The Impact of Healthcare Service Quality on Patient Satisfaction at University Health Center

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Abstract: Patient satisfaction is a critical aspect of healthcare service quality that needs to be periodically evaluated and improved. Understanding various factors, including empathy, assurance, reliability, tangibility, and responsiveness, is necessary to enhance healthcare quality and improve patient satisfaction. This research aims to investigate the level of patient satisfaction and the relationship between patient satisfaction and service quality, using the five SERVQUAL model as a framework. A positivist approach was used to explore the relationship between variables. Data collection was carried out for two weeks using online questionnaires. For this research, 120 UiTM respondents were chosen using convenience sampling. Data was analyzed using SPSS version 29. The findings revealed a significant positive relationship between tangibility, responsiveness, and empathy with patient satisfaction. This study highlights the importance of regularly assessing patient satisfaction and identifying areas for improvement in healthcare service quality. University health centers can enhance patient satisfaction and provide better student healthcare services by focusing on tangibility, responsiveness, and empathy.

Keywords: *Patient satisfaction; University healthcare center; SERVQUAL; Health service quality*

1. Introduction and Background

Despite limited medical resources, providing the highest-quality healthcare services has long been the primary goal for healthcare systems worldwide. Providing high-quality healthcare services is fundamental to ensuring positive patient outcomes and overall population well-being. The most important aspect of healthcare delivery services is the patient's satisfaction, representing the whole experience and the standard of care received. Patient satisfaction, which reflects the degree to which a patient's expectations and perceptions of healthcare services are met, has emerged as a critical measure of healthcare quality.

As the demand for healthcare quality has increased, healthcare systems are constantly changing and improving, so it is necessary to find a way to assess outputs while evaluating patient satisfaction. Patient satisfaction impacts various aspects, including clinical outcomes, hospital reputation, and patient retention. Healthcare systems are constantly changing and improving, so finding a way to assess outputs while evaluating patient satisfaction is necessary. The need to monitor and assess patient satisfaction has increased along with the demand for healthcare quality, prompting the creation of guidelines for patient satisfaction monitoring (Gavurova et al., 2021; Al-Qudimat et al., 2024). Improving an understanding of and enhancing patient satisfaction can benefit healthcare organizations by increasing patient loyalty, producing better results, and enhancing their reputation (Ferreira et al., 2023).

Healthcare service quality in Malaysia's university healthcare centers is a crucial aspect that significantly affects the behavioral intentions of university students. While access to healthcare is guaranteed in Malaysia, there is a growing emphasis on evaluating the quality of services offered within higher education institutions. A survey on customer satisfaction is considered an effective way to provide healthcare service providers with beneficial information. As customers of the healthcare center, the students' views should be considered, as they can serve as strategic inputs in assessing their satisfaction. The issue of healthcare quality and student satisfaction has been studied by many researchers across the globe over the past few years (Alshurideh, 2014; Lee & Kim, 2017; Rezaian & Selamat, 2015; Abdullah et al., 2022). However, the study on the relationship between service quality and satisfaction, specifically in public universities, is limited and has inconsistent

findings.

In the contemporary healthcare landscape, the quality of services provided within health centers plays a pivotal role in shaping patient experiences and satisfaction. With the evolution of the healthcare system, particularly within university health centers that cater to diverse student populations, understanding the dynamics of service quality becomes increasingly important. Assessing customer satisfaction through surveys effectively gathers beneficial information for healthcare service providers (Marzo et al., 2021). Thus, it is essential to determine the influence of healthcare service quality on students' satisfaction. This study attempted to fill this gap by examining the impact of healthcare service quality on student satisfaction at UiTM Selangor Campus.

2. Literature Review

Patient Satisfaction
Research on patient satisfaction began in the early 1950s, focusing on the interaction between doctors and patients. It gained a significant increase in interest in the 1960s, with extensive studies conducted to explore various dimensions of patient satisfaction. Patient satisfaction has garnered significant interest in the healthcare sector because it is a critical indicator that captures the quality of care delivered and the overall patient experience. Traditionally, patient satisfaction was viewed as a customer service initiative, but recent research has highlighted its importance as a critical dimension of healthcare quality (Hefner et al., 2019).

