A Value-Based Perspective on Patient Loyalty: Examining Service Quality, Actual Value Delivery, and Switching Costs in Libyan Private Healthcare

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ABSTRACT

This study investigates the dynamics influencing patient loyalty in Libyan private hospitals by examining the roles of hospital service quality (HSQ), patient satisfaction (PS), actual value delivery (AVD), and switching costs (SC). Drawing on value-based healthcare principles and relationship marketing theory, a structural model was developed and tested using survey data from outpatients. The findings reveal that while HSQ significantly enhances PS, satisfaction alone does not directly lead to loyalty challenging traditional assumptions in healthcare management literature. Instead, AVD plays a mediating role, suggesting that tangible health outcomes and cost-effectiveness are critical to shaping satisfaction. Although SC was hypothesized to moderate the satisfaction–loyalty relationship, this effect was not supported, highlighting the dominance of contextual limitations over psychological switching barriers in shaping patient behavior. The validated measurement model offers practical implications for hospital managers and policymakers, emphasizing the need to strengthen AVD, implement loyalty programs, and remove structural barriers to improve patient retention. The study contributes theoretically by refining the satisfaction–loyalty paradigm and provides a culturally contextualized tool for evaluating healthcare service performance in developing economies.

Keywords: Patient Loyalty, Service Quality, Actual Value Delivery, Switching Costs, Healthcare Management, Libyan Private Hospitals.

Introduction

Libya's healthcare system has faced profound disruption over the past decade, driven by prolonged conflict and political instability. The public sector, historically the main provider of healthcare services, now grapples with extensive infrastructural damage, shortages of essential medicines and equipment, and chronic underfunding. Many hospitals and clinics have become non-functional due to security risks and deteriorating conditions, while frequent electricity and water shortages further strain service delivery. By 2020, approximately 75% of primary healthcare facilities were not operational, primarily because of shortages of medical workers, supplies, and critical infrastructure (Elhadi et al., 2021). As a result, an estimated 1.3 million people in Libya required humanitarian assistance (UNHCR, 2021).

In response to these systemic failures, the private healthcare sector has expanded significantly, playing an increasingly important role in filling service gaps left by the declining public infrastructure. Initially concentrated in major urban centers and reliant on out-of-pocket payments, private healthcare providers experienced rapid growth between 2007 and 2019, with a notable increase in outpatient and inpatient clinics, diagnostic centers, laboratories, and pharmacies (WHO, 2018; Taeb, 2025). Despite this expansion, private healthcare services in Libya remain challenged by limited regulation, inconsistent service quality, and inequitable access. Patients frequently encounter issues such as long waiting times, inconsistent adherence to clinical standards, and fragmented service experiences factors that can critically influence patient satisfaction (PS) and patient loyalty (PL).

Patient satisfaction and loyalty are widely recognized as vital outcomes in healthcare delivery (Zeithaml et al., 1996; Oliver, 1997). However, emerging evidence from developing and transitional economies suggests

that the traditional linear relationship between service quality, satisfaction, and loyalty may not consistently hold. Studies from Ghana and India (Osei et al., 2024; Panda et al., 2024) demonstrate that while hospital service quality (HSQ) positively influences satisfaction, its direct impact on loyalty can vary substantially depending on contextual and systemic factors. Similarly, research from Vietnam (Nguyen et al., 2021) highlights that perceived value and satisfaction are distinct constructs, each contributing to loyalty but not necessarily in a straightforward, sequential manner. These findings underscore the importance of distinguishing between perceived value and Actual Value Delivery (AVD) a concept that emphasizes measurable improvements in patient health outcomes, cost-effectiveness, and adherence to evidence-based practices (Teisberg et al., 2020; Marzorati & Pravettoni, 2017).

Additionally, the role of Switching Costs (SC) encompassing emotional, financial, and procedural barriers to changing healthcare providers has been recognized as an important factor in consumer retention across service industries (Burnham et al., 2003; Anell et al., 2021). However, its specific influence within fragile, post-conflict healthcare markets like Libya's remains underexplored. In systems where alternative providers are limited, the traditional assumptions about switching behavior may not fully apply.

Despite the growing role of the private sector, empirical research on the determinants of patient loyalty in Libyan private hospitals remains scarce. Existing studies predominantly focus on patient perceptions rather than on the actual value patients derive from healthcare services. Furthermore, there has been limited attention to the broader interplay between HSQ, PS, PL, and SC especially through validated frameworks such as the HEALTHQUAL model. This gap in the literature is particularly critical in settings where patients' ability to choose among providers is influenced by systemic, financial, and cultural barriers.

