Patient Experience Journal

Volume 9 | Issue 1 Article 16

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Recommended Citation

Zupančič V, Rogelj A. The quantitative assessment of patient satisfaction in the COVID-19 epidemic compared to the epidemic-free period. *Patient Experience Journal*. 2022; 9(1):131-137. doi: 10.35680/2372-0247.1646.

PXJ Patient Experience Journal
Volume 9, Issue 1 – 2022, pp. 131-137

Research

The quantitative assessment of patient satisfaction in the COVID-19 epidemic compared to the epidemic-free period

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Abstract
Surveying patient satisfaction is considered an important part of any systematic program of quality assurance. Quality of healthcare service and patient satisfaction has been affected by the current COVID-19 epidemic. The purpose of the study was to determine how COVID-19 epidemic has affected patients in Slovenia as it is evident via permanently available questionnaire and from studying this data source to improve our response to future crises and to improve the resilience of healthcare systems. A secondary analysis of 12,756 completed questionnaires was performed via freely available patient satisfaction questionnaire in the period from October 2019 to June 2021. The number of completed questionnaires was significantly higher in the period before the COVID-19 outbreak than in the subsequent periods. Comparing COVID-19 period and epidemic-free period statistically significant differences in satisfaction assessment occurred in four variables. More patients recognized opportunities for improvement in the COVID-19 epidemic than in the epidemic-free period. This study can be upgraded with qualitative studies and implementation of systemic measures.

Keywords
Healthcare, quality evaluation, patient perspective, COVID-19 epidemic, quantitative approach

Introduction

Routine measurement of patient experience and satisfaction is becoming commonplace in healthcare organizations in both high-income countries and low/middle-income countries. Over the past 20 years, patient satisfaction surveys have gained increasing attention as meaningful sources of information for identifying gaps and developing an effective action plan for quality improvement in healthcare organizations.[1-2]

Patient satisfaction is a personal evaluation of healthcare services that is often used as an indicator of quality of care and involved as an outcome measure. In Donabedian's quality measurement model, patient satisfaction is defined as patient-reported outcome measure while the structures and processes of care can be measured by patient-reported experiences. Otherwise, there is no consensus on how to define the concept of patient satisfaction in healthcare.[3-4]

Surveying patient satisfaction is considered an important part of any systematic program of quality assurance undertaken at using standardized instruments. Nevertheless, patient satisfaction is not always recorded systematically, nor always included in healthcare planning, as many consider those assessments difficult to interpret, being based on several implicit assumptions about the nature, and meaning of expressions of "satisfaction."[3] It seems clear that the "patient satisfaction construct" should be measured using a multidimensional approach, because even the patient's clinical profile, such as health service environment or professional behavior, can be determinants of patient satisfaction. However, for comprehensive measures of quality, patient satisfaction must be supplemented with more objective measures. Namely, a patient-centered approach is critical to improving the overall quality of healthcare. Patient evaluation of care is important to provide opportunity for improvement such as strategic framing of health plans, which sometimes exceed patient expectations and benchmarking.[1,5]

Quality of healthcare service and patient satisfaction has been affected by the current coronavirus disease (COVID-19) epidemic. The COVID-19 epidemic has resulted in many countries' complete lockdown due to the virus's infectious nature and the lack of adequate care. Delay or avoidance of primary healthcare may increase the risk of morbidity and mortality associated with treatable and preventable health conditions. It may lead to recorded excess deaths linked directly or indirectly to COVID-19. The COVID-19 epidemic brought many unknowns, including the impact on patient satisfaction with healthcare received.[6-8] Deriba et al. (2020)[4] in its institutional-based cross-sectional study found out that the level of patient satisfaction was very low during a COVID-19 epidemic. Grissom et al.[7] in a mixed-methods design study explored improved patient satisfaction scores at a single emergency

department (ED) during the early phase of the COVID-19 epidemic. A comparison of the content of patient comments revealed less concern about wait times and a more positive overall view toward receiving care during the first 3 months of the epidemic. There are many studies on patient satisfaction with telemedicine and healthcare services delivered remotely in connection with COVID-19 [9-10] or telephone consultation.[11] Furthermore, there are individual studies of evaluating relationship between the structure/dimensions of patient satisfaction and hospital characteristics, [12-13] impact of the COVID-19 epidemic on patient satisfaction and outcomes.[14] Research on patient satisfaction with healthcare prior to and during the COVID-19 epidemic is also starting to appear.[15-16]

However, we did not find out how the COVID-19 epidemic affected patient satisfaction measurements at the national level. Therefore, the purpose of our study was to determine how the COVID-19 epidemic affected patients in Slovenia in terms of completing a permanently available questionnaire via e-portal and what we can learn from studying this data source to improve response to future crises and to improve resilience of healthcare system. The objectives of the study were to determine the impact of COVID-19 epidemic on the characteristics of the sample of patients who completed the national questionnaire in the period from October 2019 to June 2021, and moreover patients' assessments of their satisfaction with defined content variables.