The concept of patient satisfaction has been defined variably across studies. Generally, it reflects the degree to which patients' expectations regarding healthcare services are met (Al-Abri & Al-Balushi, 2014). Some researchers view it as a measure of attitudes toward care (Goodrich & Lazenby, 2023), while others define it as the congruence between patient expectations and their actual experiences of care (Agency for Healthcare Research and Quality, 2020; Lateef, 2011; El-Haddad et al., 2020), which posits that the gap between expectations and actual experiences influences satisfaction. These definitions illustrate the complexity of patient satisfaction, emphasizing its dependence on individual perceptions, expectations, and the specific attributes of care received. Understanding these nuances is essential for healthcare providers aiming to enhance patient experiences and satisfaction levels.

Patient satisfaction is a critical determinant of healthcare providers' success (Kalaja & Krasniqi, 2022), as it includes the treatment outcome, overall experience, and interactions with healthcare providers (Manzoor et al., 2019). It reflects the state of pleasure or happiness that patients experience while utilizing healthcare services (Manzoor et al., 2019). Moreover, patient satisfaction is a multi-aspect concept closely related to the main attributes of services and providers (Hussain et al., 2019). This emphasizes that patient happiness is an essential quality measure in healthcare settings. By integrating patient satisfaction metrics into healthcare assessments, healthcare providers can pinpoint development opportunities and elevate the general standard of care provision. Understanding and improving patient satisfaction will be essential as healthcare evolves, enhancing the quality of care and patient outcomes.

Service Quality Gap Model (SERVQUAL Model)
The service Quality Gap Model, or SERVQUAL model, developed by Parasuraman, Zeithaml, and Berry (1988), is a widely applied service quality framework to determine the level of satisfaction among patients across the globe (Alshrbaji et al., 2022). The SERVQUAL model represents service quality as the discrepancy between a customer's expectations of service offering and the customer's perceptions of the service received (Parasuraman et al., 1985). The SERVQUAL model includes five dimensions: tangible, reliability, responsiveness, empathy and assurance. The dimensions of the SERVQUAL model are explained in the following:

Tangible
Tangible is an essential factor in patient satisfaction and healthcare service quality. The term "tangibility" describes the physical spaces, tools, staff, and informational resources that patients encounter while receiving medical care. These specific factors greatly influence patients' opinions about the quality and satisfaction of the services they receive. To shape patients' views of service quality, for example, research by Parasuraman et al. (1985) highlights the significance of tangible cues, such as the appearance of medical equipment, the

cleanliness of facilities, and the professionalism of staff apparel. Modern facilities and well-maintained equipment are positive, tangible features that can boost patients' confidence in the healthcare provider and increase overall patient satisfaction.

Patient satisfaction in healthcare settings is intricately linked to the quality of services, particularly the tangible aspect of care. Tangible dimensions of healthcare quality, such as the physical environment, equipment, and facilities, are crucial in shaping patient perceptions and experiences (Suhadi et al., 2022). Studies have shown that the quality of amenities, which falls under the tangible dimension, positively influences patient loyalty and satisfaction (AlOmari & Hamid, 2022). Additionally, the tangible dimension is one of the critical components of service quality that significantly impacts patient satisfaction (Fadila et al., 2022). Therefore, the following research hypothesis is proposed:
H1: Tangible positively influences patient satisfaction

Reliability
The service's reliability means that patients receive the treatment they believe is correct for their health problems. Reliability in healthcare service quality is a crucial aspect that directly impacts patient satisfaction. The reliability of healthcare services is defined as their consistency and dependability in meeting patients' needs and expectations (Endeshaw, 2020). It is one of the critical dimensions used for measuring the quality of healthcare services (Endeshaw, 2020; Osarobo & Adekunle, 2022). Studies have identified reliability as a fundamental characteristic of high-quality healthcare services, alongside other dimensions like responsiveness, assurance, and empathy (Jordan et al., 2021). Ensuring reliability in healthcare services is essential for building patients' trust and delivering consistent care that meets their expectations (Endeshaw, 2020).

The relationship between reliability in healthcare service quality and patient satisfaction is intricate. Studies have shown that the reliability of healthcare services is positively associated with patient satisfaction (Endeshaw, 2020). When patients perceive healthcare services as reliable, consistent, and dependable, it enhances their overall satisfaction with their care (Endeshaw, 2020). Reliability builds patient trust, a critical factor in patient satisfaction (Endeshaw, 2020). Therefore, healthcare providers must ensure reliability to improve patient satisfaction (Endeshaw, 2020). According to the discussions, the hypothesis is proposed.
H2: Reliability positively influences patient satisfaction.

