



Kaizen Applications in Emergency Service Within the Scope of Total Quality Management in Health Service

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ABSTRACT

Kaizen, a fundamental aspect of Total Quality Management (TQM), aims for continuous improvement in all areas of life. This study examines the impact of TQM and Kaizen practices in emergency services in Turkey, compiling and analyzing national publications from 2014-2024. Using a systematic review, the study investigates whether these practices enhance emergency services' efficiency and patient satisfaction. A total of 10 publications were included in the study. Results indicate that patient admission processes, staff behavior, waiting times, bureaucratic procedures, and infrastructure significantly affect patient satisfaction. Effective feedback mechanisms and trust in healthcare professionals also play crucial roles in improving patient experiences in emergency departments.

1. INTRODUCTION

Today, the health sector has a constantly changing and evolving structure. The emergency service is defined as one of the health units providing 24/7 service and is the place where people apply when they are in a state of urgency in terms of health or when patients perceive their disease status in this way. Emergency services start upon the patient's request and end with the doctor's guidance and decision.

Health units have to ensure not only patient satisfaction but also efficiency, safety and accessibility. In this context, Total Quality Management in Health Services aims to raise quality standards in health services by providing a framework of excellence and continuous improvement.

There are many factors affecting quality in emergency services. We can categorize these factors as follows: Factors Related to Patient and Patient Care, Factors Related to Health Personnel, Factors Related to Process and Procedures, Factors Related to Physical Infrastructure and Equipment, Factors Related to Management and Organization.

The increasing demand for healthcare services has led to overcrowding and long waiting times in emergency departments (EDs) [1]. This can result in patient dissatisfaction and a decline in the quality of healthcare services[2]. To address

these issues, new approaches such as Lean methodology are needed [3].

Lean methodology is a management system that aims to create maximum value with minimum resources [4]. Kaizen, which is a type of Lean Methodology, is effective in improving patient satisfaction and meeting patient expectations and needs in EDs [5].

Emergency Service Kaizen Applications;

Contribute to increasing the satisfaction levels of patients and helping them to have more positive experiences,

Allowing for better outcomes in patient care, Optimizes workflow and processes in emergency services, reducing waiting times,

Contributes to increased staff productivity through factors such as balanced distribution of workload, restructuring of work processes and development of training programs,

Ensures that continuous improvement in emergency services is sustainable [6].

As a result, the benefits of Kaizen practices in emergency services both increase the satisfaction level of patients and provide them with more positive experiences and increase the quality and efficiency of health services. Therefore, it is important that Kaizen principles are widely implemented in emergency departments [7].

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This study fills a critical gap in the literature by comprehensively reviewing all national studies conducted in the last 10 years on Kaizen implementation focusing on patient satisfaction in emergency departments, and also provides a detailed analysis of the methods and results used in these studies, providing valuable insights into the effectiveness of Kaizen in improving the patient experience in emergency departments. Moreover, this study compares each analyzed study with the others, revealing both similarities and important differences in Kaizen application strategies, going beyond existing research. In conclusion, by synthesizing the findings of these studies, this research provides a clear and comprehensive understanding of how Kaizen practices can positively impact patient satisfaction in emergency departments.

2. METHODOLOGY

The aim of the study is to determine the prevalence of TQM and Kaizen practices in emergency services in Turkey, to analyze TQM and Kaizen practices, to reveal the positive results and to provide suggestions for more effective use of TQM and Kaizen practices in emergency services.

This study was conducted using the systematic review method. Kaizen practices in the studies were examined in detail. In addition, the methods in each study were determined and the results were presented.

In the literature, there are a total of 10 national (Turkish) articles and thesis conducted in emergency services between 2014 and 2024. Within the scope of the research, 1 article, 7 master's theses, 1 doctoral thesis, 1 medical specialty thesis are examined. Only emergency services in the health sector and patients and employees in emergency services were included in the study. In some of the articles, emergency departments were indirectly examined.

3. RESULTS

The results of the 10 studies are given below in date order. In addition, the sample set and quality objectives of the studies are given in Table 1. When these studies are examined;

In 2014, Onal [8] analyzed total quality management in emergency care services using data collected by face-to-face survey method. In the study, total quality management practices in emergency services and patients' satisfaction levels with emergency services were examined. In emergency patients were observed and solutions were sought.

