

QUALITY MANAGEMENT OF HOSPITALIZATION PROCESSES

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Purpose: The aim of this article is to identify attributes related to the quality of the hospitalization process, categorized from absolutely necessary to those whose presence does not significantly impact this quality (according to the Kano methodology). The identified attributes also simultaneously contribute to shaping patient satisfaction. The primary objective of this article is to indicate at what level in the satisfaction assessment factors determine the quality of the hospitalization process and to what extent they align with the expectations of hospitalized patients.

Design/methodology/approach: The literature review will focus on identifying factors determining the quality of the hospitalization process. The empirical part of the article will revolve around classifying these attributes according to the Kano methodology through survey research. The next stage of the research process will involve assessing the satisfaction of hospitalized patients in areas corresponding to the Kano attributes - through survey research - and identifying discrepancies between expectations and satisfaction levels.

Findings: Among the attributes that particularly determine the attractiveness of a hospital unit are those related to reducing time. Shortening the admission time to the ward, waiting for discharge, and the time it takes to conduct prescribed tests are emphasized. Additionally, the importance of adhering to the treatment stages according to the planned schedule is highlighted. Therefore, it is recommended as a priority to simplify procedures for both admission to the ward and discharge, as well as to strictly adhere to the treatment schedule while optimizing it to reduce the waiting time for prescribed tests during hospitalization.

Research limitations/implications: The article presents the results of literature research, which can be complemented in further studies on this topic. One limitation of the research is the relatively narrow group of patients who completed the satisfaction assessment survey, both in terms of the number of patients, geographical area, and the number of hospital facilities. Additionally, the study only presented attributes related to the organization and the quality of the hospitalization process, without delving into broader topics related to personnel or material conditions, which likely also influence the level of patient satisfaction. These limitations point towards directions for future research.

Practical implications: The results of the conducted research can have practical applications in the business field. Satisfaction assessment surveys completed by hospitalized patients from various hospitals will identify areas where patient satisfaction is the lowest. Consequently,

they can serve as a basis for developing guidelines for efforts aimed at improving the quality of the hospitalization process. Additionally, the Kano methodology will indicate which attributes that determine the quality of the hospitalization process are most significant to patients, thereby guiding which actions should be implemented first.

Social implications: The implementation of the solutions recommended in the article, focusing on improving the quality of the hospitalization process, will result in raising the standards of hospitalization services provided by hospitals. The interest shown by hospital facilities in this topic demonstrates their social responsibility, and the added value for society will be the opportunity to access hospitalization processes that are more aligned with patients' expectations, especially in areas where patients have absolute expectations.

Originality/value: The article is primarily dedicated to individuals responsible for managing hospitals, who make decisions regarding its development and the improvement of the processes within. These individuals can gain insights into how satisfaction with the implemented processes can be measured comprehensively, and furthermore, how to determine the importance of individual quality attributes (Kano).

Keywords: hospitalization process, quality of the hospitalization process, patient satisfaction, Kano method.

Category of the paper: Research paper.

1. Introduction

Caring for life and health has always been one of the key challenges that humans face, as one's state of health influences their perception of the world and even their level of life satisfaction (Fiorillo et al., 2021). A potential hospital patient (with planned hospitalization) can, on one hand, choose a hospital facility that, in their opinion, has a good reputation and trust, often resulting from the high quality of services provided (Budynek, 2023). On the other hand, they may encounter a limited number of hospital beds and shortages (Shuv-Ami, Shalom, 2020). These shortages are identified on basically all areas of hospital facility assessment. (Improta et al., 2017; Upadhyai et al., 2021).

For the purposes of this article, based on literature research (Riblet et al., 2017; Hiidenhov et al., 2001), focus group studies, and participant observations by the authors of this publication, characteristics determining the quality of comprehensive hospital treatment have been categorized into three sets. The first set pertains to the condition and availability of material infrastructure, encompassing both medical equipment and hospital rooms, as well as sanitation facilities (Asiamah et al., 2022; Shuv-Ami, Shalom, 2020). The second set includes attributes related to hospital staff, both medical and non-medical (this not only refers to the number of staff members per facility but also to desired qualities they should possess) (Luna-Aleixos et al., 2023). The final set of attributes comprises factors determining the quality of the hospitalization process itself (Salomon et al., 1999). Given the extensive scope of the subject matter and the limited space in this text, all discussions will focus solely on the last set of attributes, which is the management of the quality of the hospitalization process.

