

Research Article / Araştırma

The effect of total quality management practices on employees' perception of sustainable quality in a public health instituton*

Bir kamu sağlık kurumunda toplam kalite yönetimi uygulamalarının çalışanların sürdürülebilir kalite algısı üzerine etkisinin incelenmesi

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ABSTRACT

Introduction and Objective: In this study, the concepts of quality, total quality management and sustainability are explained and their relationships and interactions with each other are evaluated in terms of the health sector. A questionnaire was administered to healthcare personnel working in a public hospital in Istanbul. In the research, it is aimed to reveal the impact and importance of quality understanding for the efficiency, quality and sustainability of health services. **Materials and Method:** The research is a quantitative and descriptive study. Two different scales, "Total Quality Management Scale" and "Sustainable Quality Perception Scale" were used in the study. The research population consists of physicians, nurses and administrative staff working at Bakırköy Dr. Sadi Konuk Training and Research Hospital in Istanbul. The data obtained were analyzed using Pearson correlation, T-test, ANOVA test and SPSS package program. **Results and Conclusion:** The data obtained as a result of the research were evaluated with Cronbach's alpha analysis. Cronbach's alpha coefficient for total quality management was found as 0.861, while Cronbach's alpha coefficient for sustainable quality perception scale was found as 0.928. The relationship between total quality management and sustainable quality perception was tested with Pearson correlation test and it was found that there was a positive, strong and significant relationship between them ($r = 0.705$, $p < 0.001$). This result shows that a sustainable quality perception will be formed by ensuring continuous development with total quality management, increasing the motivation of employees, creating suitable working environments for employees, establishing healthy communication between employees, and ensuring trust in managers.

ÖZ

Giriş ve Amaç: Bu çalışmada; kalite, toplam kalite yönetimi ve sürdürülebilirlik kavramları açıklanmış, bu kavramların birbirleri ile olan ilişkileri ve etkileşimleri sağlık sektörü açısından değerlendirilmiştir. Bu amaçla İstanbul'da bulunan bir kamu hastanesinde çalışan sağlık personeline anket uygulaması yapılmıştır. Araştırmada sağlık hizmetlerinin etkinliği, kalitesi ve sürdürülebilirliği için kalite anlayışının etki ve önemini ortaya çıkartılması amaçlanmıştır. **Gereç ve Yöntem:** Araştırma nicel ve tanımlayıcı bir araştırmadır. Veri toplamak için anket tekniği kullanılmıştır. Araştırmada; "Toplam Kalite Yönetimi Ölçeği" ve "Sürdürülebilir Kalite Algısı Ölçeği" olmak üzere 2 ayrı ölçek kullanılmıştır. Ayrıca birinci bölümde araştırmacı tarafından 6 soru olarak hazırlanan "Sosyo-Demografik Bilgi Formu" kullanılmıştır. Araştırma evreni, İstanbul'da bulunan Bakırköy Dr. Sadi Konuk Eğitim Araştırma Hastanesi'nde çalışan hekim, hemşire ve idari personelden oluşmaktadır. Araştırma sonucunda elde edilen veriler SPSS v26.0 paket programı kullanılarak analiz edilmiştir. **Bulgular ve Sonuç:** Ölçeklerin iç tutarlılık güvenirliği Cronbach Alpha analizi ile incelenmiştir. Bu analiz, ölçeğin maddelerinin birbiriyle ne kadar tutarlı olduğunu ve ölçeğin genel güvenirliğini ölçmüştür. Katılımcıların toplam kalite yönetimi için cronbach's alfa katsayısı 0.861 olarak bulunmuştur. Katılımcıların sürdürülebilir kalite algısı ölçeği cronbach's alpha katsayısı ise 0.928 bulunmuştur. Toplam kalite yönetimi ve sürdürülebilir kalite algısı arasındaki ilişki pearson korelasyon testi ile test edilmiştir. Toplam kalite yönetimi ve sürdürülebilir kalite algısı arasında pozitif yönde, güçlü ve anlamlı bir ilişkinin olduğu saptanmıştır. Bu sonuç toplam kalite yönetimi ile sürekli gelişimin sağlanması, çalışanların motivasyonlarının artırılması, çalışanlara uygun çalışma ortamlarının yaratılması, çalışanlar arasında sağlıklı iletişimin kurulması ile yöneticilere olan güvenin sağlanarak sürdürülebilir bir kalite algısının oluşacağını göstermektedir.

