The individual level of satisfaction is determined by its real and objec-

tive parameters as well as the way of communication of the provider of services and it also depends on the patient's expectations towards the service and his or her personal experiences [12].

The Quality Monitoring Centre in Health Care has drawn up a set of measures of the patient's satisfaction, thanks to which one may take measurements of the level of his or her subjective satisfaction in the aspect of:

- interpersonal relations (friendliness, availability, listening in a careful way and speaking in an understandable way, providing privacy),
- standards of living (cleanliness, aesthetics of the rooms, temperature and quality of the meals, adjusting the bathrooms to the needs of the patients, visiting hours),
- procedures (the time and reasons for waiting for the planned admission, formalities in the admissions, discharge from hospital),
- informing patients (about their condition, ways of treatment, complications and the possible risk, planned operations, the prescribed diet, continuity of treatment, the period of convalescence),
- the general assessment of the stay in hospital.

Conclusions

1. The conditions in which medical services are provided have a substantial influence on the patient's satisfaction. What is important for the patient is the material dimension of the service which is the factors connected with the hospital's architecture: fitting out medical facilities with modern medical equipment and apparatus, the layout of hospital rooms, cleanliness in the rooms, lighting, the number and functionality of furniture, adjusting the rooms to the patients' needs, the sleep and rest conditions.
2. The study showed a direct relationship between fulfilling the patients' needs in the dimension of the technical infrastructure of the service by the certified hospitals and the level of the satisfaction with medical services.
3. The level of the hospitalised patient's satisfaction is significantly higher in the facilities which possess quality management systems implemented.

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