2. Literature research aimed at identifying factors determining the quality of the hospitalization process

The concept of quality emerged in the works of philosophers in ancient Greece in the 5th to 4th centuries BC. Plato associated it with a level of perfection, while Aristotle regarded quality as a definition of an object. Plato and Aristotle's concepts were adopted and widely disseminated in Western culture. Independently, the idea of quality of life developed in the East, which was always linked to the human pursuit of excellence. One of the earliest surviving examples is the Chinese "Book of the Way and Virtue" (Lao Tzu, 2023) likely from the 4th or 3rd century BC. It introduces the concept of excellence and the path that leads to it. The author does not address the quality of material goods, but contemporary Eastern cultural perceptions of quality have expanded upon these ideas. Until the industrial revolution, a definition of quality based on excellence was largely sufficient for both producers and markets. The level of excellence, serving as a reference point for evaluating specific products and services, did indeed generate excessive costs for entrepreneurs (overquality). However, it also allowed for long-term customer satisfaction and often determined competitiveness (Wagner et al., 2014). In more contemporary times, former Prime Minister of the United Kingdom, John Major, stated in his address that the days of the industrial revolution passed in the 19th century, and today we are witnessing a quality revolution (Malinowska et al., 2014). This is because continuous improvement in quality and cost reduction are almost an absolute necessity to remain competitive in the market.

The requirement for constant quality improvement and increased operational efficiency aimed at cost minimization poses challenges for hospitals grappling with various issues (González et al., 2005; Prakash, Phadtare, 2018). There is increasing discussion about shortages in medical staff, deficiencies in medical infrastructure, continuous increases in the prices of electricity and gas, rising inflation, and the minimum wage for workers, all of which have an impact on cost management. Considering limited financial and personnel resources, it is crucial for decision-makers in medical institutions to determine which aspects must absolutely be at a high level according to their customers (patients) and what patients are willing to accept or absolutely reject. In the literature on the subject, there is a multitude of definitions of quality itself, as well as factors determining the quality of the hospitalization process and strategies aimed at improving the quality of this process (Vandamme, Leunis, 1993; Fuseini et al., 2023).

In the ScienceDirect database, when you enter the phrase "hospitalization process" into the search engine, you get 257,682 scientific articles and other publications. However, when narrowing the search by adding the term "quality" found in the title, abstract, or keywords specified by the authors, the number of scientific papers in this area is 24,582. It is worth noting a rising trend in the number of these publications in recent years (Table 1).

Table 1.

The number of publications including the terms "hospitalization process" and "quality" from 2017 to 2023 according to the ScienceDirect database

Year	The number of publications	The increase in the number of publications from a given year to the previous year
2017	1291	-
2018	1436	11%
2019	1583	10%
2020	1758	11%
2021	2193	25%
2022	2276	4%
2023	2528*	11%

* The projected value, with the lower limit of publications at 2340 and the upper limit at 2715.

Source: Own study based on the ScienceDirect database.

It is emphasized that healthcare quality is a complex matter that requires an interdisciplinary approach (Oltedal et al., 2007) and can be shaped through three aspects: structural quality, process quality, and outcome quality. The focus of this study is specifically on process quality. It should be noted that in Poland, the quality of medical services is regulated by the Act on Medical Activity dated April 15, 2011. Additionally, healthcare quality is governed by the Act on Quality in Healthcare and Patient Safety dated June 16, 2023, which defines principles and procedures for (<https://orka.sejm.gov.pl/>): the operation of the quality monitoring and assessment system in healthcare, differentiating the level of public funding for hospital care services, establishing internal quality management systems for entities engaged in medical activities, granting and withdrawing accreditation, defining the operation, organization, and tasks of the Agency for Quality in Healthcare, further referred to as the "Agency," and the Accreditation Council operating under the President of the Agency.

Furthermore, Article 4 of the law specifies quality indicators for healthcare, classifying them into one of three areas:

1. Clinical quality - understood as a set of indicators related to the level and outcomes of healthcare services provided, described by parameters such as: a) Treatment effectiveness, b) Readmission for the same cause, c) Mortality after procedures: during hospitalization, within 30 days, 90 days, and one year from the end of hospitalization, d) Experience in performing specific healthcare services, e) Structure of medical procedures performed for specific health issues.
2. Consumer quality - understood as the results of patient opinion surveys regarding the organization of healthcare service delivery processes.
3. Managerial quality - understood as a set of indicators related to the efficient use of resources and the implementation of management systems, described by parameters such as: a) Accreditation or other quality certification or certificate held by an independent accredited entity, b) The degree of resource utilization available to the entity, c) Length of hospitalization, d) Structure of provided healthcare services.

Based on a literature review, determinants of hospitalization process quality have been identified (Table 2).