Key Words:

Quality, Sustainable Quality, Total Quality Management, Health Services

Anahtar Kelimeler:

Kalite, Sürdürülebilir Kalite, Toplam Kalite Yönetimi, Sağlık Hizmetleri

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INTRODUCTION

In our age, as in many other sectors, the importance of meeting the personalized expectations and needs of people in the health services sector, and the importance of evaluating individual-specific situations separately in solving their problems, if any, is increasing. The existence of services with increased quality and quality in the field of health is one of the signs of high potential in the sector. In this direction, realization of quality service delivery for success in the sector will ensure a step forward in the competitive environment.

Total quality management is a concept accepted all over the world based on meeting the individual expectations of users at the maximum level. For this reason, as in the service sector, of course, it has become necessary to meet the wishes and needs on a personal basis in the health sector organization. This situation naturally ends up with the conclusion that the total quality management phenomenon must become widespread in the health sector. From this point of view, the increase in the capacity of the service provided to meet the needs is very important and the success of the sector employees shows the rate of realization of this criterion. The health sector inherently involves various risks. Regulatory systems are needed to prevent possible medical errors in the sector. It has been stated that Total Quality Management (TQM) practices, one of these systems, have an important place in preventing errors (Erkan & Ünal, 2022). Total quality management; in other words, the implementation of the continuous quality improvement process in the literature aims to improve the health system, improve the health service delivery process and output, and ultimately prevent morbidity and reduce mortality (Endelamaw and et al., 2024). Tezel et al. (2023) explain that the quality improvement approach is a continuous improvement method that focuses on organizational process improvement. This method also involves multidisciplinary teams and various functional activities of the quality improvement approach. The quality improvement approach also includes various reward systems for employees. (Dzidowska and et al., 2020). In addition, the approach uses competitive benchmarking to evaluate an organization's quality processes against the best performers (Ahmed et al., 2023).

The perception of sustainable quality, on the other hand, is a two-way phenomenon that points to the mutual exchange of information between the employees and the organization, showing the synergy between the employer and the employee, such as how much the employee knows about the company culture or policies, how capable he/she is in realizing the outputs of the decision mechanism and how involved he/she is in the subject. The realization of sustainability activities in the

process is possible only if this phenomenon is embraced by the entire organization. The fact that the methods and techniques by which the organization makes the requirements of total quality management effective are fully absorbed and implemented by the employees will result in the full realization of sustainability. (Çankır & Şahin, 2018)

Healthcare is one of the sectors where it is most important to establish and sustain a process for quality systems. In addition, in order for the developmental thinking patterns inherent in total quality management, which are oriented towards the future, to be effective, it is necessary to visibly increase the quality of the services provided by health institutions. It is very important that the total quality management projections aimed to be realized in the future are formed in a way to include the thoughts of those who work in the sector, and that the technical knowledge of the labor force is included in the work. Otherwise, it will not be possible for those who are in the sector for service purposes to clearly establish the connection between their work and total quality management, neither will it be possible to determine what they think in order to determine the consistency of the activities they will put forward during the performance of the work. (Kıdak et al., 2015)

With this research, it is aimed to understand what the concepts of quality and total quality management are, to understand total quality management practices, and to understand the concepts of total quality management and sustainable quality perception in the health sector. In this context, an application was carried out to determine the relationship between total quality management and sustainable quality perception in a public hospital operating in the city center of Istanbul in 2023. A good understanding of the total quality management system, which is realized with the participation of all stakeholders in the health sector, is important for a quality and sustainable service. In this study, the positive results of the implementation of total quality management and high perception of sustainable quality in health sector organizations are discussed. The evaluation and management of service quality offered through institutions, the requirements for establishing a healthy understanding of quality, and the effects of these factors on service quality will be determined. The desired result is to reveal the importance of quality understanding in the health sector, the sustainability of the service and the studies carried out in order to ensure efficiency.