In addition, the workload of the personnel working in emergency services, the adequacy of the equipment and materials used were observed and evaluated in terms of quality.

In 2016, Ozturk [9] examined the factors affecting patient satisfaction in health services using both qualitative and quantitative research methods. In the study, while semi-structured interviews and observations were used as qualitative methods, a survey was conducted as a quantitative method. The questionnaire was administered by face-to-face interviews with the participants and consisted of demographic questions describing the personal characteristics of the participants (age, education level, occupation, etc.) and questions to determine the emergency service conditions related to patient satisfaction, health professionals and the reasons for choosing the hospital. In the study, taking the opinions of patients and staff, identifying problems and developing solution suggestions were included. In the study, patients' satisfaction with issues such as waiting times, adequate information and physical conditions were investigated. Suggestions for improvement on these issues were included.

In 2016, Soylemez [10] examined the satisfaction levels of emergency department patients regarding nursing care. A questionnaire with 19 questions was used in the study. The findings of the study provide important information that can be used to improve nursing care in emergency departments.

In 2019, Çelenk, Topoyan, Kaynak [11] determined the procedures applied in pediatric emergency service workflows according to lean thinking and the wastes in the value flow according to lean thinking. In these determinations, in order to calculate the time differences of the procedures applied to the patients, adult emergency service times were also considered and the results were compared. At the same time, the reasons for the differences between EAS and YAS are explained according to lean thinking.

In 2019, Temur [12] examined how lean hospital management affects patient waiting times. The study presented examples of how lean management practices reduce waiting times in different hospital units, including the emergency department. Problems such as short examination times in order to see a large number of patients, long waiting times for diagnosis and treatment, and emergency patients having to wait for non-

In 2019, Pulat [13] examined the indicators of average consultation time in the emergency

department and the time for consultant physicians to reach the emergency department were examined as examples. It was suggested that physicians should be informed in branches where there are abnormal situations and the time to respond to consultations should be reduced. Efforts were made to increase patient satisfaction by improving performance levels in emergency services.

In 2019, Arpacı [14] examined the differences in the perception of the factors affecting patient health in the emergency department and inpatient department in the health sector. This study was conducted in the emergency and inpatient wards of Private Balkan Hospital. Differences in the perception of the emergency department and inpatient department were determined according to the age, gender and educational status of the patients. Factor analysis was applied to the questions related to satisfaction applied to patients in the emergency department.

In 2019, Yılmaz [15] examined the factors affecting patient satisfaction in the emergency department. Within the scope of the study, patients were asked a questionnaire consisting of a total of thirty questions. A total of 18034 patients were examined in the study and 284 of them were followed up as hospitalized in emergency observation. Of these patients, the study was conducted randomly with 565 patients who met the study criteria. The satisfaction levels of the patients with the service they received in the emergency outpatient clinic were analyzed according to the medical care and intervention experience of nurses and physicians.

In 2020, Berkiten, [16] emphasized the importance of motivational factors for ensuring

total quality management in emergency health. In the study, it was stated that a motivated healthcare provider can make significant contributions to the quality goals of the organization. In addition, the study also includes examining studies conducted in related and similar fields within the scope of the study. Data were collected through a survey conducted with emergency healthcare providers and analyzed with statistical methods. In the study, a patient-oriented approach was adopted and the motivation of emergency healthcare providers, who are the main providers of this service, was addressed. This approach is based on the principle of "staff satisfaction", which is one of the most important ways to satisfy the patient.

In 2021, Yıldırım [17] examined the effect of process quality in healthcare organizations on patient satisfaction from the patient perspective. In the study process, a questionnaire form consisting of a process quality scale and socio-demographic characteristics of the participants was used for 932 people. Validity and reliability analyses of the data were performed and descriptive statistical methods, path analysis, correlation analysis, one-way variance analysis and independent sample t-test were used in the analysis of the data. The relationship between the admission and discharge process, diagnosis and treatment process, communication process and support services process and patient satisfaction was analyzed. The effects of patient admission and discharge process, diagnosis and treatment process, communication process, support services process, human resources process on patient satisfaction were investigated. The effects of the quality of service processes on patient satisfaction were observed.

