

Total Quality Management and Perceived Service Quality: The Impact on Customer Satisfaction and Loyalty



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Submission: November 11, 2021; **Published:** November 30, 2021

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Abstract

Total quality management and perceived service quality are core factors to increase consumer satisfaction and loyalty. Our study examines the relationship between total quality management (TQM) and perceived service quality (PSQ) on customer satisfaction and loyalty. A structured questionnaire was carried out at the National Cancer Hospital in Viet Nam, delivering for inpatients who were treated during April 2018. The data were analysed by using the Statistical Package of Social Sciences (SPSS) 25.0 software and AMOS 25.0 software. A confirmatory factor analysis was assessed to the research model before when used the structural equation modelling test for the proposed hypotheses. Results showed that PSQ has a direct effect on satisfaction and loyalty while the TQM influences loyalty through satisfaction plays as a mediating factor. Our findings reveal that PSQ is a factor related to satisfaction and loyalty. While total quality management has a positive influence on satisfaction but doesn't have related to a direct effect on loyalty. Our study has practice implications for providers and policymakers when considers factors that aim to increase customer satisfaction and retain loyalty. In addition, service firms should focus on satisfaction factors to improve service quality and maintain loyalty.

Keywords: Total quality management; Perceived service quality; Satisfaction; Loyalty

Abbreviations: TQM: Total Quality Management; PSQ: Perceived Service Quality; SPSS: Statistical Package of Social Sciences; CFA: Confirmatory Factor Analysis; SEM: Structural Equation Modelling

Introductio

Service quality is a key factor in the competitive environment of service organizations Bobocea et al. [1]. Perceived service quality (PSQ) is an element that increases satisfaction and behavioral intention Aljaberi et al. [2]. Customer satisfaction is a mediator factor in the relationship between service quality and repurchase intention Santoso & Aprianingsih [3]. It is a tool to measure the service quality of providers Lonial & Raju [4]. The healthcare sector is a service industry that demand for high- quality services Hijazi et al. [5]. The service process entails interaction between patients and medical staff that studies have shown medical errors Kaldjian et al. [6]. Thus, health service organizations have improved service quality that meets medical service outcomes Mc Cullough et al. [7]. Aspects of perceived quality were assessed customer satisfaction and loyalty [2,4]. Perceived quality has a positive effect on client satisfaction and indirectly on repurchase

intention by satisfaction is a mediating Santoso & Aprianingsih [3] Satisfaction is use tool that measures the service quality of providers based on perceived quality by customers Karim & Shahsavar [8,9]. Dimensions of PSQ was measured tangibility, reliability, responsiveness, assurance, and empathy Munulik & Aljaberi [2,10]. It was evaluated by the consumer that compares a gap between PSQ and expectation Zarei & Karim [8,11]. Customer loyalty is a necessary factor when measures the service quality of providers Shahsavar & Sudzina [9]. Customer satisfaction was predicted loyalty Lonial & Shahsavar et al. [4,9] and is a mediation of PSQ and behavioral intention/loyalty [2,9] Increasing service quality is enhancing trust, building customer loyalty Rahmani et al. [12]. PSQ and customer expectations were antecedent factors of client satisfaction and loyalty [9] Improving service quality that meets customer needs to increase satisfaction, and

thereby maintain repurchase [1]. Thereby, to increase customer satisfaction, service organizations should endeavour to improve service quality. Service quality is a determinant factor of customer satisfaction for the establishment of customer loyalty Santoso & Apringgingsih [9]. Our study investigates the effect of total quality management and perceived service quality on customer satisfaction and loyalty.

Literature review

The present study examines the impact of total quality management and perceived service quality related to satisfaction and loyalty. In this part, we focus on the literature regarding the scope of this study.

Total quality management (TQM)

TQM is a leadership tool that focuses on customer satisfaction and expectations through product quality, service quality, and process quality ISO9001 [13]. The programs supported to TQM include Six-Sigma, Re-engineering, and (currently) ISO 9000, ISO 9001, and ISO 10001 ISO9000, Juran & ISO10001 [13-15]. These standards were applied by companies that reported to the high-level satisfaction of customers Salter [16]. In TQM, management philosophy that a commitment continuous to improve quality and customer satisfaction Deming [17]. Improving perceived service quality enhances client satisfaction and loyalty Lonial & Raju [4]. Studies have shown five TQM factors including process, interaction, environmental quality, cost, and trust [18-21]. The present study focuses on three factors of TQM including process, interaction, and environmental quality.