Total Quality Management

Total Quality Management (TQM) can be defined as a process that shows continuous development and

improvement, where customer expectations are met at the highest level with the lowest possible cost , which is possible with the participation of all employees. (Bozkurt & Asil, 1995) Total quality management is a philosophy that aims to provide customer satisfaction to organizations. (Walsh et al., 2002) Total quality management is a system in which tangible values such as products, services and activities put forward in institutions, organizations or enterprises are provided with the participation of all employees, in other words, all those who work, and customer satisfaction is met with the least cost. Total quality management is a type of approach that focuses on processes rather than results in an enterprise, evaluates the decisions taken by the management regarding the contribution of all employees or stakeholders and their activities for improvement, and examines scientific data and information. (İnce, 2007) Total quality management involves a systematic method for continuous improvement of organizational processes leading to high quality products and services. (Mani et al., 2003)

TQM aims to prevent errors before they occur in all activities carried out in organizations, reducing losses, unnecessary stocks, loss of time, in short, trying to eliminate all the negativities that may occur. In this case, it will ensure reduced costs, and satisfied customer expectations. (Tengilimoğlu et al., 2018) From a different perspective, another aim of TQM is to win the race with competitors. In other words, it is an economic war against competitors with all the processes of the organization. The competitiveness of organizations that adopt and fully implement TQM practices will increase. (Akdağ, 2005) Organizations survive to the extent that they can respond to customer expectations. Standing against competitors is possible by implementing successful total quality practices in every process of the organization. The successful implementation of total quality management practices in organizations depends on the motivation, skills, participation and role taking power of the employees of the organization. (Adayiwah et al., 2020).

Total Quality Management in Health Services

The basic idea as a priority in total quality management is to do the work to be performed in the first stage and in the right way, the participation of employees in the process as a whole, continuous improvement and the satisfaction of individuals in the role of recipients. Total quality understanding in health services; continuous improvement, full participation of health professionals in the process, ensuring patient safety, understanding and meeting the expectations and needs of patients and their relatives, providing effective and efficient treatment services at low cost and ensuring patient satisfaction.

With the use of total quality management in health services, the sector can focus on patient satisfaction with the strategic plan and quality targets it has set for itself and gain superiority over its competitors in many areas. Quality service delivery brings satisfaction with it. Some factors from total quality management practices in health services are important for quality. It can be said that the embodiment of total quality management in the field of health is timely, accurate, appropriate diagnosis and treatment. In the light of this explanation, the objectives of TQM can be listed as follows (Kömürcü, 2006):

- Establishment of quality standards,
- Continuous renewal, improvement and development of the process,
- Ensuring full participation and teamwork,
- Improving the quality of training of health personnel and supporting them to gain experience,
- Efficient use of all resources,
- Establishing healthy communication,
- Minimizing errors,
- Effective leader management of the whole process,
- Improving the effectiveness of the treatment services provided,
- Ensuring patient and patient relatives' satisfaction.

Features of Total Quality Management in Health Services

Employee training and ensuring full participation of employees in the process enables employees to recognize themselves, realize what they can do and participate in the stages of management through the trainings provided. For efficient and quality service delivery in health services, full participation of employees is required with the responsibilities they take.

With the full participation and continuous training of employees, a process is created in which problems are solved, quality is increased, and the needs of patients and their relatives are met with the lowest cost, efficient and continuously developing service understanding in line with quality awareness. (Kaya, 2013) In TQM, leadership approach is applied in line with the strategic plan in order to maintain the procedures of the quality targets determined in health services, to direct and manage the employees in line with the purpose and vision of the organization and to maintain the management functioning. Leadership in TQM can also be defined as closely following the goals and procedures set by

the health institution in the name of quality service and continuing the process by following the quality improvement activities by supporting quality studies. (Karta, 2018) The concept of leadership in TQM is also effective in patient satisfaction and the quality and efficiency of the treatment services they receive.