Table 2.
Attributes of hospitalized patient satisfaction

Author	Determinants of Hospitalization Process Quality
Chang, Wen Jen Chang, Yen Hsiang (Chang et al., 2013)	Short hospital stay Timeliness of the process Patient feedback surveys Accurate patient documentation Ease of scheduling appointments Clearly defined list of treatment fees
Fernando Barrios-Ipenza Arturo Calvo-Mora Fernando Criado-García Walter H. Curioso (Barrios-Ipenza et al., 2021)	Scheduling medical appointments Level of bureaucracy Waiting time at the clinic Computerized service Ancillary tests Handling complaints and grievances Time spent on patient care Clinic hours Treatment costs Improvement in health status Side effects during medication intake
Parasuraman, A. (Parasuraman, 1986)	Tangibles Reliability Responsiveness Assurance Empathy
Haksik Lee, Yongki Lee, Dongkeun Yoo (Haksik, Lee et al., 2000)	Material possessions Reliability Responsiveness Trust Empathy Consistency, steadfastness
Kenneth E. Clow Carolyn Tripp James T. Kenny (Kenneth et al., 1996)	Purchase intentions Risk Expertise Material possessions Reliability Responsiveness Empathy Consistency, steadfastness

Source: Own study based on literature research.

Most of the research presented in the literature on this subject relates in a general way to the issue of the quality of medical services, including hospital services, usually based on the SERVQUAL method, where the following elements are evaluated: tangibles (tangible aspects), reliability, responsiveness, assurance, and empathy. Over time, the number of assessed areas increased to six or even seven factors (Akim, 2023). However, it has been observed that the SERVQUAL method is insufficient for examining the impact of individual attributes on the quality of the hospitalization process.

3. Research methodology

The main objectives of this article are as follows:

1. Identification of factors determining the quality of the hospitalization process and their categorization (Kano).
2. Assessment of patient satisfaction with their hospital stay in the area of factors determining the quality of the hospitalization process.
3. Identification of the gap between expectations (the highest desired level of patient satisfaction) and the actual state of patient satisfaction in the area of factors determining the quality of the hospitalization process.
4. Providing recommendations aimed at reducing or eliminating the identified discrepancies between the expected and actual states, as identified during the empirical research phase.

These specified research objectives have shaped the research methodology, and each stage of the research process has indicated desired outcomes at each stage (Table 3).

Table 3.

The research process stages along with the identification of results

No.	Stages of research process	Results of stages of research process
1.	Identification of factors determining the quality of the hospitalization process - based on literature research	List of identified determinants of the research process
2.	Selection and reduction of the identified factors determining the quality of the hospitalization process based on literature research - through participant observation by the study authors and focus group research in a randomly selected group of patients.	List of reduced determinants of the hospitalization process
3.	Based on the list of reduced determinants of the hospitalization process, constructing a diagnostic tool for determining the expectations of hospitalized patients (factors that are absolutely necessary and those whose absence is unacceptable) - using the Kano methodology.	Survey identifying expectations regarding the hospitalization process
4.	Based on the list of reduced determinants of the hospitalization process, constructing a diagnostic tool for assessing the satisfaction of hospitalized patients in the areas identified as factors determining the quality of the hospitalization process.	Survey for assessing satisfaction with the hospital stay in terms of the hospitalization process
5.	Conducting research	<ul style="list-style-type: none"> • Completed surveys identifying expectations regarding the hospitalization process • Completed surveys assessing satisfaction with the hospital stay in terms of the hospitalization process
6.	Analysis and conclusions from the conducted research	Conclusions and diagnosis. Identification of gaps between expectations and actual satisfaction in the area of the hospitalization process.

Cont. table 3.

7.	Recommendations for business practice and directions for further research	Guidelines for hospitals aimed at actions to reduce or eliminate discrepancies between patient expectations and the level of their satisfaction in the areas of hospitalization process determinants. Directions for further research.
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Source: Own study.

During the focus group research, the factors determining the hospitalization process identified in the literature review, which constituted the next step of the research procedure, were reduced to the most significant and mutually exclusive factors. Additionally, they were supplemented in areas not covered in the literature review (van Loenen et al., 2014; Teng et al., 2007). The focus group research was conducted on February 6, 2023, at the Internal Medicine Department of the Provincial Specialist Hospital of the Virgin Mary in Częstochowa. Ten patients participated in the study, randomly selected but diverse in terms of gender, age, and education. One of the authors of this study served as the moderator of the research. It's also worth noting that the other two co-authors were responsible for taking notes, recording the progress of the study, supporting the moderator, and identifying exceptional and noteworthy responses and key findings.

The result of the focus group research was a list of factors determining the quality of medical services, including the hospitalization process, which served as the basis for the development of two research tools:

- Survey identifying expectations regarding the hospitalization process (Kano).
- Survey assessing satisfaction with the hospital stay in terms of the hospitalization process.

In the area of determinants of the quality of the hospitalization process, two groups of factors were identified:

1. Factors related to the organization of hospital services: Schedule of doctor's visits, Hours of medical consultations, Visiting hours for patients, Admission time to the hospital ward, Waiting time for discharge (Hospital Treatment Card), Level of bureaucracy (number of forms to fill out).
2. Factors related to the quality of hospital services: Execution of services according to the treatment schedule, Ability to perform prescribed tests within the hospital during hospitalization, Waiting time for the execution of prescribed tests during hospitalization, Availability of medications during hospitalization, Accuracy of information in the discharge summary (Hospital Treatment Card).