In light of these gaps, this study seeks to provide a more nuanced understanding of patient loyalty within Libyan private healthcare. Specifically, the research is guided by the following questions:

- How does Hospital Service Quality (HSQ) influence Patient Satisfaction (PS) in Libyan private hospitals?
- Does Patient Satisfaction (PS) significantly impact Patient Loyalty (PL) in this context?
- Does Actual Value Delivery (AVD) mediate the relationship between HSQ and PS?
- To what extent do Switching Costs (SC) moderate the relationship between PS and PL?
- How can the validated HEALTHQUAL model be adapted to evaluate Patient Loyalty (PL) within a fragile healthcare system?

By addressing these questions, the study not only contributes to the theoretical advancement of healthcare loyalty models in developing contexts but also provides practical insights for healthcare providers and policymakers seeking to strengthen patient engagement and service retention in post-conflict environments.

Literature Review

Theoretical Foundations and Conceptual Integration

Patient loyalty (PL) in healthcare is influenced by a combination of cognitive, emotional, and contextual factors, with particular emphasis on hospital service quality (HSQ), patient satisfaction (PS), actual value delivery (AVD), and switching costs (SC). This study draws upon two key theoretical frameworks to explain the relationships among these constructs. The first is the Satisfaction–Loyalty Theory (SLT), which posits that satisfied customers are more likely to become loyal and repeat users (Oliver, 1999). The second is the Expectation Confirmation Theory (ECT), which suggests that satisfaction arises when service performance meets or exceeds expectations (Bhattacherjee, 2001). By integrating these theories, the study positions AVD as a central mediating variable and SC as a moderating factor. This conceptual model is examined within the unique context of a fragile, post-conflict environment specifically, the private healthcare sector in Libya.

Hospital Service Quality (HSQ)

This study adopts the Health Service Quality (HEALTHQUAL) model, grounded in Donabedian's structure-process-outcome framework. The model encompasses six key dimensions: Cost, Environment and Facilities, Service Procedures, Physicians, Nurses, and Administrative Staff. These dimensions are particularly pertinent in the Libyan context, where formal mechanisms for quality monitoring are limited, and patient experiences are significantly shaped by both the visible aspects of healthcare infrastructure and the quality of interpersonal interactions. Recent empirical studies have demonstrated that HEALTHQUAL effectively captures both clinical quality and service delivery aspects (Abdel Jalil & Alawi, 2023; Abeid et al., 2024). Specifically, research in Libya has highlighted the critical role of well-trained staff and clean, hygienic environments in influencing patient satisfaction (Abdel Jalil & Alawi, 2023; Abeid et al., 2024). Thus, the multidimensional nature of the HEALTHQUAL model provides a strong justification for its use in this study, as it effectively captures how both tangible and intangible elements of hospital service quality contribute to patient satisfaction and, ultimately, patient loyalty.

Patient Satisfaction (PS) and Patient Loyalty (PL)

Patient satisfaction (PS) refers to the extent to which healthcare services meet or exceed patient expectations. It is a multifaceted construct shaped by various factors, including the quality of service delivery, perceived fairness, communication effectiveness, and the competence of healthcare providers (Liu et al., 2023). On the other hand, patient loyalty (PL) encompasses behaviors such as repeat visits, sustained preference for a particular provider, and the willingness to recommend that provider to others. While there is a generally accepted link between PS and PL, this relationship is not always straightforward. Shie et al. (2022) noted that satisfaction does not necessarily lead to loyalty, particularly in contexts where switching costs (SC) are low or where patients have access to multiple alternative providers. In the Libyan healthcare context, this issue is especially pronounced. The inconsistency in service quality and a strong dependence on individual healthcare providers rather than institutions suggest that PS alone may not be sufficient to ensure PL. High levels of actual value delivery (AVD) and perceived switching costs may be necessary to strengthen this relationship. Despite its importance, limited research has explored whether the PS–PL relationship holds in underregulated, post-conflict healthcare systems such as Libya's, highlighting a critical gap this study aims to address.