Responsiveness
Responsiveness is the ability and willingness of healthcare providers to address patients' needs and concerns successfully. Responsiveness requires effective communication, which is also necessary to promote desirable patient-provider interactions. When healthcare services are responsive, patients feel valued, listened to, and cared for, leading to higher satisfaction levels (Ugwu et al., 2022). Healthcare providers are highly valued by their patients because they actively listen to their concerns, offer clear explanations, and involve them in decision-making. Renedo and Marston's (2015) article highlighted how communication influences patients' views of responsiveness and made the case that polite, honest communication increases patient satisfaction.

Responsiveness in healthcare service quality pertains to the promptness and willingness of healthcare providers to assist patients and deliver care when required. It encompasses timely appointments, quick responses to inquiries, and efficient handling of patient needs (Nguyen & Pham, 2023). Studies have consistently shown that responsiveness is a critical dimension of healthcare service quality that significantly influences patient satisfaction (Ugwu et al., 2022). Patients highly value healthcare facilities that are responsive to their needs and concerns, as they enhance their overall experience and perception of the care received (Kaur et al., 2022). A previous study by Chandra et al. (2019) and Uguwu et al. (2022) reported that patient satisfaction and responsiveness correlate positively. Patient satisfaction was more vital in healthcare facilities with higher responsiveness scores (Li et al., 2023), and this highlights how crucial it is for healthcare providers to put responsiveness at the top of their service delivery structure to improve patient outcomes and satisfaction (Ugwu et al., 2022). Thus, it is hypothesized that:
H3: Responsiveness positively influences patient satisfaction

Assurance
Assurance is reflected in the patient's reliance on the doctor and hospital staff and their confidence in their qualifications and competence (Parasuraman et al., 1996). Assurance encompasses medical professionals' skills, service reliability, and patient-provider trust development. Patients are more likely to feel satisfied with the quality of care they receive when they have faith in the abilities and knowledge of their healthcare providers. Patients place a high value on reliability in healthcare settings because it eliminates ambiguity and cultivates trust in the healthcare system, increasing patient satisfaction with their care.

Assurance in healthcare service quality encompasses factors such as the competence of health workers, the courtesy of their behavior, reliability, and the safety of services provided. Patient satisfaction is a crucial outcome in healthcare services, influenced by various service quality dimensions, including assurance (Laela et al., 2022). The relationship between assurance and patient satisfaction is significant, as the ability of healthcare providers to convey trust and competence directly impacts how satisfied patients are with the care they receive (Laela et al., 2022). Patients who perceive high levels of assurance from healthcare providers are more likely to be satisfied with their care (Laela et al., 2022). This emphasizes the importance of delivering quality healthcare services and ensuring that patients feel confident in their care, which can positively impact their overall satisfaction with the healthcare experience. Therefore, it is hypothesized that:
H4: Assurance positively influences patient satisfaction.

Empathy
Empathy in healthcare service quality refers to the ability of healthcare professionals to understand and share their patients' feelings, show compassion, and provide personalized care (Moudatsou et al., 2020). It is fundamental in establishing a therapeutic relationship between carers and patients, contributing significantly to better health outcomes (Moudatsou et al., 2020). Studies have consistently highlighted the importance of empathy in healthcare, emphasizing its role in optimal communication between medical professionals and patients (Haddad et al., 2023). Empathy is crucial for developing a positive patient-provider relationship, linked to improved patient outcomes, higher levels of patient satisfaction, and an enhanced sense of well-being among patients (Holmes & Starr, 2022).

The relationship between empathy and patient satisfaction is further supported by evidence showing that patient-perceived empathy is linked to reduced anxiety and distress and increased satisfaction (Hoffstädt et al., 2020). Additionally, empathy has been identified as a critical factor in determining the quality of service in healthcare, with aspects such as a calm working demeanor, effective communication, appealing appearance, and the ability to address patient concerns contributing to patient satisfaction (Laela et al., 2022). Moreover, empathy facilitates positive communication relationships, personal attention, and understanding of patient needs, all of which are essential for enhancing patient satisfaction (Simanullang et al., 2021). Therefore, this study proposed the following hypothesis:
H5: Empathy positively influences patient satisfaction.