The first research tool, the Survey Identifying Expectations Regarding the Hospitalization Process, was constructed according to the methodology used in building the Kano model, which is also utilized for assessing the quality of healthcare services (Jiayi Mao, 2022). The aim of this study was to understand the needs and expectations of hospitalized patients in hospitals, and the survey was directed towards patients from around the world. In this research, the focus

was primarily on what respondents considered essential for a hospitalization service to be positively evaluated and what could pleasantly surprise them, constituting added value in their opinion. As mentioned earlier, the Kano Model was used for assessing the quality of hospitalization services, which is considered innovative since there are not many publications in the literature that utilize this research methodology (Parasuraman, 1986). In the literature, this method is sometimes referred to by various names, such as "asymmetrical impact on overall customer satisfaction" (Mikulic, 2006), "customer requirement model" (Lee, 1996), "customer needs model" (Jonsson Kvist, Klefsjo, 2006), "two-dimensional quality model" (Schvaneveldt et al., 1991) or "attractive quality theory model" (Nilsson-Witell, Fundin, 2005).

The second research tool was constructed in a slightly different manner. Its purpose was to examine the opinions of actual patients from a combined hospital, which was the subject of the research. The questionnaire included questions related to the same attributes that were assessed in the study using the KANO methodology. However, in this case, a rating scale was used, ranging from 1 (most dissatisfied) to 5 (most satisfied).

The empirical research was aimed at finding answers to the extent to which the hospitalization process should be improved to enhance the quality of healthcare. The methods employed during the empirical research allowed for a scientific exploration of the chosen topic. The research utilized a two-stage empirical research method: Kano – studying expectations and assessing the actual satisfaction of hospitalized patients.

The first stage of the research was conducted using a questionnaire based on the Kano methodology (named after its creator, Professor Noriaki Kano). The Kano methodology is a tool used in quality management and helps to understand and classify customer expectations regarding products or services, in this case, the expectations of patients regarding the hospitalization process. Surveys were collected using the CAWI method (Computer-Assisted Web Interview), and responses were obtained from 212 respondents who were provided with a link to the questionnaire through social media. In this case, respondents did not have to be patients of the selected hospital for the research. Their assessments of selected attributes influencing the perception of the quality of hospital services were important.

The questionnaire consisted of 41 attributes, and each attribute had two straightforward questions – one regarding the presence of a specific feature and the other regarding its absence. Respondents were asked to provide one of the following responses: "absolutely essential", "expect it", "don't care either way", "can tolerate it", "unacceptable" (Matzler, Hinterhuber, 1998; Santhoshkumar, Jeyarajasekar, Kumar, 2022). Attributes related to the organization of hospital services and the quality of the medical service were listed in Table 4. In Table 5, as an example, questions (functional in nature: "What if it is this way?" and dysfunctional: "What if it is not this way?") were presented for a selected attribute: communicated schedule known to patients. (indicated in the questionnaire with the symbol MSQ1).

Table 4.

Attributes related to the organization of the hospitalization process and the quality of medical services

No.	Attribute
SO1	Medical appointment schedule
SO2	Doctor's consultation hours
SO3	Visiting hours for patients
SO4	Admission time to the hospital ward
SO5	Waiting time for discharge (Hospital Treatment Card)
SO6	Level of bureaucracy (number of forms to fill out)
MSQ1	Execution of treatment stages as per the planned schedule
MSQ2	Ability to perform prescribed tests within the hospital during hospitalization
MSQ3	Waiting time for the execution of prescribed tests during hospitalization
MSQ4	Availability of medications during hospitalization
MSQ5	Accuracy of information in the discharge summary (Hospital Treatment Card)

*SO (Service Organisation), MSQ (Medical Service Quality).

Source: Own study based on empirical research.

The example questions regarding the functional and dysfunctional aspects for attribute MSQ1 are presented in Table 5.

Table 5.

An example question related to attribute MSQ1

MSQ1. Individual treatment stages carried out according to the previously communicated schedule provided to patients.				
a. What if it is the case? (functional form of the question)				
like it	expect it	don't care	live with it	dislike it
b. What if it is not the case? (dysfunctional form of the question)				
like it	expect it	don't care	live with it	dislike it

Source: Own study based on Kano's Methods.

Next, in accordance with the Kano methodology guidelines, responses regarding each attribute were examined and assigned to a specific type, namely: QE – Questionable, AE – Attractive, RE – Reverse, IT – Indifferent, OD – One-dimensional and ME -Must-be (Table 6).

Table 6.

Kano evaluation table

Requirements		Dysfunctional				
		Like it	Expect it	Don't care	Live with it	Dislike it
Functional	Like it	QE	AE	AE	AE	OD
	Expect it	RE	IT	IT	IT	ME
	Don't care	RE	IT	IT	IT	ME
	Live with it	RE	IT	IT	IT	ME
	Dislike it	RE	RE	RE	RE	QE

Source: Own study based on Kano's Methods.