Actual Value Delivery (AVD)

This study introduces Actual Value Delivery (AVD) as a mediating variable, emphasizing a shift from subjective perceptions of value to the assessment of tangible outcomes. AVD encompasses measurable aspects such as the effectiveness, efficiency, and relevance of the care provided. While perceived value has been widely examined in the literature, actual value remains relatively underexplored (Liu et al., 2023; Shie et al., 2022). In the context of Libya, AVD holds particular importance due to the resource-constrained nature of the healthcare system. Patients in such environments are often more concerned with concrete improvements in their health relative to their investment of time, money, and effort. As such, AVD provides a more grounded and actionable understanding of how healthcare services influence both patient satisfaction and loyalty. By incorporating AVD into the conceptual model, this study contributes a novel perspective that enhances the explanatory power of existing service quality and loyalty frameworks, particularly within fragile healthcare settings.

Switching Costs (SC) in Healthcare Decisions

Switching costs (SC) in healthcare refer to the financial, emotional, and logistical barriers that patients encounter when considering a change in healthcare providers. These barriers may include the cost of initiating care with a new provider, the emotional toll of leaving a trusted practitioner, and practical challenges such as

geographic distance or procedural complexities. Theoretically, Burnham et al. (2003) identified SC as key deterrents in customer decision-making, while Pick and Eisend (2014) emphasized their critical role in service-based industries. In the Libyan healthcare context, SC are especially pronounced due to the scarcity of provider options, a fragmented referral system, and the strong interpersonal trust patients place in individual practitioners rather than institutions (Ha et al., 2023). Recognizing SC as a moderating variable in this study helps illuminate why patients may continue to exhibit loyalty even when their satisfaction levels are only moderate or their service experiences are suboptimal. This nuanced understanding adds depth to the analysis of patient behavior in underregulated and resource-constrained healthcare systems.

Healthcare Service Challenges in Post-Conflict Libya

Libya presents a distinctive context for examining patient loyalty (PL) due to a range of systemic healthcare challenges. The country's healthcare system, particularly the private sector, suffers from fragmented regulation and financing mechanisms (Ministry of Health [MoH], 2019a; Jomaa & Gali, 2021). Sociocultural factors also play a significant role, as trust is often placed more in individual doctors than in healthcare institutions, reflecting deep-rooted cultural dynamics (Çelik & Taguri, 2021; Salem & Mahfouz, 2022). Structurally, the system faces persistent deficiencies, including high staff turnover, poor continuity of care, and outdated infrastructure, all of which contribute to inconsistent service quality (El Oakley et al., 2013; Al-Nuemi & El-Jahed, 2020). These complex conditions position Libya as a unique and valuable case for testing and extending theoretical models related to hospital service quality (HSQ), patient satisfaction (PS), actual value delivery (AVD), switching costs (SC), and ultimately, patient loyalty. By examining these variables in a fragile, post-conflict environment, this study contributes to a deeper and more context-sensitive understanding of healthcare service dynamics.

Hypotheses Development

Based on the theoretical grounding and gaps identified in the literature, this study proposes the following hypotheses:

- **H1:** HSQ significantly influences PS.
- **H2:** HSQ significantly influences PL.
- **H3:** PS significantly influences PL.
- **H4:** PS mediates the relationship between HSQ and PL.
- **H5:** AVD mediates the relationship between HSQ and PS.
- **H6:** SC moderate the relationship between PS and PL.

These hypotheses are grounded in prior empirical work and contextualized for Libya's unique healthcare system.

Conceptual Framework

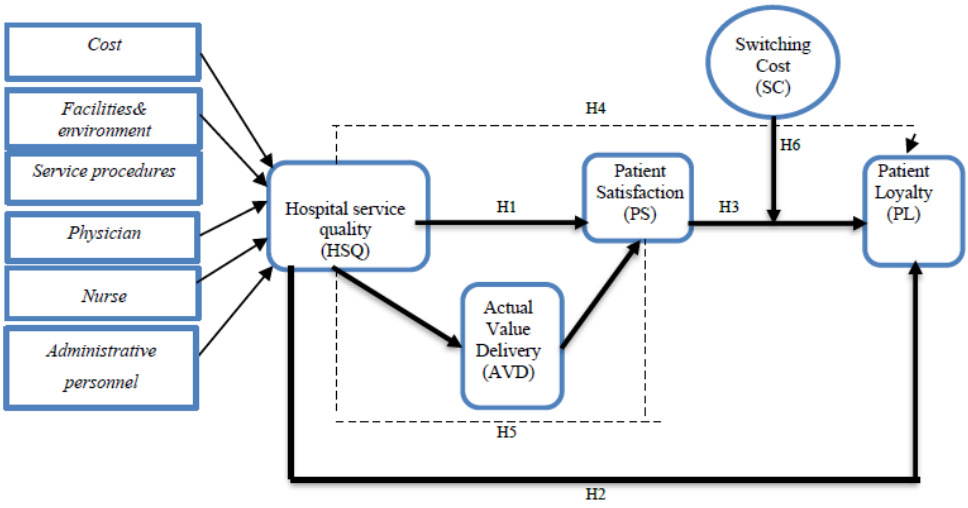

Figure 1. Conceptual Framework of the Study

The conceptual framework (Figure 1) illustrates the relationships among the key variables, highlighting both the direct and indirect paths as well as the theoretical foundations that underpin the model. This framework provides the basis for the empirical analysis conducted in this study.