Perceived service quality (PSQ)

Service quality is a core factor that has a direct effect on customer satisfaction and an indirect effect on customer loyalty [2,4]. Quality refers to a term that is considered demonstrative of a high satisfaction level and related to factors that characterize a product or service Bobocea et al. [1] It is a factor that is difficult to define and measure. Therefore, measurement and evaluation were based on assessing perceived quality by customer insight Abbasi-Moghaddam et al. [22]. Service quality is the result that customer compares expectations with PSQ [10], the expectation is higher than PSQ [11]. In which, tangibility refers to the sense of physical space in relation to services, facilities, equipment, the appearance of personnel; reliability of the service provider, including performing committed function accurately and reliably; responsiveness of the service provider such as a tendency toward helping and responding to customers' needs; assurance provided by service provider refers to the ability of personnel to induce trust and reliability; empathy of service providers with customers refers to personal attention to customers [1,10]. There was a close relationship between PSQ and customer expectations for customer satisfaction Karim et al. [8]. PSQ has a positive influence

on client satisfaction that is a core factor in remain customer loyalty [2,4]. Previous research have indicated five factors of PSQ such as tangibility, reliability, responsiveness, assurance, and empathy [1-3]. Our study considers three factors on PSQ such as tangibility, reliability, and responsiveness.

Patient satisfaction (PS)

Customer satisfaction is a tool that measures the service quality of providers [9], it is the outcome of customers expected [10]. SQ is key to competitive advantage Bobocea et al. [1]. Measurement and evaluation of customer satisfaction is a tool to improve PSQ [9,13]. Improving PSQ meet fulfills consumer expectations that lead to enhancing customer satisfaction and loyalty [9,10]. Studies showed customer satisfaction plays as a mediating of PSQ and loyalty [2-4].

Patient loyalty (PL)

Customer loyalty is a core factor when consider assessing service quality, it has a close relationship with satisfaction [9]. It refers to the repeat purchase behavior of consumers Souki et al. [23]. Consumer satisfaction and loyalty are key factors of business strategy [9]. Therefore, improving PSQ aims to enhance satisfaction and behavioral intention [2]. PSQ and expectation are predictors of satisfaction and loyalty [8-10]. Client satisfaction is a mediating factor in the relationship between PSQ and loyalty [2,4].

Research Hypotheses

Total quality management (TQM) is a leadership tool that aims to improve perceived service quality (PQS) focus on satisfaction [13,15]. A study by Hijazi et al. [5] supported that the service firm has applied TQM to focus on consumer satisfaction by improving service quality. The expectation has a close relationship with PSQ Zarei et al. [11]. The service organization develops perceived quality to increase customer expectations that enhance satisfaction Karim et al. [8]. Based on these discussions, we proposed

- a) H1: TQM positive effect on PSQ

Consumer satisfaction is a useful tool that measures the service quality of providers Shahsavar & Sudzina [9]. In ISO 10001, TQM focus on the customer satisfaction code of conduct that meets or exceeds customer needs and expectations ISO10001 [15] TQM consider continuous process improvement that providers offer great value to customers and meet their needs Rizvi et al. [24]. TQM refers to increase product and service quality that meets customer needs and satisfaction [15]. TQM improved perceived quality and, thereby, higher patient satisfaction [21]. The service company had applied TQM to enhance service quality and, thereby, improve PS and increase loyalty [4,9]. Thus, we propose the following hypothesis.