In searching for correlations between a given attribute of hospital services organization and patient satisfaction, coefficients of satisfaction (CC) and dissatisfaction (DC) were applied using the following formulas (Berger et al., 1993):

$$CC = (AE+OD)/(AE+OD+ME+IT) \quad (1)$$

$$DC = (OD+ME)/(AE+OD+ME+IT) \quad (2)$$

The value of the satisfaction coefficient (CC) ranges from zero to one. The closer the value is to 1, the greater the impact on patient satisfaction. On the other hand, if the dissatisfaction coefficient (DC) is close to one, patient dissatisfaction affects the respective quality attribute (Matzler, Hinterhuber, 1998).

4. Results of the research

In the first step, the characteristics of the respondents in both surveys were analyzed. Due to the fact that the KANO methodology survey was conducted using the CAWI method, where there was a requirement for a response to each question, it was possible to collect 212 fully completed questionnaires. On the other hand, the survey aimed at patients of the researched hospital was conducted using printed questionnaires. In this case, 149 questionnaires were collected, sometimes containing incomplete answers to the questions in the questionnaire. Therefore, the analysis was somewhat more challenging. The basic characteristics regarding the age and gender of the respondents in both surveys are presented in Figures 1 and 2.

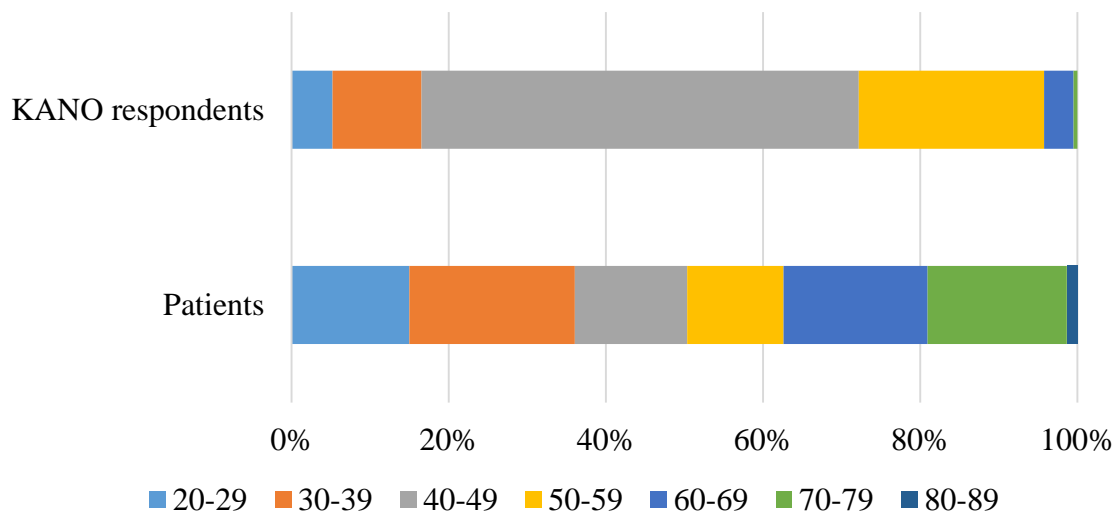


Figure 1. Age of respondents.

Source: Own study based on empirical research.

In the case of the age distribution of respondents in both surveys, significant differences can be observed. Among the respondents participating in the Kano methodology survey, the largest group fell into the age range of 40-49 years. However, in the case of patients of the researched hospital, respondents from the age groups of 20-29, 30-39, and 60-69 were similarly numerous.

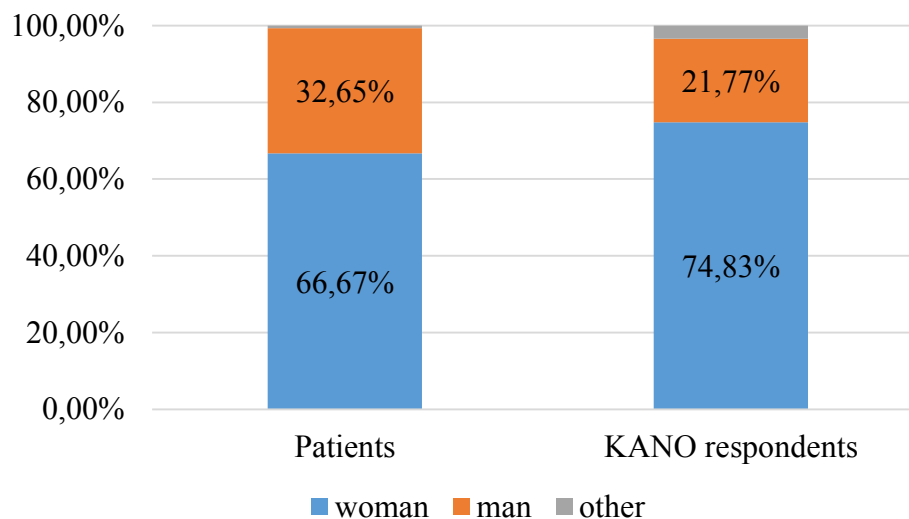


Figure 2. Gender.