Table 1. Kaizen implementation studies in emergency departments in Turkey between 2014-2024

Study	Sample Comprised	Quality targets
Onal, 2014, GATA Haydarpaşa Training and Research Hospital[8]	Patients over 16 years of age coming to the emergency department	Patient satisfaction
Ozturk, 2016, Izmir Bozyaka Training and Research Hospital Emergency Department[9]	Patients coming to the emergency department	Patient satisfaction
Soylemez, 2016, A university hospital in Turkey[10]	340 patients coming to the emergency room	Patient satisfaction, patient safety
Celenk, Topoyan, Kaynak, 2019, Pediatric and adult emergency department of a hospital[11]	Processes applied in workflows	Preventing waste, efficiency
Temur, 2019, Different hospital units of a hospital, including the emergency department[12]	Waiting times	Patient satisfaction, timeliness
Pulat, 2019, Private Balkan Hospital [13]	Services in emergency departments	Efficiency
Arpacı, 2019, Private Balkan Hospital [14]	100 people in the emergency department and 100 people in the	Patient satisfaction, equity

	inpatient ward	
Yilmaz, 2019, Ondokuz Mayıs University Faculty of Medicine Emergency Department[15]	565 patients in the emergency room	Patient satisfaction
Berkiten, 2020, Kirikkale 112 Emergency Central (EC) and peripheral (district) stations and Ankara 112 EC stations and two state hospital emergency services in Ankara[16]	140 emergency medical service workers	Healthy work life, patient satisfaction
Yildirim, 2021, Health institutions in Istanbul, Bursa, Kocaeli, Balıkesir, Tekirdag and Sakarya[17]	932 patients in the Marmara region	Patient satisfaction, process quality

4. DISCUSSION

Although studies on Kaizen practices in emergency services have increased as of 2019, studies on Kaizen practices in emergency services in Turkey are quite limited in the literature. On the other hand, in Kaizen applications in emergency services, patients and hospital staff are the most common variables and patient satisfaction is the most targeted.

Within the scope of this study, the results of the researches are as follows:

In 2014, Onal [8] it was determined that total quality management practices in emergency services were inadequate and patients' satisfaction level with emergency services was low. It was observed that the workload of the personnel working in emergency services is high and they experience work stress. It was concluded that the equipment and materials used in emergency services are inadequate.

In 2016, Ozturk [9] it was observed that patients were satisfied with the waiting times for patient registration-admission procedures, but were not satisfied with the waiting times during the actual service receipt phase. In addition, the majority of patients stated that the information about the treatment was sufficient and that they were highly satisfied with this issue. The adequacy of emergency physical conditions and waiting rest areas were determined as the main factors for the satisfaction of the majority of patients.

In 2016, Soylemez [10] it was found that the patients admitted to the emergency department had a high level of general satisfaction with nursing care. In the study, it was observed that patients were satisfied with nurses' knowledge and skills, communication and interest. It was determined that the patients thought that the nursing care provided in the emergency department was generally good. It was concluded that they were less satisfied with the freedom provided to the patients in the ward and making them comfortable as if they were at home.

In 2019, Çelenk, Topoyan, Kaynak [11] data from the pediatric emergency department (EAS) and adult emergency department was used. It is shown that the processing times applied to patients can be significantly reduced in certain areas, the waiting times of patients applying to the pediatric emergency department can be improved by 31.49%, 74.45% improvement in processing times, and 56.91% improvement in the time patients spend in the system for all procedures.

In 2019, Temur [12] the factors affecting the quality of EAS processes were first identified and a current situation map was created. Using lean philosophy methods, waste and loss points were identified and waste was eliminated by producing solutions in these areas. The studies carried out provided transformation in hospital management, reduced errors and waiting times of patients, and increased the satisfaction of patients and their relatives.