Problems Encountered in Total Quality Management Practices in the Health Sector

It is clear from research that the adoption of TQM practices tends to improve health care organizations if implemented correctly; otherwise it can lead to TQM failure. (Talib & Rahman, 2011) There are common reasons for the failure of TQM implementation in the health sector. These reasons include lack of tools, culture change, misapplication of quality tools and techniques, insufficient time for implementation, data validity, investment cost, lack of resources and knowledge, lack of viable leadership commitment, poor data and delivery plans, unrealistic expectations and inadequate management skills. (Suleman & Gul, 2015) Other barriers to TQM success include fixed-minded managers and lack of employee commitment and participation in TQM implementation, weak leadership and management, lack of quality-oriented culture, inadequate training and inadequate resources. The reasons for failure in the implementation of total quality management are summarized below (Kaya, 1997):

- Total quality is not fully understood by the top management and they support it in an uninformed manner,
- Resistance or opposition to change by some people in management,
- Total quality goals and objectives are not clear for everyone to understand,
- Insufficient time allocated to total quality organizations,
- Failure to establish quality improvement teams or failure to motivate them as required,
- While implementations are difficult and time-consuming, outputs need to be seen immediately,
- Failure to implement adequate training programs,
- The habit of using cheap labor, raw materials and labor.

Perception Of Sustainability And Sustainable Quality

The term sustainability has led to a return to the concept of 'steady-state' or 'steady-state' economics used by 19th century economists. The concept has a long intellectual

history of deep reflection. Sustainability implies a balance between natural resources and production. Because sustainability also requires that the vital activities of our bio-physical environment are utilized in such a way that they are available indefinitely. (Huetting & Reijnders, 1998) However, sustainability is an intangible issue that is not easy to measure. Therefore, the majority of researchers have focused on showing some evidence to assess and monitor the environmental impacts of production activities. (Acar et al., 2015) Accordingly, sustainability has a linear relationship with quality in general with its environmental, social and economic dimensions. Sustainability is also presented as a multi-layered, multi-stakeholder, composite and ambitious policy goal (Valentin & Spangenberg, 2000).

Although there have been more than one study involving the concepts of quality perception and sustainability, a study in which the two concepts are intertwined was first introduced by Çankır and Eti in 2017 as "Sustainable Quality Perception". (Çankır & Eti, 2017) Studies conducted in this direction indicate that the importance of 'Sustainable Quality Perception' will increase gradually. It is also assumed that it will be very effective in terms of job performance with the emergence of passion for work. (Şahin & Çankır, 2019) The elements such as quality, sustainability, process, policy, efficiency and activity that any organization examines and handles, and this common process that takes place with the adoption of these elements by all stakeholders, namely partners, customers and suppliers, constitute the sustainable perception of quality. In other words, total quality management is a concept that focuses on the sustainability and quality management struggle that employees carry out for the organization, the elements necessary for this struggle and the picture that the process in which all these are created draws in the minds. In total quality management practices, while it is important to recognize internal and external customer demands, focus on processes, and analyze the available data to improve the identified needs, the perception of the organization's quality from the perspective of the employee, who is defined as the internal customer, is also valued. (Dural & Çankır, 2020).

Research Methodology

The research is a descriptive research model which is a quantitative research type. Quantitative research is a type of research that objectifies events and presents them in a way that can be examined, measured and evaluated, and put forward numerically. (Karasar, 2012) The population of the study consisted of employees (physicians, nurses, administrative staff) working in Bakırköy Dr. Sadi Konuk Training and Research Hospital operating in

Istanbul. The sample of the study consisted of a total of 271 hospital employees who participated in the study on voluntary basis. Research data were collected in January and February 2023. The scales used in the study do not have sub-dimensions. The scores of the scales were calculated as the overall mean value for each scale related to the relevant scale. Pearson correlation test was applied to determine the relationships between these general average scores. In the first part of the study, a 6-question "Socio-Demographic Information Form", the 25-item "Total Quality Management Scale (Pinhan, 2014) in the second part, and the 13 item Sustainable Quality Perception Scale (Şahin & Çankır, 2019) in the third part were used as data collection tools. Prior to the implementation, the approval of the Provincial Directorate of Health, ethics committee and questionnaire use permissions were obtained from the necessary places for the research content and the field where the research would be conducted. For this study the approval of ethical committee no 2022/15 dated 22/09/2022 was taken from the Ethical Committee, Istanbul Aydın University.