Methods

Settings

In Slovenia, national measurement of patient satisfaction was established in September 2019 based on a developed methodology adopted by the Minister of Health.[17] The purpose was to ensure the participation of patients in evaluating the quality of healthcare providers' operation and to establish conditions for improving overall quality in public healthcare system. This relates to respecting patients' rights under section 5 of the Patients' Rights Act[18] and the Case of Šilih vs. Slovenia.[19]

For analysis, data collected via patient satisfaction questionnaire was used. The electronic version of questionnaire was freely available on the eHealth portal, and paper version of questionnaires was available at the healthcare providers. The link to the questionnaire was included in the patients' discharge letters, posters on the premises, information leaflets and on the websites of the healthcare providers. All public healthcare providers were obliged to encourage patients to complete the questionnaire, monitor completion, and use data to improve the quality of provided healthcare services. All patients were invited to complete the questionnaire up to three months after the end of healthcare, regardless of age, personal circumstances, type of healthcare or level of medical activity. Cut-off date of the end of a healthcare was the termination of an individual outpatient, hospital, or home healthcare (e.g., one visit, individual hospitalization in an institution or a service at the patient's home). Completion of the questionnaire was voluntary and anonymous. Patients were given possibility to fill in the questionnaire independently or via proxy.

A secondary analysis of collected data was performed for the purpose of comparing the completed questionnaires and assessment of patients in the period with or without COVID-19 epidemic. Temporary measures to reduce the risk of infection and spread of COVID-19 were introduced by the Government of the Republic of Slovenia based on the Infectious Diseases Act (2006). Healthcare providers were informed about the measures through special letters and additional instructions. Informing patients and the public took place in a media and via website of the National Institute of Public Health.[20]

Sample

12,756 completed questionnaires in the period from October 2019 to June 2021 were included in the analysis.

Table 1. Healthcare system's characteristics in the analyzed periods

Periods		N (%)	Epidemic	Healthcare system's characteristics
1	October - December 2019	2959 (23,2 %)	E-	Normal state
2	January - March 2020	2566 (20,1 %)	E-	Normal state, standby mode
3	April - June 2020 (1st wave of the epidemic)	1242 (9,7 %)	E+	Reorganization of the system - only emergency medical services, treating COVID-19 patients, triage, testing etc.
4	July- September 2020	1383 (10,8 %	E-	Adjustments in the implementation of all healthcare services, adjustment of the previous reorganizations, triage, testing, detection of antibodies
5	October - December 2020 (2nd wave of the epidemic)	1405 (11,0 %)	E+	
6	January - March 2021(2nd wave of the epidemic)	1545 (12 %)	E+	
7	April - June 2021	1656 (13 %)	E-	Optimization and adjustment in the implementation of all healthcare services, adjustment of the previous reorganizations, active promotion of vaccination, free widespread testing
	Total	N=12.756	E+: 6907 (54,1 %), E-: 5849 (45,9 %)	

Table 1 presents the number and share of completed questionnaires by individual three-month periods, that were identified by the prevailing measure, whether the epidemic was officially declared (E +) or not (E-), and how the healthcare system operated.

Instrument, analysis, and data presentation

There is no consensus about a reference instrument (gold standard) for patient satisfaction measurement in healthcare.[21] The questionnaire was prepared on the basis of national consultations in Slovene, Italian, Hungarian, Croatian, English and German language.

The questionnaire consists of three parts. The first part includes the identification of the healthcare provider, including the status of the provider and the place of healthcare. The second part includes demographic variables of the patient (gender, age, level of education, frequency of healthcare use, whether the healthcare was planned or not, who completed the questionnaire). The third part is intended to assess the patient satisfaction according to the set of criteria presented in Table 3. Crombach's Alpha is 0.78 (41 variables). Quantitative analysis was performed using SPSS 22 statistical software and descriptive statistics together with Chi-square test and two-sample T-test.

Results

The impact of the COVID-19 epidemic on the characteristics of the sample

The number of completed questionnaires was significantly higher in the period before the COVID-19 outbreak than in subsequent periods.