- b) H2: TQM positive influence on PS

TQM focus on satisfaction ISO10001 [15]. Improving service quality meets the client's needs and increases satisfaction Hijazi et al. [5]. Studies gave evidence that the roles of customer expectations and satisfaction on service quality of providers Karim & Manulik [8,10]. The expectation had affected loyalty through perceived quality as a mediator role Lin et al. [25]. There was a close relationship between customer expectation and PSQ [25]. Improve perceived quality and expectation are key factors when considers satisfaction and loyalty by the consumer. [4,10] Therefore, we proposed

c) H3: TQM positive effect on PL

PSQ is a core factor when measures and evaluate the service quality of the service organization Bobocea et al [1], assessing by client satisfaction [3]. PSQ related to expectations, it is lower than expectation [8]. Therefore, improving PSQ meets expectations and enhances satisfaction Manulik et al. [10]. PSQ and expectation are key elements when considers increasing satisfaction and loyalty/re-buy by customers [4,25]. PSQ has an indirect influence on loyalty by satisfaction is a mediating Aljaberi et al. [2]. Considering these findings, we give hypothesis

d) H4: PSQ positive effect on PS.

PSQ is an indispensable factor when evaluating customer satisfaction and Loyalty [4]. There was a gap in the relationship between PSQ and expectations that expectation is higher than PSQ [Karim et al. [8]. This proved evidence PSQ has related the close to the expectation that contributed to indispose in the measurement of service quality [11]. Thus, improve PSQ aim to meet the expectation and increase satisfaction and loyalty [4,10] Therefore, we proposed the hypothesis

e) H5: PSQ positive effect on PL

Customer satisfaction and loyalty consider the core factors of business strategy Shahsavari & Sudzina [9]. As such, customer satisfaction is a tool that measures and evaluates the service quality of providers [1,5]. Improving service quality meets the fulfilment of customer's expectations to lead to greater satisfaction and repurchase [8,23]. PSQ has a positive effect on client satisfaction and indirectly on loyalty by satisfaction as a mediator Lonial & Raju [4]. Thus, we offer the following hypothesis

f) H6: PS positive effect on PL.

Data and Methodology

The survey was carried out at the National Cancer Hospital, Vietnam was a total of 2,500 inpatients per day of 39 clinical departments. Several assistance members were recruited who training for one day on the purpose of the study before collect data. The sample size of the study was required at least 500 participants supported by Wolf et al. [26]. The participants were randomly selected from the list of inpatients of each department of 22% total of 2,500. A total of 550 participants were recruited for our

study that was included who don't complete questionnaires. The instrument of study was a structured questionnaire that included 38 questions in two main parts. In the first part, the socio-demographic factors refer to six questions of age, sex, marital status, educational level, occupation, and method of paying hospital fees. The second part, including 32 questions concern with twelve questions for the total quality management (TQM) factor: four for process quality (TQM1-TQM4), five for interaction quality (TQM5-TQM9), three for environment quality (TQM10-TQM12). Items were based on the work of [18,19] and modified for the context of the research hospital. The next, fourteen questions of Perceived service quality (PSQ), five for tangibility (PSQ13-PSQ17), five for reliability (PSQ18-PSQ22), and four for responsiveness (PSQ23-PSQ26). These questions were based on previous research Aman & Abbas [27], which modifies to fit with the research hospital. Followed by the PS factor was represented by three questions (PS27-PS29). Finally, three questions related to the PL factor (PL30- PL32). A Likert scale ranged from one (1) "very strongly disagree" to five (5) "very strongly agree", measured all questions. The data set was performed by using the Statistical Package of Social Sciences (SPSS) 25.0 and AMOS 25.0 software. A confirmatory factor analysis (CFA) was used to support the issues of dimensionality and convergent and discriminant validity, and structural equation modelling (SEM) was used to test the proposed hypotheses.

Results and Discussion

The reliability statistics

Cronbach's alpha was used confirming the reliability and adequate internal consistency of the scales by using the SPSS 25.0 program. The results showed in Table 1. In table 1, all values of the Cronbach alpha values were more than 0.79 (cut-off 0.70), indicating the scales have strong reliability and adequate internal consistency. In particular, the TQM factor ranges from 0.82 to 0.90; PSQ was between 0.85 and 0.87; PS factor was 0.79 and PL factor was 0.80, respectively.

Confirmatory factor analysis (CFA)

CFA measurement model was used for structural equation modeling (SEM) to test the proposed hypotheses. It was shown in terms of the standardized coefficients, the composite reliabilities (CR), and the average variance extracted (AVE) Hair Jr et al. [28], indicated in Table 2. In Table 2, all standardized coefficient values of factors were more than 0.63 [cut - off= 0.5], especially ranged from 0.63 and 0.86. The AVE values of factor were around between 0.51 and 0.67 [cut-off of 0.50] and exceeded the squared correlations between any pair of constructs, showing high discriminant validity. The CR values for constructs were ranged 0.80 and 0.94 [cut-off= 0.7], which demonstrated adequate internal consistency (Hair Jr et al. 2014). These findings showed that our model was supported.