Methods

This study employed a quantitative, cross-sectional research design to examine the relationships among Hospital Service Quality (HSQ), Patient Satisfaction (PS), Actual Value Delivery (AVD), Switching Costs (SC), and Patient Loyalty (PL) within the context of Libya's private healthcare sector. Data were collected using a structured questionnaire administered to patients who had recently received services at private hospitals in three major urban centers. Given the lack of a formal sampling frame and logistical constraints, a purposive non-probability sampling strategy was used to recruit participants with relevant healthcare experiences. Out of 500 distributed questionnaires, 389 were completed and returned, yielding a response rate of 77.8%. This sample size exceeded the minimum requirements for Partial Least Squares Structural Equation Modeling (PLS-SEM) as determined by G*Power analysis for six predictors, ensuring sufficient statistical power for the analysis.

The questionnaire was based on validated scales from the healthcare service literature, particularly the HEALTHQUAL model (Camilleri, 2018; Yoon & Lee, 2020), and aligned with the conceptual framework described above. It initially included 43 items across five constructs: HSQ (18 items across six dimensions), PS (6 items), AVD (3 items), SC (7 items), and PL (6 items). Construct definitions and item selections were grounded in established theoretical models and empirical studies, including Donabedian (1988), Camilleri (2018), Yoon and Lee (2020), Liu et al. (2023), Shie et al. (2022), Burnham et al. (2003), and Zeithaml et al. (1996). After initial reliability and validity assessments, three items (PS2, SC7, and PL1) were removed due to low factor loadings, resulting in a final instrument of 40 items, as shown in Table A1 in the appendices.

To ensure content validity, the instrument underwent expert review and was pilot-tested with 30 respondents. Reliability and convergent validity were confirmed using Cronbach's alpha ($\alpha \geq 0.70$), Composite Reliability ($CR \geq 0.70$), and Average Variance Extracted ($AVE \geq 0.50$). Discriminant validity was assessed using the Fornell–Larcker criterion, with all values meeting recommended thresholds. Measurement model evaluation using SmartPLS 4 further confirmed these metrics. The elimination of items with low loadings improved the model's internal consistency and discriminant validity.

Common Method Bias

As the data were collected from a single source at one point in time, the potential for common method bias (CMB) was assessed using Harman's single-factor test (Howard et al., 2024). The results indicated that the first unrotated factor accounted for less than 50% of the total variance, suggesting that CMB is unlikely to pose a serious threat to the validity of the findings (Kock, 2021).

Ethical Considerations

This study adhered to established ethical research standards and received approval from the Institutional Review Board (IRB) of the Health Services Administration, Ministry of Health. Participants were fully informed about the purpose of the study, and written informed consent was obtained prior to data collection. Participation was entirely voluntary and anonymous, and no personally identifiable information was collected. These measures ensured the confidentiality of participants and upheld the ethical integrity of the research process.

Data Analysis Strategy

Data analysis followed the two-stage approach recommended by Hair et al. (2019) using SmartPLS 4. The first stage assessed the measurement model by evaluating internal consistency (Cronbach's alpha and CR), convergent validity (AVE), and discriminant validity (Fornell–Larcker criterion). The second stage focused on testing the structural model. Hypotheses were evaluated through bootstrapping procedures to determine the significance of path coefficients. Mediation analysis was conducted to assess the role of AVD in the relationship between HSQ and PS, while moderation analysis examined the impact of SC on the link between PS and PL. The model's predictive power was evaluated using the coefficient of determination (R^2), predictive relevance (Q^2), and effect sizes (f^2). PLS-SEM was chosen for its robustness in handling non-normal data and its ability to model complex mediating and moderating relationships in exploratory contexts.

Summary

The methodology used to explore the relationships among HSQ, PS, AVD, SC, and PL in Libya's private healthcare sector. A validated instrument, robust sampling strategy, and rigorous analysis techniques were employed to ensure the reliability and validity of the findings. Ethical standards were strictly maintained throughout the study. The incorporation of AVD and SC as mediating and moderating variables, respectively, offers a deeper understanding of the factors influencing patient loyalty in a post-conflict healthcare environment.