Table 2 presents the characteristics of the sample in the period of COVID-19 epidemic (E +) compared to epidemic-free period (E-). For determining the connection

Table 2. Characteristics of the sample in the period of COVID-19 epidemic compared to epidemic-free period.

Demographic variables		E+	E-	Chi²	df	p
Healthcare providers						
Location of the healthcare	Dispensary	21,5 %	37,6 %	111,189	1	p<0,001
	Specialist clinic	33,4 %	28,1 %	35,195	1	p<0,001
	Hospital	42,6 %	31,7 %	93,861	1	p<0,001
	Health resort	0,3 %	0,7 %	4,575	1	0,032
	Combination of locations	2,2 %	1,6 %	186,695	18	p<0,001
Status of the healthcare provider	Public	95 %	93,6 %	10,156	3	0,017
	Private with a concession	1,5 %	2,7 %			
	Private	0,7 %	0,7 %			
	Do not know	2,8 %	3 %			
Patients						
Gender	Male	41,3 %	40,8 %	0,187	1	0,665
	Female	58,7 %	59,2 %			
Age	0-15 years	5,5 %	6 %	28,377	6	p<0,001
	16-24 years	27,2 %	32,4 %			
	25-44 years	37,2 %	35,9 %			
	45-64 years	24 %	21 %			
	65-79 years	5,6 %	4,2 %			
	80 years or more	0,5 %	0,5 %			
Level of education	Elementary school or less	3,9 %	4,4 %	9,416	5	0,094
	Vocational school	10,8 %	11,3 %			
	High School	31,2 %	31,8 %			
	Senior, high professional school	27,3 %	25,7 %			
	Spec., University, professional master's degree	21,4 %	22,7 %			
	Master of science, PhD	5,4 %	4,1 %			
Frequency of use of healthcare services	Rarely, once, or twice a year	45,8 %	39,6 %	29,415	3	p<0,001
	Occasionally, several times a year	43 %	47,3 %			
	Often, monthly	9,6 %	11,7 %			
	Very often, weekly	1,6 %	1,4 %			
Planned healthcare services	Yes	67,2 %	73,2 %	26,592	1	p<0,001
	No	32,8 %	26,2 %			
Respondent or proxy	Patient himself	83,2 %	82 %	23,515	3	p<0,001
	Patient's friends and family	11,8 %	11,6 %			
	Healthcare professional	3,6 %	5,7 %			
	Other proxy	1,4 %	0,7 %			

and differences in sample characteristics, the Chi-squared test was used.

Among the patients who gave a satisfaction assessment of their healthcare, the largest proportion was treated in hospital. Otherwise, most of the healthcare reportedly took place in a public health institution. In the epidemic-free period, there were statistically significantly more completed questionnaires for the assessment of healthcare in the general outpatient clinic/dispensary than in the epidemic period ($chi^2 = 111.189$, df = 1, $p < 0.001$). In the COVID-19 epidemic, there were statistically significantly more completed questionnaires for the assessment of healthcare in hospitals ($chi^2 = 93.861$, df = 1, $p < 0.001$) and healthcare that took place in a combination of different sites ($chi^2 = 186,695$, df = 18, $p < 0.001$).

No statistically significant differences were found in the public/private status of the provider.

The sample of participants was diverse according to patient characteristics. The questionnaire was completed by slightly more women (58.7%) than men (41.3%), majority in age group 25-44 (37.2%), with completed secondary school (31.2%), and who rarely, once or twice a year used health services (45.8%), The healthcare was planned by two thirds of patients (67.2%). Statistically significant differences in patient characteristics were found for the age group of patients ($chi^2 = 28.377$, df = 18, $p < 0.001$), frequency of use of health services ($chi^2 = 29.415$, df = 3, $p < 0.001$) and respondent (himself/proxy) ($chi^2 = 23.515$, df = 3, $p < 0.001$).

In the age group 0-15 years and 16-24 years, there were more respondents in the epidemic-free period, in the age groups 25-79 years there were more respondents in the period of COVID-19 epidemic. There were no differences in the age group of 80 years and older. Regarding the frequency of use of health services there was a higher proportion of respondents who used health services rarely, once, or twice a year or used them very often, weekly in the COVID-19 epidemic period. In the epidemic-free period, there was a higher proportion of those who used health services occasionally, several times a year, or often, monthly. Regarding planned or unplanned healthcare, a larger proportion of respondents had planned healthcare in the COVID-19 epidemic period. Regarding respondent/proxy, slightly more health workers completed the questionnaire on behalf of patient in the epidemic-free period.