SPSS v26.0 package program was used in the study. Normality Test (Kolmogorov Smirnov), Descriptive Statistics (Frequency Analysis, Descriptive Statistics), Independent Group Comparison (Independent Sample T Test, One-Way ANOVA), Pearson Correlation Analysis, Reliability Analysis (Cronbach's Alpha) (Özdamar, 2015) tests were performed with the data obtained. Descriptive statistics such as percentage, frequency, standard deviation, arithmetic mean, max/min were used in the evaluation of the data. In the data analysis technique, Kolmogorov-Smirnov test was applied for normality distribution and parametric tests were used since the normality assumptions were met after the analysis. The t-test was used to compare the means of independent groups and One-way ANOVA test was used to compare more than two groups. Levene's test was used for homogeneity of variance for ANOVA and Tukey HSD and LSD ($p \geq 0.05$) were used if homogeneity of variance was achieved for groups, and Tamhane multiple comparison test ($p < 0.05$) was used if homogeneity of variance was not achieved. Pearson correlation coefficient was calculated for the relationship between the scales. Cronbach's alpha coefficient was used in reliability analysis. Cronbach's alpha coefficient of total quality management of employees was calculated

as 0.861 and 'Cronbach's alpha coefficient for the total quality management scale and the sustainable quality perception scale were calculated as 0.861 and 0.928, respectively.. In all analyses, test results were analyzed at 0.05 significance level.

RESULTS

Table 1. Distribution Of Socio-Demographic Characteristics

	n	%
Gender		
Woman	141	52,0
Man	130	48,0
Age		
Between 18-24	14	5,2
Between 25-34	128	47,2
Between 35-44	80	29,5
Between 45-54	38	14,0
55 and above	11	4,1
Marital status		
Married	154	56,8
Single	117	43,2
Education Status		
High School	47	17,3
Associate degree	49	18,1
Bachelor's degree	103	38,0
Master's-PhD	72	26,6
Mission area		
Physician	70	25,8
Nurse	83	30,6
Administrative staff	118	43,5
Duration of work in the organization		
0-5 years	104	40,2
6-10 years	84	32,4
11-15 years	55	21,2
16-20 years	16	6,2

In the study, 52% of the hospital employees were female and 48% were male; 5.2% were 18-24 years old, 47.2% were 25-34 years old, 29.5% were 35-44 years old, 14% were between 45-54 years old and 4.1% were 55 years old or older; 56.8% were married, 43.2% were single; 17.3% had high school education, 18.1% had associate's degree, 38% had bachelor's degree, and 26.6% had master's degree-doctorate; 25.8% worked as physicians, 30.6% as nurses, and 43.5% as administrative staff; 40.2% had worked in the institution for 0-5 years, 32.4% for 6-10 years, 21.2% for 11-15 years, and 6.2% for 16-20 years.

Table 2. Descriptive Statistics Results of Total Quality Management and Sustainable Quality Perception Scale Scores

	N	\bar{X}	SS	Min.	Maks.
Total Quality Management	271	3,42	0,53	1	5
Perception of Sustainable Quality	271	3,26	0,83	1	5

The average score of total quality management and sustainable quality perception of employees is 3.42 and 3.26, respectively.