Table 1: Reliability statistics.

Constructs	Items	Cronbach's Alpha
Total Quality Management (TQM)		
Process quality	4	0.896
Interaction quality	5	0.890
Environment quality	3	0.823
Perceived Service Quality (PSQ)		
Tangibility	5	0.873
Reliability	5	0.854
Responsiveness	4	0.845
Patient Satisfaction (PS)	3	0.792
Patient Loyalty (PL)	2	0.800
Cronbach alpha cut-off=0.70, confirming the reliability and adequate internal consistency of the scales		

Model goodness-of-fit

Our research model was assessed focus on the chi-square (χ^2), degrees of freedom (DF), the statistical significance of χ^2 (P-value=0.000), and indices such as goodness-of-fit index (GFI), root mean square of approximation (RMSEA), normed fit index (NFI), Tucker Lewis Index (TLI), comparative fit index (CFI), and adjusted goodness of fit index (AGFI) as shown in Table 2.

As in Table 2, the ratio of χ^2 to the degrees of freedom was 2.794 (P=0.000), which is sensitive to sample size, showing that the confirmatory factor model was a good fit to the data. In particular, [GFI]=0.87 (cut-off=0.80), [NFI]=0.90 (requirement=value of 0-1), [RMSEA] = 0.06 (requirement=value from 0.05-0.08), [CFI]=0.94, [TLI]=0.93 (cut-off=0.9) Hair Jr et al. [28]. This proved that the overall model was accepted, and the scales were accepted based on the reliability and validity requirements.

Table 2: Confirmatory factor analysis results and Model goodness-of-fit.

Construct Measures	Standardized Coefficients	Average Variance Extracted (AVE)	Composite Reliability (CR)
Total quality management (TQM)		0.599	0.942
TQM1<---TQM	0.825		
TQM2<---TQM	0.741		
TQM3<---TQM	0.792		
TQM4<---TQM	0.830		
TQM5<---TQM	0.823		
TQM6<---TQM	0.797		
TQM7<---TQM	0.779		
TQM8<---TQM	0.786		
TQM10<---TQM	0.738		
TQM11<---TQM	0.686		
TQM12<---TQM	0.701		

Perceived Service Quality (PSQ)		0.509	0.935
PSQ13<---PSQ	0.627		
PSQ14<---PSQ	0.665		
PSQ15<---PSQ	0.71		
PSQ16<---PSQ	0.755		
PSQ17<---PSQ	0.685		
PSQ18<---PSQ	0.702		
PSQ19<---PSQ	0.731		
PSQ20<---PSQ	0.733		
PSQ21<---PSQ	0.748		
PSQ22<---PSQ	0.696		
PSQ23<---PSQ	0.778		
PSQ24<---PSQ	0.736		
PSQ25<---PSQ	0.746		
PSQ26<---PSQ	0.66		
Patient Satisfaction (PS)		0.570	0.798
PS27<---PS	0.78		
PS28<---PS	0.79		
PS29<---PS	0.69		
Patient Loyalty (PL)		0.671	0.803
PL30<---PL	0.862		
PL31<---PL	0.774		
Chi-square=1084.095; df=388; P=0.000; Chi-square/df= 2.794 GFI=0.872; TLI=0.927; CFI=0.935; NFI=0.903; RMSEA=0.059; AGFI=0.846			
The CFA results used to evaluate the fit of the SEM model. The model was assessed by standardized regression weights, AVE, CR. The standardized coefficients cut off =0.5; CR cut-off =0.70; AVE cut off=0.50			

Hypotheses testing

The hypotheses illustrated in Table 3, showed by the

coefficient of the path, standardized coefficients at significance (sig.) are less than 0.05.

Table 3: Hypothesis test results.