The impact of the COVID-19 epidemic on patients' assessments

The Independent Samples T test (Table 3) was used to assess differences in mean satisfaction scores. The reliability of the questionnaire for these 18 variables is excellent (Crombach's Alpha 0.97). Patients rated their satisfaction on a five-point scale: from 1- very poor, to 5-excellent, for questions about satisfaction with individual elements a scale from 1- not at all, to 5-completely was used. Patients were also able to choose the option "not relevant for me."

Patients were most satisfied with the cleanliness and tidiness of the premises (4.65) and respect for their privacy (4.58). They were least satisfied with the acquaintance with the possibility of filing complaints and praises (2.99) and with the presentation of health professionals at the first contact (3.81). According to the received estimates for individual variables (including values very poor, poor or not at all, mostly not), 6-14% of patients were dissatisfied.

Statistically significantly higher satisfaction score was found in the COVID-19 epidemic period for following variables: available information on doctors' and healthcare professionals' availability (t = -5,005; df = 5072,064; p = 0,000) and respect for privacy (t = 2,696; df = 5662,245; p = 0.007). In the epidemic-free period, patients gave a statistically significantly higher score for following variables: possibility of filing complaints and praise (t = -.219; df = 5572; p = 0.037) and being informed about the course of healthcare (t = 2.117; df = 6017; p = 0.034).

In addition, reported data on the actual waiting time of patients was analyzed. 68.5% of patients waited for less than half an hour. In the period of COVID-19 epidemic, patients waited for healthcare statistically significantly less (t = -4.791; df = 6054; p = 0.00).

Furthermore, patients identified areas of improvement opportunities (Table 4). Opportunities for improvement were recognized by 6.5 to 20.5% of patients in the COVID-19 epidemic period, and 4.3 to 16.1 % of patients in epidemic-free period.

Limitations

Limitations of the study arise from the basic methodology of data collection and applied quantitative approach in the secondary analysis of data, e.g., sampling and subjectivity of the assessment. Moreover, strict definition and arability of analyzed periods is a limitation. It is likely that some questionnaires were completed during the COVID-19 epidemic period but were in fact an assessment of healthcare that was performed in the epidemic-free period, and vice versa. Based on verification, it can be estimated that the extent of this is small.

Table 3. Differences in the average value of patients' satisfaction assessments in the period of COVID-19 epidemic compared to epidemic-free period

Variables	E+ $\bar{x}$, σ	E- $\bar{x}$, σ	t	df	Sig. (2-tailed)
General assessment of the provider	4,29 (1,30)	4,25 (1,25)	1,269	6252	0,205
Assessment of the healthcare by the provider	4,31 (1,31)	4,28 (1,24)	0,842	5883,948	0,4
Satisfaction with the provider's contact prior to the healthcare.	4,23 (1,46)	4,24 (1,35)	-0,341	5747,517	0,733
Displayed information on the availability of doctors/healthcare workers.	4,05 (1,62)	4,25 (1,34)	-5,005	5072,064	**0,00**
Introduction of healthcare workers at the first meeting.	3,83 (1,62)	3,81 (1,58)	0,547	5680	0,584
Informed of the option to make a complaint or commendation.	2,97 (1,91)	3,03 (1,84)	-1,219	5572	**0,037**
Politeness and respectfulness of employees.	4,40 (1,27)	4,40 (1,21)	0,054	6142	0,957
Prior information on the healthcare process.	4,07 (1,53)	3,99 (1,51)	2,117	6017	**0,034**
Treated at the agreed time.	4,24 (1,48)	4,25 (1,37)	-0,315	5579,596	0,753
Sufficient commitment in the health problem and condition.	4,36 (1,25)	4,30 (1,21)	1,899	6112	0,058
Involvement in decision making.	4,22 (1,32)	4,20 (1,26)	0,740	5430,982	0,459
Respect for privacy.	4,62 (0,93)	4,55 (0,94)	2,696	5662,245	**0,007**
Employees answering questions related to healthcare.	4,46 (1,12)	4,42 (1,08)	1,356	5953	0,175
Cooperation with relatives or loved ones in accordance with the wishes.	4,39 (1,22)	4,41 (1,13)	-0,450	3540,753	0,653
Given instructions for further (self) care.	4,48 (1,13)	4,46 (1,07)	0,464	5756	0,518
Cleanliness and tidiness of the premises.	4,66 (0,81)	4,64 (0,79)	0,810	5824	0,418
Access is well regulated (parking, wheelchair access)	4,36 (1,09)	4,33 (1,09)	0,476	5594	0,456
Recommendation of the provider to relatives or others.	4,32 (1,36)	4,30 (1,31)	0,399	5880	0,690