Table 3. Normality Distribution Results of Total Quality Management and Sustainable Quality Perception Scale Scores

	Kolmogorov-Smirnov			Skewness	Kurtosis
	Test statistic	Sd.	p		
Total Quality Management	0,070	271	0,003	0,083	0,973
Perception of Sustainable Quality	0,053	271	0,061*	-0,093	-0,235

*p>0.05

When the normality distribution of the scale scores of the participants was evaluated with the Kolmogorov Smirnov test, the average scores except for the sustainable quality perception did not show normal distribution ($p < 0.05$). However, although the scores did not show normal distribution, it was accepted that the data belonging to the scale scores were normally distributed since the kurtosis and skewness values, which are the other assumptions of normal distribution, were between ± 2 and the sample volume was $n > 30$ and above. (George & Mallery, 2020, p. 115).

The mean score of total quality management of male employees ($\bar{X} = 3.50$, $SD = 0.50$) is significantly higher than the mean score of female employees ($t(269) = -2.469$, $p = 0.014$, $p < 0.05$). The mean sustainable quality perception score of female employees is $\bar{X} = 3.19$, while the mean score of male employees is $\bar{X} = 3.34$. The mean score of sustainable quality perception does not differ significantly according to gender ($p > 0.05$).

The average total quality management score of the employees between the ages of 18-24 is $\bar{X} = 3.33$, the average score of the employees between the ages of 25-34 is $\bar{X} = 3.41$, the average score of the employees between

the ages of 35-44 is $\bar{X} = 3.42$, the average score of the employees between the ages of 45-54 is $\bar{X} = 3.52$ and the average score of the employees with 55 years of age and above is $\bar{X} = 3.39$. Total quality management mean score does not show a significant difference according to age groups ($p > 0.05$). The mean score of sustainable quality perception of employees aged 18-24 years is $\bar{X} = 2.97$, the mean score of employees aged 25-34 years is $\bar{X} = 3.20$, the mean score of employees aged 35-44 years is $\bar{X} = 3.23$, the mean score of employees aged 45-54 years is $\bar{X} = 3.54$ and the mean score of employees aged 55 and over is $\bar{X} = 3.51$. The mean score of sustainable quality perception does not show a significant difference according to age groups ($p > 0.05$).

The average total quality management score of married employees is $\bar{X} = 3.47$, while the average score of single employees is $\bar{X} = 3.36$. Total quality management mean score does not show a significant difference according to marital status ($p > 0.05$). The mean score of sustainable quality perception of married employees is $\bar{X} = 3.31$ and the mean score of single employees is $\bar{X} = 3.20$. The mean score of sustainable quality perception does not differ significantly according to marital status ($p > 0.05$).

Table 4. Comparison of Total Quality Management and Sustainable Quality Perception Scale Scores by Gender

	Gender	N	\bar{X}	SS	t	p
Total Quality Management	Woman	141	3,35	0,55	-2,469	0,014*
	Man	130	3,50	0,50		
Perception of Sustainable Quality	Woman	141	3,19	0,83	-1,488	0,138
	Man	130	3,34	0,83		

Independent sample t test, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ **Table 5.** Comparison of Total Quality Management and Sustainable Quality Perception Scale Scores by Age Variable

	Age Groups	N	\bar{X}	SS	F	p
Total Quality Management	Between 18-24	14	3,33	0,52	0,473	0,756
	Between 25-34	128	3,41	0,51		
	Between 35-44	80	3,42	0,56		
	Between 45-54	38	3,52	0,47		
	55 and above	11	3,39	0,79		
	Between 18-24	14	2,97	1,01	1,981	0,098
Perception of Sustainable Quality	Between 25-34	128	3,20	0,79		
	Between 35-44	80	3,23	0,91		
	Between 45-54	38	3,54	0,67		
	55 and above	11	3,51	0,82		

One-way analysis of variance (One-Way ANOVA) test, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6. Comparison of Total Quality Management and Sustainable Quality Perception Scale Scores According to Marital Status

	Marital status	N	\bar{X}	SS	t	p
Total Quality Management	Married	154	3,47	0,54	1,638	0,103
	Single	117	3,36	0,51		
Perception of Sustainable Quality	Married	154	3,31	0,84	1,104	0,270
	Single	117	3,20	0,82		