Hypothesis	Path	Standardized Coefficients	Sig.	Results
H1	TQM--->PSQ	0.900	***	Accepted
H2	TQM--->PS	0.239	0.031	Accepted
H3	TQM--->PL	0.021	0.862	Rejected
H4	PSQ--->PS	0.533	***	Accepted
H5	PSQ--->PL	0.372	0.006	Accepted
H6	PS--->PL	0.285	***	Accepted

Hypotheses were evaluated by standardized coefficients and path coefficients with significance (sig.) less than 0.05. Symbol *** represents (sig.<0.001). Acronyms were total quality management (TQM), perceived service quality (PSQ), patient satisfaction (PS), and patient loyalty (PL).

Hypothesis H1: TQM related to PSQ: Our results support the hypothesis that was showed by the coefficient of the path (TQM--->PSQ) at a statistically significant of 0.900 ($p<0.001$). Similarly, the work of Mosadeghrad [20] supported that TQM affected on aspects of PSQ. It clear that TQM is as a management tool improve service quality focus on satisfaction [13,15]. The service organization considered TQM factor to focus on client satisfaction by enhance service quality Hijazi et al. [28]. The expectation related to PSQ Zarei et al. [11], and, thereby, developing perceived quality to lead to increase customer expectations and satisfaction Karim et al. [8].

Hypothesis H2: TQM related to PS: TQM was indicated by the coefficient of the path (TQM--->PS) with 95% confidence and a standardized coefficient of 0.239 ($p=0.031$). This supports the hypothesis that TQM has a positive effect on PS. This showed that providers applied TQM to increase service quality aim to improve PS and increase loyalty [4,9,21]. Client satisfaction plays as a tool that assesses the provider's service quality Shahsavari & Sudzina [9].

Hypothesis H3: TQM related to PL: TQM is not related to PL was supported with a standardized coefficient of 0.021 ($p=0.862$) with 95% confidence. While the earlier study has demonstrated that the expectation affects loyalty with PSQ as a mediating Lin et al. [25]. This gave the roles of expectations and satisfaction on service quality of the organization [8,10]. A close relationship between customer expectation and PSQ [25]. It implies that increasing service quality aims the consumer's needs and enhance satisfaction [5].

Hypothesis H4: PSQ related to PS: PSQ was presented by the coefficient of the path (PSQ--->PS) with 95% confidence and a standardized coefficient of 0.533 ($p<0.001$), indicating that PSQ has a significant effect on PS. A similar, the work by [2]. PSQ is a key factor assessing by client satisfaction that measures the service quality [3]. PSQ related to expectations, it is lower than expectation [8]. Thus, improving PSQ aims to meet expectations and increase satisfaction [10]. Service firms should improve service quality and maintain customer satisfaction by increase the management of PSQ.

Hypothesis H5: PSQ related to PL: PSQ was represented by the coefficient of the path (PSQ--->PL) with 95% confidence and a standardized coefficient of 0.372 ($p<0.006$), showing that PSQ has

a noticeable influence on PL. Also, the previous scholar suggested that PSQ direct effect on loyalty Lin et al. [25]. PSQ related to expectations that expectation is higher than PSQ Karim et al. [8]. Therefore, improve PSQ meet the expectation and enhance satisfaction and maintain loyalty [4,10]. It gave evidence PSQ is a core factor that focuses on client satisfaction and Loyalty Lonial & Lin et al. [4,25].

Hypothesis H6: PS related to PL: PS was supported by the coefficient of the path (PS--->PL) with 95% confidence and a standardized coefficient of 0.285 ($p<0.001$), indicating that PS has a markable influence on PL. Consumer satisfaction plays a mediating role between service quality and loyalty Lonial & Raju [4]. It is a tool that assesses providers' service quality [1,5]. Thereby, increase service quality meet customer's needs leads to improve satisfaction and remains repurchase Karim & Souk [8,23].

Implications for practice

The findings of the study have implications for providers, managers, and researchers who wish factors positive influence on satisfaction and loyalty. Perceived service quality (PSQ) considers a direct effect on satisfaction and loyalty, while total quality management (TQM) indirectly influences loyalty by satisfaction is a mediating. It revealed that improve PSQ to enhance satisfaction and maintain loyalty. In addition, satisfaction was considered a mediator role of service quality and loyalty. It contributes to the strategic plan to aim to evolve satisfaction and loyalty. Aspects of service quality related to client satisfaction and loyalty, including tangibility, reliability, and responsiveness.