Discussion

In epidemic-free period, compared to COVID-19 epidemic period, there were statistically significantly more completed questionnaires for the assessment of healthcare that was performed at the general outpatient clinic/dispensary. We associate this with the measure of limiting the provision of health services to emergency healthcare only. In the COVID-19 epidemic period, in the first wave of COVID-19, emergency healthcare was available to patients at emergency centers and other units in hospitals or special clinics. In the COVID-19 epidemic, patients were referred to different healthcare providers according to their epidemiological condition, which reflected in the fact that combination of various healthcare providers was reported by respondents. No comparable findings were found in other countries, but Grissom et al.[7] found out that the total emergency department patient census was 31% lower for the 3 months of 2020 (the COVID-19 surge) than the same 3 months in 2019.

Our findings, that there were less respondents in the age group 0-15 years and 16-24 years in the free-epidemic period, more respondents in the age groups 25-79 years in the COVID-19 period, and no differences in the number of respondents in the age group 80 years and more, can be linked to the cancellation of all preventive activities and non-emergency healthcare during the COVID-19 epidemic. The measure restricting the provision of health services coincides with the finding that at the time of the epidemic, the questionnaires were statistically significantly more frequently completed by those patients who rarely receive health services, moreover their healthcare was unplanned because they needed urgent healthcare. The epidemic did not have a significant impact on who the respondent of the questionnaire was (respondent himself or proxy), but as expected patients took advantage of this opportunity among healthcare providers more often in free-epidemic period, when access to healthcare workers was greater.

No statistically significant differences in patients' satisfaction with healthcare and healthcare provider were found between COVID-19 epidemic period and free-epidemic period. However, in its institutional-based cross-sectional study Deriba et al.[4] found out that the level of patient satisfaction was very low during a COVID-19 epidemic, with only 44.6% of chronic disease patients satisfied with the services they received in healthcare facilities.

Table 4. Patients' perception of improvement opportunities in the COVID-19 period compared to the epidemic-free period

	E+	E-	t	df	Sig.(2-tailed)
Premises and equipment	20,5 %	16,1 %	-4,658	6613	**0,00**
Work organization	15,6 %	15,6 %	-0,104	6613	0,917
Attitude towards patients	18,5 %	16,3 %	-2,370	6244,534	**0,018**
Employee cooperation	8,9 %	7,5 %	-1,959	6175,687	0,05
Patient safety	8 %	5,6 %	-3,870	5971,245	**0,00**
Healthcare outcomes	10,2 %	7,8 %	-3,494	6014,297	**0,00**
Reputation and social responsibility	6,5 %	4,3 %	-3,883,317	5776,317	**0,00**

Analyzing variables of satisfaction with healthcare services, our study shows that up to 14% of patients in Slovenia were dissatisfied with healthcare. Otherwise, there were no statistically significant differences in the overall patients' satisfaction in the COVID-19 epidemic period and epidemic-free period. In COVID-19 epidemic period, patients were statistically significantly more satisfied with information on doctors' and healthcare professionals' availability, respect for privacy, and statistically significant less satisfied with information about the possibility of filling complaints and praise, and prior information about the course of the healthcare. This is somewhat logical, as during the COVID-19 epidemic there was a reorganization of the health services and thus informing patients about access to health professionals had to be intensified. The usual work process of presenting the possibility of filling complaints and praise, providing prior information about the course of the healthcare probably had to be reduced due to numerous organizational changes and a lack of staff. However, a great deal of attention was given to preventing the spread of infections, the healthcare of patients has been more individualized, which resulted in greater respect for patient privacy.

Opportunities for improvement on various levels were recognized by up to one-fifth of patients in the COVID-19 epidemic period, except for aspects of work organization and cooperation of health professionals. However, reorganization of healthcare services and providers in COVID-19 epidemic did not affect greatly patients' recognition of opportunism for improvement.

Conclusion

Based on our study, we can conclude that individual measures introduced due to the COVID-19 epidemic had an impact on higher patient satisfaction with healthcare (individualized healthcare, better access to information on healthcare professionals' availability). Due to the reorganization of healthcare services, there was a lack of few elements essential to quality healthcare of patients (possibility of filling complaints and praise and prior information about the course of healthcare). With targeted measures implemented this should be prevented in the future.

Implications

Results of national data on patients' satisfaction offer evidence on how COVID-19 epidemic and accompanying measures affect patient satisfaction with healthcare. Additional research, namely qualitative, and implementation of systemic measures is possible.

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