Independent sample t test, *p<0.05, **p<0.01, ***p<0.001

The mean total quality management score of employees with high school education is $\bar{X}=3.50$, the mean score of employees with associate's degree is $\bar{X}=3.30$, the mean score of employees with bachelor's degree is $\bar{X}=3.38$ and the mean score of employees with master's degree is $\bar{X}=3.51$. Total quality management mean score does not show a significant difference according to educational level ($p>0.05$). The mean score of sustainable quality perception of employees with high school education is $\bar{X}=3.45$, the mean score of employees with associate's degree is $\bar{X}=3.17$, the mean score of employees with bachelor's degree is $\bar{X}=3.22$ and the mean score of employees with master's-doctorate degree is $\bar{X}=3.25$. The mean score of sustainable quality perception does not show a significant difference according to educational level ($p>0.05$).

The mean score of total quality management shows a significant difference according to the job areas of the employees ($F(2, 268)= 3.274, p=0.039, p<0.05$). The homogeneity of variance between groups was evaluated by Levene's test and it was determined that the variances were homogeneously distributed ($p>0.05$). As a result of Tukey HSD test for group differences, it is seen that the average score of total quality management of administrative staff ($\bar{X}=3.48, SS 0.60$) is significantly higher than the average score of nurses. The mean score of sustainable quality perception of physicians

is $\bar{X}=3.25$, the mean score of nurses is $\bar{X}=3.12$ and the mean score of administrative staff is $\bar{X}=3.37$. The mean score of sustainable quality perception does not show a significant difference according to the field of duty ($p>0.05$).

The mean score of total quality management of employees working between 0-5 years is $\bar{X}=3.39$, the mean score of employees working between 6-10 years is $\bar{X}=3.44$, the mean score of employees working between 11-15 years is $\bar{X}=3.49$ and the mean score of employees working between 16-20 years is $\bar{X}=3.52$. The mean score of total quality management does not differ significantly according to the length of service in the organization ($p>0.05$). The mean score of sustainable quality perception of employees working between 0-5 years is $\bar{X}=3.13$, the mean score of employees working between 6-10 years is $\bar{X}=3.31$, the mean score of employees working between 11-15 years is $\bar{X}=3.43$ and the mean score of employees working between 16-20 years is $\bar{X}=3.41$. the mean score of sustainable quality perception does not differ significantly according to the length of service in the organization ($p>0.05$).

There is a positive, strong and significant relationship (correlation) between total quality management score and sustainable quality perception score ($r= 0.705, p<0.001$).

Table 7. Comparison of Total Quality Management and Sustainable Quality Perception Scale Scores According to Educational Background

	Education status	N	\bar{X}	SS	F	p
Total Quality Management	High School	47	3,50	0,54	2,070	0,104
	Associate degree	49	3,30	0,65		
	License	103	3,38	0,50		
	Master-Phd	72	3,51	0,47		
Perception of Sustainable Quality	High School	47	3,45	0,88	1,073	0,361
	Associate degree	49	3,17	0,89		
	License	103	3,22	0,76		
	Master-Phd	72	3,25	0,86		

One-way analysis of variance (One-Way ANOVA) test, *p<0.05, **p<0.01, ***p<0.001

Table 8. Comparison of Total Quality Management and Sustainable Quality Perception Scale Scores According to Field of Duty

	Mission Area	N	\bar{X}	SS	F	p
Total Quality Management	Physician	70	3,46	0,46	3,274	0,039*
	Nurse	83	3,30	0,47		
	Administrative Staff	118	3,48	0,60		
Perception of Sustainable Quality	Physician	70	3,25	0,77	2,182	0,115
	Nurse	83	3,12	0,76		
	Administrative Staff	118	3,37	0,90		

One-way analysis of variance (One-Way ANOVA) test, *p<0.05, **p<0.01, ***p<0.001

Table 9. Comparison of Total Quality Management and Sustainable Quality Perception Scale Scores According to the Duration of Employment in the Organization