Conceptual Framework
The conceptual framework of this study was guided by SERVQUAL, developed by Parasuraman, Zeithaml, and Berry in 1988. The SERVQUAL model, developed by Parasuraman, Zeithaml, and Berry, is widely used to assess and comprehend service quality from the consumer's viewpoint in various service industries, including healthcare. Figure 1 shows the conceptual framework of this study.

Figure 1: Conceptual Framework

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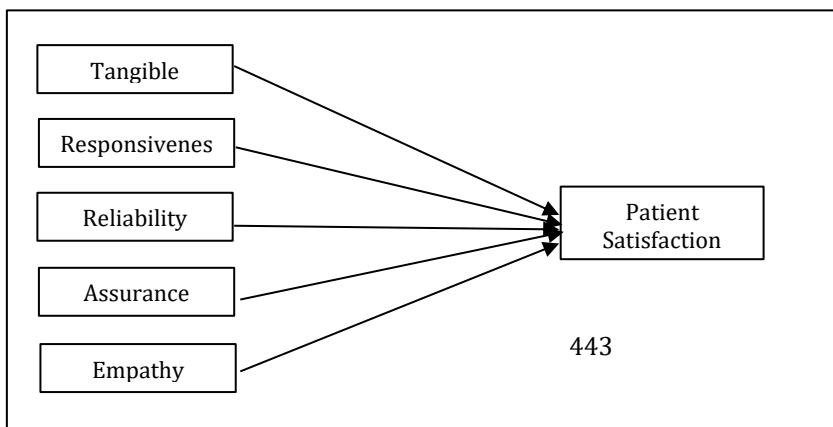
3. Research Methodology

Design, Sample, and Setting
A positivist approach was used to explore the relationship between variables. The study was primarily conducted via a survey among students in UiTM Puncak Alam. The G*Power software was used to calculate the sample size for this study. The effect size was set at 0.15 (medium effect), α at 0.05, and power at 0.80; thus, the sample size is 92. However, the researcher distributed the questionnaire to 150 students to obtain an excellent response rate. The inclusion criteria were established to ensure that the sample accurately reflects the population of interests: 1) participants must have utilized the university health clinic UiTM Puncak Alam at least once during the academic year, and 2) willing to participate in the survey. This study utilized convenience sampling for data collection due to its accessibility, efficiency, and willingness to engage participants, aligning with research objectives and university context, making it a practical choice.

Instrument Development
The research instrument for this study was developed based on an extensive literature review that combined existing validated measurements. The questionnaire, which consisted of seven sections measuring demographic data, namely tangible, reliability, responsiveness, assurance, empathy, and patient satisfaction, was used to collect the data. The respondents were requested to complete the questions about their demographic backgrounds, such as gender, age, semester, type of residency, and faculty. A total of 37 items were adapted from Abdullah et al. (2023) to measure all the variables. The researchers employed a five-point Likert scale ranging from strongly disagree to agree.

Data collection procedures
Data was collected from the respondents using an online survey via Google Forms. The questionnaire was distributed via WhatsApp. The respondents took approximately 5 to 10 minutes to complete the questionnaires. One hundred fifty questionnaires were distributed via Google Forms to the respondents, and only 120 were returned.

4. Results

Data were analyzed using SPSS version 26.0. Most of the respondents were female, in semester five from the Faculty of Business and Management, aged 18-23 years old and staying in the college residency. The results are presented in Table 1.

Table 1: Demographic Profile of the Respondents

Variable	Frequency	Percentage (%)
Gender		
Male	29	24.2
Female	91	75.8
Semester		
1	20	16.7
2	14	11.7
3	10	8.3
4	14	11.7
5	50	41.7
6	8	6.7
7	4	3.3
8	20	16.7
Faculty		
Faculty of Business and Management	*92*	*76.7*
Faculty of Hotel and Tourism Management	*7*	*5.8*

Faculty of Accountancy	*3*	*2.5*
Faculty of Health Science	6	5.0
Faculty of Education	8	6.7
Faculty of Pharmacy	2	1.7
Kolej Pengajian Alam Bina	1	0.8
Kolej Pengajian Seni Kreatif	1	0.8
Age		
18 - 23 years old	89	74.2
24 - 29 years old	30	25.0
30 years old and above	1	0.8
Type of Residency		
College	95	79.2
Non - resident	25	20.8

Table 2 below presents the descriptive statistics results of the study, including mean, standard deviation, skewness, kurtosis and Cronbach's alpha value. The normality test was run to determine the distribution's shape. The assumptions were tested by running the descriptive statistics, and the Skewness and Kurtosis results were presented. The normality test shows that the data was generally distributed since the value of the skewness and kurtosis was ±3 for each variable (Ng & Coakes, 2013). In this study, reliability analysis was performed by computing Cronbach's alpha values for each variable. The findings revealed that the scale has good internal consistency.