Results

Measurement Model Assessment

The measurement model demonstrated strong reliability and validity. All factor loadings exceeded the recommended threshold of 0.70, confirming indicator reliability. The constructs' Average Variance Extracted (AVE) values ranged from 0.516 to 0.837, establishing convergent validity. Composite Reliability (CR) values also surpassed the 0.70 benchmark, affirming internal consistency reliability (Appendix Table A1).

Discriminant validity was assessed using the Fornell-Larcker criterion. The square root of each construct's AVE was greater than its inter-construct correlations, indicating adequate discriminant validity (Appendix Table A2).

Multicollinearity was not a concern, as all Variance Inflation Factor (VIF) values were below the threshold of 5 (Appendix Table A3).

Structural Model Assessment

The model's explanatory power was evaluated using R^2 values. Patient Loyalty (PL) achieved a substantial R^2 of 0.600. Satisfaction (SAT) and Actual Value Delivery (AVD) recorded R^2 values of 0.523 and 0.518, respectively, reflecting [moderate/substantial] explanatory power (Appendix Table A4).

Predictive relevance (Q^2) was confirmed via the blindfolding technique. All Q^2 values were above zero, demonstrating the model's predictive capability for PL, SAT, and AVD (Appendix Table A5).

Effect sizes (f^2) revealed significant impacts: Switching Cost (SC) strongly influenced PL ($f^2 = 0.908$), and Hospital Service Quality (HSQ) had a substantial effect on AVD ($f^2 = 1.075$). Other relationships showed small to moderate effects (Appendix Table A6).

Hypothesis Testing and Interpretation

Path analysis supported three out of six hypotheses:

H1: HSQ → SAT – Supported

H2: HSQ → PL – Supported

H5: AVD mediates HSQ → SAT – Supported

The remaining hypotheses were not supported:

H3: SAT → PL

H4: SAT mediates HSQ → PL

H6: SC moderates SAT → PL

These results indicate that while hospital service quality significantly enhances both satisfaction and loyalty, satisfaction alone does not strongly drive loyalty. This challenges conventional assumptions, especially in fragile healthcare systems like Libya. AVD emerged as a critical mediator, suggesting that patients' satisfaction is primarily shaped by tangible healthcare outcomes rather than just perceptions.

Furthermore, SC did not significantly moderate the satisfaction–loyalty link, implying that switching barriers may not translate to increased loyalty in such contexts (Appendix Table A7).

Summary

Overall, the findings underscore the importance of service quality and actual value delivery in driving patient outcomes. The model exhibited strong explanatory power (R^2) and predictive relevance (Q^2), affirming its utility in analyzing patient behavior in post-conflict healthcare settings. Patient loyalty in such environments appears to depend more on service delivery outcomes than on satisfaction or switching costs alone.

Discussions

Integration of Actual Value Delivery and Value-Based Healthcare

This study explored the relationships among hospital service quality (HSQ), perceived and actual value delivery (PVD and AVD), patient satisfaction (PS), switching costs (SC), and patient loyalty (PL) within the

healthcare context in Libya. The findings contribute to the growing literature on healthcare service delivery, particularly in developing regions, providing insights that both align with and challenge existing models.

A key contribution of this study is its emphasis on Actual Value Delivery (AVD), which aligns closely with the Value-Based Healthcare (VBHC) framework proposed by Porter and Lee (2013). VBHC emphasizes improving health outcomes relative to the cost of care delivery, advocating for a shift from volume-based to value-based healthcare models. AVD, as discussed in Section 2.4, comprises measurable, outcome-based components such as improvements in health, quality of life, cost-efficiency, and adherence to evidence-based practices (Liu et al., 2023; Teisberg et al., 2020). In contrast, perceived value (PVD) is subjective, rooted in patients' impressions and expectations of care. This distinction is crucial, as it underscores the importance of tangible outcomes over mere satisfaction or expectations.

The findings of this study support the VBHC framework by showing that AVD significantly contributes to patient satisfaction (PS) and patient loyalty (PL). This provides further validation for the transition to value-based healthcare, where the focus is not merely on meeting patient expectations, but on delivering measurable health outcomes that improve patients' overall well-being (Canolle et al., 2022). Specifically, the results suggest that patients in Libya, where the healthcare system is strained, are more attuned to the tangible benefits they experience in terms of health outcomes, efficiency, and overall value rather than just perceived service quality.