Source: Own study based on empirical research.

In the case of the gender distribution of respondents in both surveys, there were not significant differences as in the age category. In both cases, women predominated (almost 80% for the Kano study and nearly 70% for patients of the researched hospital).

According to the Kano methodology, for each of the eleven attributes mentioned above (from SO1 to MSQ5), an analysis of response statistics was conducted (Table 7). There was a division into two categories of questions: functional (what if it is like this?) and dysfunctional (what if it is not like this?).

Table 7.

Set of response statistics from respondents according to the Kano methodology for attributes SO1-SO6 and MSQ1-MSQ5

	ME	OD	AE	IT	CLASS	CC	DC
SO1	15%	17%	33%	34%	IT	0.51	0.33
SO2	19%	17%	30%	34%	IT	0.47	0.36
SO3	11%	4%	28%	57%	IT	0.32	0.15
SO4	23%	25%	32%	21%	AE	0.56	0.47
SO5	19%	22%	32%	27%	AE	0.54	0.41
SO6	15%	13%	27%	45%	IT	0.40	0.28
MSQ1	19%	15%	39%	27%	AE	0.54	0.33
MSQ2	20%	15%	27%	39%	IT	0.42	0.34
MSQ3	26%	14%	32%	29%	AE	0.45	0.40
MSQ4	20%	26%	26%	28%	IT	0.52	0.46
MSQ5	13%	29%	26%	32%	IT	0.55	0.42

Source: Own study based on empirical research.

The analysis indicates that the set of 4 attributes, namely SO1, SO2, SO3, SO6, identifies the IT class, which means a neutral state. This implies that respondents do not perceive these attributes significantly. Therefore, these attributes will not have a significant impact on patients' satisfaction or dissatisfaction. This is confirmed by the satisfaction index (CC) values, which mostly do not exceed 0.5 for this set of attributes. Regarding the mentioned 4 attributes, only slight differences can be observed in the index values and the assigned classes. It is worth emphasizing that three attributes, SO4 and SO5, identify the AE class. These attributes are clearly perceived by respondents and meet their requirements, implying a state of satisfaction.

As for the attributes directly related to the quality of medical services, the analysis indicates that the set of 3 attributes, namely MSQ2, MSQ4, and MSQ5, identifies the IT class, which means a neutral state. This implies that respondents do not perceive these attributes significantly. Therefore, these attributes will not have a significant impact on patients' satisfaction or dissatisfaction. This is confirmed by the satisfaction index (CC) values, which mostly hover around the level of 0.5 for this set of attributes. Regarding the mentioned 3 attributes, only slight differences can be observed in the index values and the assigned classes. It is worth emphasizing that two attributes, MSQ1 and MSQ3, identify the AE class. These attributes are clearly perceived by respondents and meet their requirements, implying a state of satisfaction.

The above analysis confirms that improving hospital services is not only about identifying a set of attributes but, more importantly, recognizing those with the greatest impact on patients' satisfaction levels. From a hospital management perspective, particularly in organizing desirable services, it may be worthwhile to focus primarily on the attributes that have the greatest significance and influence from the recipient's perspective, which is the hospital patient.

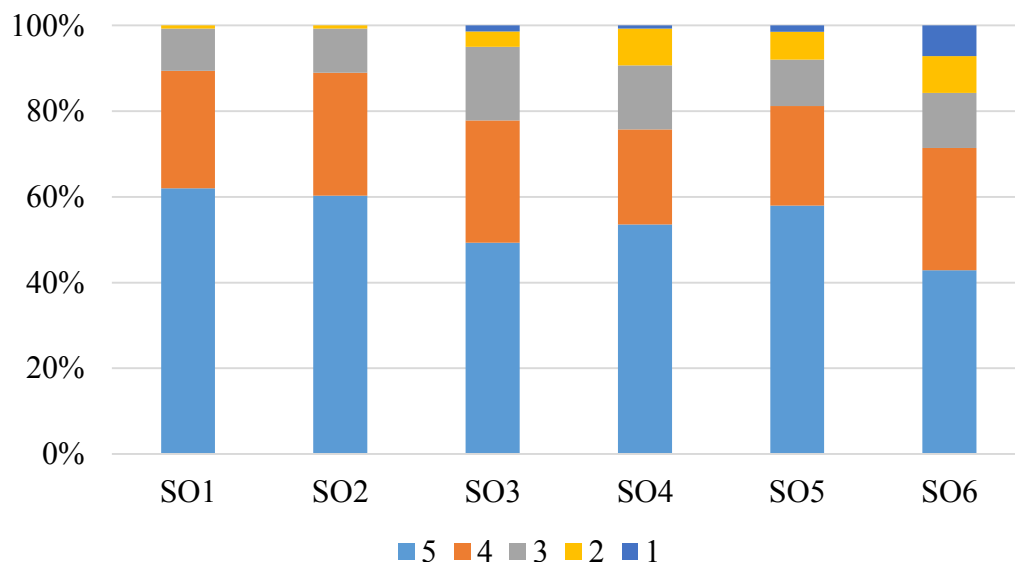
In the second stage of the research, data from questionnaires constructed specifically for this study by the authors were analyzed. The surveys were collected over two months, in July and August 2023, by two hospital units within the group. The number of responses to individual questions ranged around two hundred. In some questions, there was a lower response rate due to the non-obligatory nature of providing an answer. In others, respondents had the option to select multiple choices, which increased the number of votes. Due to the theme of this paper, certain areas directly related to the factors were selected and analyzed. Based on a subset of questions from the entire set, several areas requiring improvement were identified (Table 8).