Table 2: Descriptive Statistics

Variable	Mean	SD	Skewness	Kurtosis	No of Item	Cronbach Alpha
Tangible	3.885	0.764	-0.661	1.126	6	0.912
Reliability	3.892	0.814	-0.715	0.829	7	0.949
Responsiveness	3.892	0.814	-0.670	0.719	7	0.937
Assurance	4.063	0.790	-0.898	1.084	5	0.953
Empathy	3.968	0.834	-0.770	0.585	6	0.951
Patient Satisfaction	4.019	0.830	-0.812	0.613	6	0.954

The association between the independent and dependent variables (patient satisfaction) was investigated using the Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure no normality, linearity and homoscedasticity assumptions were violated. The findings revealed a strong positive correlation between all independent and dependent variables. A summary of the correlation result is presented in Table 3.

Table 3: Pearson correlation coefficient

	1	2	3	4	5	6
Tangible	1					
Reliability	.906**	1				
Responsiveness	.906**	1.000**	1			
Assurance	.822**	.898**	.898**	1		
Empathy	.829**	.896**	.896**	.914**	1	
Patient Satisfaction	.865**	.897**	.897**	.885**	.899**	1

Multiple regression analysis was used to measure the relationship between the variables. This multiple regression addressed which variable in a set of independent variables can be considered the best predictor or most significant factor influencing the dependent variable. Table 4 shows the results of the multiple regression

analysis conducted in this study. The result shows no collinearity problem as the value of the VIF was less than ten, and the tolerance value was below 1.0, given from the three independent variables. The R2 value of 0.871 indicates that 87.1 percent of the variation in the dependent variable is explained by the independent variables. Another 12. percent of the variance in patient satisfaction was explained by other factors. The F-test is significant at the p-value <0.05 (0.000); therefore, the linear model is valid overall.

Table 4: Multiple Regression

	Standardized Coefficients (Beta)	T	sig	Lower CI	Upper CI	Tolerance	VIF
Tangible	0.223	2.670	0.009	0.063	0.423	0.162	6.168
Reliability	0.120	1.360	0.177	-0.053	0.288	0.146	6.835
Responsiveness	0.190	2.092	0.039	0.011	0.405	0.137	7.310
Assurance	0.159	1.681	0.095	-0.030	0.365	0.126	7.935
Empathy	0.096	3.041	0.003	0.102	0.483	0.121	8.239
R2	0.871						
Adjusted R2	0.865						
F change	153.555						
Sig F Change	0.000						

As specified in Table 4, the result from multiple regression analysis revealed no significant relationship between reliability and patient satisfaction (β=0.120, p>0.05) and assurance and patient satisfaction (β=0.159, p>0.05). However, this study indicated a significant relationship between tangible (β=0.223, p<0.05), responsiveness (β=0.190, p<0.05) and empathy (β=0.096, p>0.05). Table 5 shows the results of the summarised hypotheses of this study.

Table 5: Summary of Hypotheses

Hypotheses	Results
H1: There is a significant relationship between tangible and patient satisfaction.	Supported
H2: There is a significant relationship between reliability and patient satisfaction.	Rejected
H3: There is a significant relationship between responsiveness and patient satisfaction.	Supported
H4: There is a significant relationship between assurance and patient satisfaction.	Rejected
H5: There is a significant relationship between empathy and patient satisfaction.	Supported

Discussion
Tangible elements such as the physical environment, equipment quality, staff appearance, and overall ambiance are integral to patient satisfaction. Tangible forms the first impression of a healthcare facility and can substantially impact a patient's overall experience. The findings revealed a positive relationship between tangible and patient satisfaction. The finding observed in this study mirrors those of previous studies, which show that tangibles significantly influence patient satisfaction (Purwanti et al., 2019; Koampa et al., 2023; Zuriati & Chiew, 2020; Abdullah et al., 2022; Fadila et al., 2022; AlOmari & Hamid, 2022; Jha et al., 2020). There are several possible explanations for this. First, when patients perceive the physical environment as clean, well-maintained, and modern, their satisfaction levels tend to increase. Second, adequate facilities, such as waiting areas and examination rooms, contribute to a positive patient experience. This strong relationship highlights that patients' perceptions of tangible factors can significantly shape their overall satisfaction with healthcare services, making it a critical area for continuous improvement and investment. Improvements in these areas can lead to higher satisfaction as patients associate their experiences with the quality of care.