	Working time	N	\bar{X}	SS	F	p
Total Quality Management	0-5 years	104	3,39	0,51	0,555	0,645
	6-10 years	84	3,44	0,52		
	11-15 years	55	3,49	0,52		
	16-20 years	16	3,52	0,50		
Perception of Sustainable Quality	0-5 years	104	3,13	0,88	1,991	0,116
	6-10 years	84	3,31	0,79		
	11-15 years	55	3,43	0,77		
	16-20 years	16	3,41	0,76		

One-way analysis of variance (One-Way ANOVA) test, *p<0.05, **p<0.01, ***p<0.001

Table 10. Correlation Analysis of Total Quality Management and Sustainable Quality Perception Scale Scores

		Total Quality Management	Perception of Sustainable Quality
Total Quality Management	R	1	
	P		
Perception of Sustainable Quality	R	0,705***	1
	P	<0,001	

Pearson correlation, *p<0.05, **p<0.01, ***p<0.001

DISCUSSION AND CONCLUSION

In this study, the effect of Total Quality Management on the perception of sustainable quality was analyzed. According to the results obtained from the findings, there was no significant difference between the variables of age, education level, marital status and length of service in the organization and total quality management and sustainable quality perception scales. When the gender variable is analyzed according to the total quality management scale and sustainable quality perception scale, it is seen that the average total quality management score of male employees is significantly higher than the average score of female employees. In Çankır's study conducted on justice sector employees in 2021, it is seen that the effects of male employees are higher. With regard to the fact that the average score of male employees is higher than the average score of female employees, it can be suggested that businesses should increase quality trainings for female employees and encourage teamwork. In the study conducted by Şahin and Çankır in 2019 on people working in the service sector; it was revealed that employees attach importance to sustainability and quality and this affects their passion for work and job performance. In his study in 2009, Yaş compared two university hospitals in terms of Total Quality Management studies and concluded that both institutions should be supported in terms of increasing employee satisfaction levels, ensuring their participation in management, increasing their motivation and training, eliminating problems in communication between employees and departments, continuous improvement in the hospital and increasing

efforts towards zero error. In the study conducted by Çankır and Şahin in 2018 on glass, cement, metal, plastic, automotive and petroleum sector employees, it was determined that the participants' perception of sustainable quality for their organizations was low with an average of 1.86 ± 0.73 . In our study, the sustainable quality perception score of the employees was found to be higher compared to this study. With this result, it can be said that the perception of sustainable quality in health sector employees is higher compared to other production sectors. In a study conducted by Özkan in 2021, the sustainable quality perception score was found to be lower among single people compared to married people. In our study, no significant difference was found between marital status and sustainable quality perception. The sample of Özkan's study in 2021 consists of white-collar employees working in various sectors in Turkey. It is thought that the reason for this difference is due to the different sample selected. In the findings, the fact that there is a significant effect of total quality management according to the field of duty can be interpreted as that administrative staff are more involved in total quality management processes than physicians and nurses and that they are in communication with the senior management, which they have knowledge about. When the relationship between total quality management and sustainable quality perception of hospital employees is evaluated, it was revealed that there is a positive, strong and significant relationship between total quality management score and sustainable quality perception. In their 2004 study, Doğan and Kaya also found that health managers do not see Total Quality Management as a temporary fad and support TQM

efforts. It shows that with Total Quality Management: sustainable quality perception can be achieved by making continuous improvement, increasing employee satisfaction, creating a suitable working environment with the necessary tools and equipment, preventing communication breakdowns and providing trust in the manager.

It is seen that the perception of total quality management and sustainable quality has not yet been fully formed in the research organization. It can be said that it is necessary to provide trainings to health personnel, to give plaques with thank you letters to those who work on this issue, to increase the knowledge of physicians and nurses participating in the research about total quality management, to ensure the participation of all employees, to ensure the commitment of hospital employees to quality, and to see the support of senior management. In the suggestions for the researchers, the research can be repeated, it can be conducted in more than one institution with different groups (such as private hospitals, university hospitals, city hospitals) in different universes, and the research can be deepened and detailed.

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