Table 8.*Basic statistics for attributes SO1-SO6 in the patient satisfaction study*

	SO1	SO2	SO3	SO4	SO5	SO6
Mean	4.507042	4.439716	4.207143	4.192857	4.297101	3.914286
Standard error	0.058914	0.063156	0.080144	0.087148	0.085069	0.105104
Median	5	5	4	5	5	4
Mode	5	5	5	5	5	5
Standard deviation	0.702038	0.749941	0.948277	1.031144	0.999339	1.243606
Sample variance	0.492858	0.562411	0.899229	1.063258	0.998678	1.546557
Kurtosis	0.575641	0.451745	0.729393	-0.03739	1.13235	0.006869
Skewness	-1.21037	-1.1313	-1.09487	-1.03524	-1.38457	-1.0194
Range	3	3	4	4	4	4
Minimum	2	2	1	1	1	1
Maksimum	5	5	5	5	5	5
Meter	142	141	140	140	138	140
Confidence level (95.0%)	0.116468	0.124864	0.158459	0.172306	0.168219	0.207809

Source: Own study based on empirical research.

In general, the results indicate that the average responses to these questions are relatively high (close to 5), suggesting that the study participants are satisfied with these aspects (Table 8). For example, SO1 has an average of about 4.51, indicating that the average response to this question was higher than the midpoint of the scale. Low values of standard deviation and variance in the sample suggest that the responses are relatively close to each other, indicating low variability. The left-skewness suggests some dispersion of responses towards lower values.

**Figure 3.** Evaluation of attributes SO1-SO6.

Source: Own study based on empirical research.

Taking into account the level of patient satisfaction regarding the attributes highlighted in the area of organizing medical services, it should be noted that this satisfaction is at a relatively high level (Figure 3.). The highest satisfaction is reported by patients in terms of adherence to

the medical appointment schedule (SO1), with 62% rating this attribute with the highest score (5 points), and 27% of respondents assigning 4 points to this attribute. Similarly, the consultation hours (60% of respondents - 5 points, 29% of respondents - 4 points) were evaluated positively. Attributes SO6 and SO3, on the other hand, received relatively lower ratings. Only half of the patients (49%) are fully satisfied with the established visiting hours (SO3). However, it is unclear whether the visiting hours are perceived as too short or too long by this group. The attribute SO6 - Level of bureaucracy (number of filled-out forms) received the lowest satisfaction rating. In this case, only 42% of respondents expressed full satisfaction with the current state of affairs, leaving room for improvement initiatives. When comparing these results with the results of studies conducted using the Kano methodology, it should be noted that in the area of organizing medical services, the attributes that most strongly influence patient satisfaction are: Time to admission to the hospital ward (SO4) and Time waiting for discharge (Hospital Treatment Card) (SO5), which did not fare as well in the opinion of patient satisfaction. Therefore, it is recommended that the hospital management take steps to both shorten the time for admission to the ward (53% of fully satisfied patients) and reduce the waiting time for discharge (57% of fully satisfied patients). At the same time, a survey was conducted using the Kano methodology, presenting the same attributes for respondents to evaluate. The results are presented in Table 9.

Table 9.

Basic statistics for the attributes MSQ1-MSQ5 in the patient satisfaction survey

	MSQ1	MSQ2	MSQ3	MSQ4	MSQ5
Mean	4.489209	4.510638	4.381295	4.485915	4.472868
Standard error	0.06953	0.06415	0.073203	0.073265	0.073067
Median	5	5	5	5	5
Mode	5	5	5	5	5
Standard deviation	0.819746	0.761737	0.863056	0.873047	0.829886
Sample variance	0.671984	0.580243	0.744865	0.762212	0.688711
Kurtosis	2.237124	1.353642	1.487806	2.584659	1.75006
Skewness	-1.60659	-1.46256	-1.37568	-1.7724	-1.57859
Range	4	3	4	4	3
Minimum	1	2	1	1	2
Maksimum	5	5	5	5	5
Meter	139	141	139	142	129
Confidence level (95.0%)	0.137482	0.126828	0.144745	0.144839	0.144576

Source: Own study based on empirical research.