Reliability is a service provider's ability to consistently and accurately deliver promised healthcare services. This dimension is critical for fostering patient trust and satisfaction. Key components of reliability encompass timely and accurate diagnoses, consistent treatment outcomes, and effective communication, which significantly shape the overall patient experience. Our study examined the reliability dimension and surprisingly found that reliability is not a significant predictor of patient satisfaction. However, this result has not been previously described (Smith et al., 2020; Abdullah et al., 2022; Jordan et al., 2022; Endeshaw, 2020;

Zuriati & Chiew, 2020). The demographic characteristics of the respondents might influence a possible explanation for this. Their age and healthcare experience may influence their perception of reliability and satisfaction. Additionally, the context of a university health center, often characterized by limited resources and staff, can impact service delivery and, consequently, patient perceptions of reliability and satisfaction. To further enhance reliability in healthcare settings, it is recommended that regular staff training be provided and a comprehensive feedback mechanism be implemented to improve service quality. Implementing strategies that enhance reliability can lead to improved patient satisfaction outcomes. As reliable healthcare services foster greater patient trust, satisfaction, and loyalty, healthcare providers must prioritize enhancing reliability in their service delivery.

Responsiveness, encompassing aspects such as timely care, effective communication, and attentiveness to patient needs, emerges as a critical determinant of patient satisfaction in healthcare settings. The findings show a positive significant relationship between responsiveness and patient satisfaction. This result generally replicates that of past research (Ugwu et al., 2022; Kaur et al., 2022; Li et al., 2023; Abdullah et al., 2022). The analysis highlights the importance of healthcare providers and staff being responsive to patient concerns and needs, as it directly influences overall satisfaction levels and perceived quality of care. This may be explained by the fact that when patients feel their healthcare providers are responsive, they are more likely to trust and adhere to medical advice, further reinforcing the positive relationship. Thus, healthcare institutions aiming to improve patient satisfaction should prioritize improving responsiveness to patient needs. It is recommended that university healthcare centers prioritize and enhance their responsiveness strategies to foster better patient satisfaction outcomes. Research by Smith et al. (2020) highlights several practical approaches, including improving staff communication skills, optimizing appointment scheduling processes to minimize waiting times and implementing systems to promptly resolve patient queries and concerns. These strategies improve patient experience, operational efficiency, and quality of healthcare service. Furthermore, cultivating a patient-centered culture in which responsiveness is ingrained as a core value among healthcare providers and staff can significantly improve patient satisfaction metrics. Continuous monitoring and feedback mechanisms should be implemented to gauge responsiveness levels and identify areas for improvement, ensuring ongoing enhancement of patient satisfaction in university healthcare settings.

Assurance encompasses aspects such as the competence of healthcare providers, their ability to instill confidence and trust, and the clarity of communication about medical procedures and diagnoses. According to the findings, assurance is not a significant predictor of patient satisfaction. However, the current study's findings do not support the previous research. The studies conducted by Laela et al. in 2022, Abdullah et al. in 2022, and Smith et al. in 2021 do not support the current findings. A possible explanation for the finding might be due to the environment of a university health center, as healthcare centers often operate with limited resources and staff, which may affect the ability of healthcare providers to instill confidence in their patients. If students experience long wait times or feel that their concerns must be adequately addressed, this can diminish the perceived importance of assurance in their overall satisfaction. This highlights the importance of healthcare providers ensuring clear communication, competence in medical care, and demonstrating empathy towards patients to improve overall satisfaction levels. Implementing strategies to enhance assurance can lead to improvements and outcomes, reinforcing the critical role of healthcare quality assurance in patient-centered care (Smith et al., 2021). By focusing on factors such as staff competence, communication, and the ability to inspire trust, healthcare providers can enhance the overall satisfaction levels of their student patients. Understanding the importance of assurance in this context can help healthcare professionals tailor their services better to meet university students' needs and expectations.