Conclusion and Recommendation

The present study examined the impact of Total quality management (TQM), perceived service quality (PSQ) on patient satisfaction (PS), and patient loyalty (PL). The study was conducted at the highest-level hospital in Vietnam during April 2018. A structured questionnaire with 516 documents used for the analysis stages. A confirmatory factor analysis (CFA) was used to structural equation modelling (SEM) related to the latent variable. Findings revealed that PSQ directly influences PS and PL, while TQM indirect on loyalty through satisfaction is mediating. TQM is a tool to improve PSQ, and, thereby, PSQ is a core factor in strategic planning that aims to increase satisfaction and retain loyalty. In

addition, the study also develops our knowledge focus on aspects of PSQ which including tangibility, reliability, and responsiveness related to client satisfaction and loyalty. Improving service

quality meets to fulfil customer expectations to lead to increased satisfaction and building loyalty. Moreover, the service company should consider aspects of PSQ to build loyalty.

Appendix

Questionnaire

Total Quality Management and Perceived Service Quality: The Impact on Customer Satisfaction and Loyalty

Your responses will be used solely for research purposes. The information that you provide will help to improve the quality of healthcare services.

Serial No:

Date of completion.....

Please write your response in the blank column or mark the box provided.

1. What is your age?years

2. What is your sex?

1.	Male			2.	Female	
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3. What is your marital status?

1.	Single			2.	Married	
3.	Divorced			4.	Widowed	

4. What is your educational level?

1.	No school			2.	Primary school	
3.	Secondary school			4.	High school	
5.	Bachelor's degree			6.	Postgraduate degree	

5. What is your occupation?

1.	Govt. employee			2.	Non-govt. employee	
3.	Unemployed			4.	Agriculture	
5.	General labour			6.	Retired	

6. Method of paying hospital fees

1.	Insurance			2.	Personal payment	
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Please place a cross in the box corresponding to the level of your agreement/disagreement with each of the following statements.

1. Very strongly disagree, 2. Strongly disagree, 3. Agree, 4. Strongly agree, 5. Very strongly agree

Total Quality Management (TQM)

	Statement/Item	1	2	3	4	5
TQM1	Services were provided on time					
TQM2	I was informed when services would be performed					
TQM3	Staff were available when needed					
TQM4	Medical and non-medical services were provided promptly					
TQM5	Round-the-clock services were available					
TQM6	Staff were polite and friendly					
TQM7	Staff had my best interests at heart					
TQM8	Staff understood my specific needs					
TQM9	Staff were knowledgeable when answering my questions					
TQM10	Hospital environment was clean and comfortable					
TQM11	Employees were well dressed and neatly presented					
TQM12	Equipment was up-to-date					

Perceived service quality (PSQ)

	Statement/Item	1	2	3	4	5
PSQ13	Hospital was conveniently located					
PSQ14	Direction signs were clear					
PSQ15	Wards were designed with easy access and were comfortable					
PSQ16	Staff were professional					
PSQ17	Free medicine was available					
PSQ18	The admission process was fast and straightforward					
PSQ19	Staff responded immediately when called					
PSQ20	Staff showed genuine interest in attending to my problems					
PSQ21	Staff were reliable in handling my problems					
PSQ22	Hospital treatment was error-free					
PSQ23	Admissions staff were friendly and courteous					
PSQ24	Staff responded promptly to my requests					
PSQ25	I was provided with adequate information about my health condition					
PSQ26	I was prescribed affordable medicines					

Patient Satisfaction (PS)

	Statement/Item	1	2	3	4	5
PS27	I am satisfied with the results of my recovery					
PS28	The quality of service I received met my expectations					
PS29	I am satisfied with my selection of this hospital to provide me with healthcare					

Patient Loyalty (PL)

	Statement/Item	1	2	3	4	5
PL30	I would return to this hospital if I required healthcare in the future					
PL31	I would recommend this hospital to others					
PL32	I do not want to use other healthcare service providers					

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DOI: [10.19080/GJPPS.2021.09.555760](https://doi.org/10.19080/GJPPS.2021.09.555760)

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