In 2019, Pulat [13] it was determined that the average length of stay in observation, which was 1.86 hours after Kaizen practices, decreased to 1.75 hours in the following period. The study also includes data on Consultant Physicians' Emergency Room Access Times for 2 periods of 3 months. Due to the fact that the averages were outside the target values in the previous period, it was decided to follow up the times on the basis of branches, and it was clearly revealed which branches experienced the most delays.

In 2019, Arpacı [14] it was found that most of the patients were satisfied with the hospital staff's attention to personal privacy, the information provided by nurses about the care plan and the ability to reach health personnel when needed. It was observed that most of the patients had low satisfaction levels because doctors did not provide detailed information about the treatment. The point at which patients' perceptions fall the most is the inadequacy of reception and counseling services. In the study, a relationship was found between the variables of patient satisfaction and gender, age and educational status.

In 2019, Yilmaz [15] it was determined that the factors that affect patient satisfaction the most are nurse and physician behaviors, care and interventions. While there was a negative relationship between patient education level and customer satisfaction, it was revealed that patient age and inpatient follow-up of patients had a positive relationship with satisfaction.

In 2020, Berkiten, [16] the concept and importance of "motivation" in order to make their service understanding in line with TQM standards were firstly discussed in the theoretical framework. In this research conducted by questionnaire method, 140 emergency health service employees participated in this study and the occupational satisfaction of the participants was determined as undecided-positive with an answer average of 3.6. According to the results obtained from the study, most of the employees think that they work in a field suitable for the education they have received.

In 2021, Yildirim [17], the satisfaction levels of the patients participating in the study were found to be at a medium level in terms of their participation in the patient admission and discharge process, diagnosis and treatment process, human resources process, communication process and support services processes. It was observed that there were statistically significant relationships between the sub-dimensions of the Process Quality Scale developed in the study. When these studies are evaluated together,

In the studies of Onal , Ozturk, Temur, Yilmaz, and Celenk, Topoyan, Kaynak, [8,9,11,12,15] waiting times in emergency services are the most effective in patient satisfaction, while in the studies of Ozturk and Soylemez [9, 10] it is revealed that staff communication is important.

In all the studies examined, it was determined that the use of quality indicators in hospitals plays an important role in increasing total quality and patient satisfaction, and it has been shown that TQM can be successfully implemented in the health sector.

In Berkiten and Yildirim [16, 17] studies, it was determined that a patient-oriented approach to increase the motivation and process quality of emergency healthcare providers plays an important role in the success of TQM.

5. CONCLUSION

When the results of the studies were analyzed, it is observed that there is a significant relationship between the type of application of patients to the emergency department and patient satisfaction, also the way patients are admitted to

the emergency department and the attitude and behavior of the staff have a significant impact on patient satisfaction.

Patients are dissatisfied with waiting times, bureaucratic procedures and infrastructure deficiencies and patients' views on treatment and their trust in doctors and health personnel significantly affect patient satisfaction, It was also observed that taking patients' complaints into consideration and having feedback mechanisms increased satisfaction.

In the studies reviewed, it is seen that Total Quality and Kaizen practices have many positive results in emergency services.

Patients are satisfied with factors such as shorter waiting times, better communication and more attention, and patient satisfaction is ensured,

Errors, delays and waste are reduced, processes are optimized and more efficient, and service quality improves,

Patients are more likely to receive treatment accurately and quickly, and patient safety is ensured,

Staff have a better working environment. Motivation and productivity increase, and staff satisfaction is ensured.

However, there are some important factors for TQM and Kaizen practices to be successful.

TQM and Kaizen practices require the full participation and support of management to be successful. It is important to train staff on TQM and Kaizen principles and practices which should focus on continuous improvement.

Feedback from patients and staff should be received and evaluated.

In conclusion, TQM and Kaizen practices have many positive outcomes in emergency departments such as patient satisfaction and safety, employee motivation, and the chance to receive effective and rapid treatment.

Authors' Contribution Levels

Study Design, SGS, NAÇ; Data Collection, SGS, NAÇ, AK, MBD.; Data Interpretation, NAÇ, AK, MBD; Manuscript Preparation, SGS, MBD; Literature Search, SGS, NAÇ, AK, MBD. All authors have read and agreed to the published version of the manuscript.

Conflict of Interest

The author declared that he has no conflict of interest.

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