Empathy involves understanding and sharing another person's feelings, translating to providers listening attentively, showing concern, and addressing patients' emotional and medical needs (Hojat et al., 2011). Consistent with the literature on the association between empathy and patient satisfaction (Johnson et al., 2021; Abdullah et al., 2022; Holmes & Starr, 2022; Rajput et al., 2020; Laela et al., 2020; Haddad et al., 2023), this study confirms that empathic care by healthcare providers influenced patient satisfaction, which is an important outcome measure for healthcare quality. Patients who perceive their providers as empathetic are more likely to report positive experiences and outcomes, including increased trust, better adherence to treatment plans, and overall satisfaction with their healthcare encounters (Johnson et al., 2031; Derksen et al., 2013; Kim et al., 2017). Fostering empathy among healthcare professionals is crucial for enhancing patient

satisfaction and improving the overall quality of healthcare delivery. Therefore, strategies that enhance empathy in university healthcare centers should be implemented to improve patient satisfaction levels further. The recommendations include providing healthcare workers with ongoing empathy training to help them develop their interpersonal skills, implementing patient feedback mechanisms to regularly assess and improve empathetic communication, and cultivating a culture of compassionate care by encouraging policies and procedures. These programs are essential to developing a compassionate healthcare environment that enhances patient happiness and experiences.

5. Managerial Implications and Recommendations

The managerial implications of research on patient satisfaction are profound for enhancing healthcare services and the overall performance of healthcare organizations. By identifying the primary determinants of patient satisfaction, providers at university health centers can optimize resource allocation, thereby improving patient experiences and satisfaction levels. Moreover, the insights derived from such research can serve as strategic guidelines for university healthcare centers, particularly regarding quality improvement initiatives, promoting patient-centered care, and implementing staff engagement training programs.

The findings enrich the existing literature on healthcare service quality and patient satisfaction and provide a nuanced understanding of the interplay between these elements within the specific context of university health centers. This research contributes to establishing best practices in healthcare management and lays a foundation for future inquiries into this critical area. The emphasis on patient satisfaction as a key performance indicator underscores its significance in fostering patient loyalty and enhancing the reputation of healthcare institutions. As healthcare environments become increasingly competitive, measuring and responding to patient satisfaction will be crucial for healthcare organizations' long-term success and sustainability.

To fully understand the dynamics of patient satisfaction among university students, further research is needed to investigate additional factors that may influence their experiences, including trust and patient-centered care. Trust plays a crucial role in shaping students' perceptions of service quality. Establishing a trusting relationship between healthcare providers and students can significantly enhance satisfaction. A patient-centered approach where individual needs and preferences are prioritized can also lead to more positive outcomes. Engaging students in their care and actively respecting their unique circumstances fosters a sense of ownership and satisfaction. Future studies should also consider assessing patient satisfaction across different campuses. This comparative analysis can provide valuable insights into how varying service quality and institutional practices impact student experiences. By examining satisfaction levels in diverse settings, researchers can identify best practices and areas for improvement, ultimately contributing to enhanced service quality and student well-being. Future research can inform strategies to improve healthcare services and enhance student satisfaction outcomes.

Conclusion
The research findings underscore the critical relationship between service quality dimensions and patient satisfaction within university health centers, particularly at UiTM Puncak Alam Campus. The study identifies tangible aspects, responsiveness, and empathy as significant predictors of patient satisfaction. This indicates that the physical environment of the health center, the staff's willingness to assist patients, and the compassionate demeanor of healthcare providers are pivotal in shaping patient experiences. Given the increasing importance of patient satisfaction as a critical performance metric in healthcare, these insights are particularly relevant for university health management. Enhancing service quality improves patient outcomes and influences healthcare institutions' overall reputation and financial viability. The findings suggest that university health centers should enhance their healthcare facilities and staff training programs to foster a more supportive and effective patient care environment. While this study primarily focuses on assessing the service quality of the university health center, it does not explicitly compare these services to those offered by external healthcare providers. However, valuable insights can be drawn by examining service quality across various universities and healthcare settings. In conclusion, this research highlights the necessity for university health centers to adopt a proactive approach in addressing the identified service quality dimensions. These institutions can significantly enhance patient satisfaction by investing in tangible improvements and fostering a culture of responsiveness and empathy among healthcare providers. This, in turn, will lead to better health

outcomes, increased patient loyalty, and a stronger competitive position in the healthcare market.

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