Analyzing the obtained ratings, you can see that the mean values are close to 4.5 for each of the variables, suggesting that the average response to these questions was relatively high. The standard error is relatively low, indicating good precision in estimating the means. The median and mode are both 5 for each variable, which means that half of the responses were equal to 5, and this value was the most frequently chosen option.

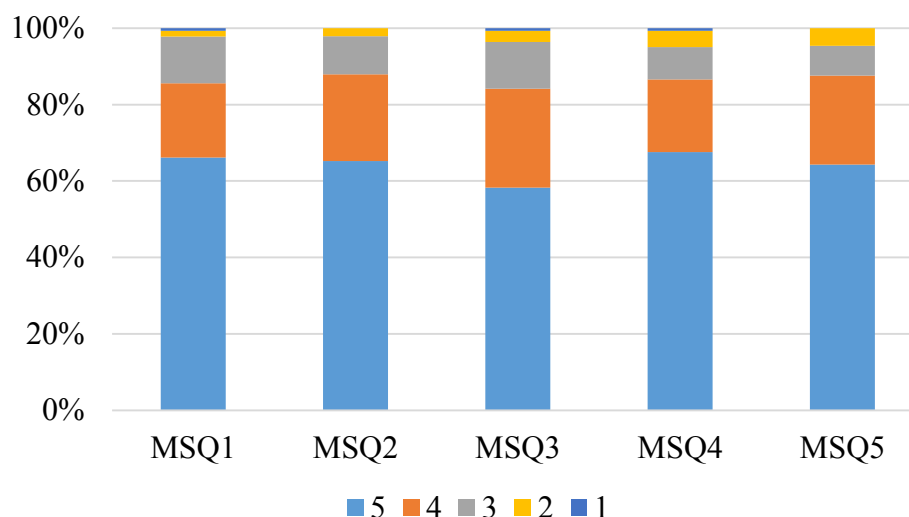


Figure 4. Evaluation of attributes MSQ1-MSQ5.

Source: Own study based on empirical research.

Factors in the area of medical service quality (MSQ) in achieving full patient satisfaction generally scored higher than factors related to service organization (SO) (Figure 4). The highest satisfaction is observed among patients in terms of MSQ4 - Availability of medications during hospitalization, with as many as 68% of patients being fully satisfied with the current state of affairs. MSQ1 - Execution of treatment stages according to the planned schedule was also highly rated (66% of fully satisfied patients). This situation is very favorable for the research entity because, in accordance with the Kano methodology, this attribute corresponds to the perception of the organization as attractive (AE). On the other hand, the factor MSQ3 - Waiting time for prescribed tests during hospitalization received the lowest satisfaction rating (58% of fully satisfied patients). Although more than half of the surveyed patients express full satisfaction with the execution of this factor, it should be emphasized that considering the Kano methodology, this is a crucial attribute for patients and determines the hospital's attractiveness. Therefore, it is recommended to take action in this area aimed at reducing the waiting time for diagnostic tests during hospitalization.

5. Conclusion and summary

The quality of the hospitalization process is of paramount importance for former, current, and future patients facing the need for hospital treatment. In the context of the Polish healthcare system, private hospital facilities with contracts with the National Health Fund (NFZ) are increasingly prominent, providing hospitalization services. Therefore, it becomes crucial for public hospital institutions to effectively manage this process to compete with smaller, sometimes more specialized private hospital units. This situation can be challenging for large

state-run institutions with complex organizational structures, a substantial workforce, and sometimes outdated processes, making management and change implementation difficult. It's commendable that the hospital team recognized the seriousness of the situation and placed the patient as an external driver of development, giving them the opportunity to express themselves. Patients can now assess their satisfaction with various areas of the hospital's operations. Additionally, considering the Kano methodology, information was obtained about which attributes are particularly attractive and provide a competitive advantage. Among the attributes that significantly determine the attractiveness of a hospital unit are those related to reducing time. Shortening admission time to the ward, waiting time for discharge, and the time required for conducting prescribed tests are emphasized. Furthermore, the importance of adhering to the treatment stages according to the planned schedule is highlighted. In contemporary times, the belief that "time is money" is gaining increasing significance, as evidenced by the results of ongoing research. It is worth noting that the surveyed entity performs well in this regard. However, considering the dynamics of changes in patient satisfaction, increasing demands, and needs, continuous efforts should be made to improve the processes in place. The research clearly identifies what is most important to the community, and the satisfaction levels of hospitalized patients indicate areas where this satisfaction can be further improved. Therefore, it is recommended, first and foremost, to simplify procedures for both admission to the ward and discharge, and to strictly adhere to the treatment schedule while optimizing it to reduce the waiting time for prescribed tests during hospitalization.

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