Additionally, HSQ was found to significantly influence PS, but not directly impact PL. This finding suggests that while service quality influences satisfaction, it is not enough to drive loyalty on its own. Other factors, such as SC and AVD, are more critical in influencing patient retention. This underscores the importance of AVD as a mediating variable between HSQ and PS, indicating that patients base their satisfaction not only on the quality of service received but also on the tangible benefits of care that directly affect their health outcomes (Liu et al., 2023; Shie et al., 2022).

Rethinking the Satisfaction–Loyalty Link in the Libyan Context

Interestingly, this study found that PS did not significantly influence PL, contradicting the well-established link between the two (Zeithaml et al., 1996). This discrepancy can be explained by specific contextual and cultural dynamics unique to the Libyan healthcare system. In Libya, patients face limited provider options, underdeveloped healthcare infrastructure, and systemic inefficiencies that may reduce their ability to act on dissatisfaction. Consequently, even if patients are dissatisfied, they may remain loyal out of necessity rather than preference. Social norms, a lack of competition, and low consumer power further weaken the traditional link between satisfaction and loyalty in this context, suggesting that patient loyalty may be driven more by external constraints than by active satisfaction evaluations (Ha et al., 2023).

Switching Costs and Their Limited Moderating Role

This study also examined the moderating effect of switching costs (SC) on the relationship between PS and PL. SC encompasses procedural (e.g., effort and time), financial (e.g., cost of switching providers), and relational (e.g., loss of personal connection with caregivers) barriers. In Libya, these costs are often heightened by the lack of accessible alternatives, fragmented record-keeping systems, and bureaucratic barriers. Anell et al. (2021) highlight similar patterns in healthcare systems with limited structural fluidity, where patients endure poor service quality because switching is not a feasible option.

However, the findings of this study reveal that SC did not significantly moderate the relationship between PS and PL. This suggests that while switching costs may exist and be perceived as high, they do not significantly alter how satisfaction impacts loyalty. In Libya, loyalty decisions seem to be influenced more by structural limitations such as limited provider options and a fragmented system than by the varying degrees of satisfaction or perceived switching barriers. This unexpected result challenges assumptions about the role of SC in more developed or competitive healthcare systems, highlighting the need to reassess its impact in settings with constrained healthcare choices (Burnham et al., 2003; Kock et al., 2021).

Theoretical Foundations for Practical Recommendations

From a practical standpoint, the findings of this study offer several actionable recommendations for healthcare providers, grounded in Oliver's (1997) four-stage loyalty model. The model suggests that cognitive loyalty can be developed through consistent, reliable HSQ and transparent information-sharing. Affective loyalty can be nurtured through empathetic care and personalized attention, which are essential in building trust in healthcare systems with limited resources. Conative loyalty, reflecting the intention to continue service, can be encouraged through loyalty programs or follow-up care initiatives. Finally, action loyalty, the behavioral component, can be supported by removing structural barriers, improving accessibility, and addressing logistical challenges in healthcare delivery.

Hospitals can enhance PL by strategies that increase SC, such as introducing loyalty programs, offering personalized patient engagement (e.g., follow-up calls and digital health tracking), and partnering with insurance providers to create financial incentives that discourage switching. In addition, strengthening PVD and AVD by improving health outcomes, ensuring cost-effectiveness, and increasing transparency in pricing and services should be prioritized. These strategies will not only improve patient satisfaction but also contribute to long-term patient retention.

Contextualizing Loyalty in Libyan Healthcare

In conclusion, this study highlights the significance of AVD and the limitations of traditional assumptions regarding SC and PS in shaping PL within the Libyan healthcare context. Although SC was proposed as a key moderating variable, its non-significant result offers valuable insight: loyalty may be more influenced by external constraints than by patients' active satisfaction evaluations. These findings suggest that healthcare providers and policymakers need to adopt a more holistic, value-oriented, and context-sensitive approach to service improvement and loyalty building in Libya's fragile healthcare environment. Moreover, focusing on improving AVD will likely lead to better health outcomes and greater patient retention, reinforcing the move towards value-based healthcare.

Conclusion

This study investigated the factors influencing patient loyalty (PL) in Libyan private hospitals, focusing on key variables such as hospital service quality (HSQ), patient satisfaction (PS), actual value delivery (AVD), and switching costs (SC). The validated model revealed that while HSQ significantly affects PS, satisfaction alone does not lead directly to loyalty challenging traditional assumptions in the literature (Zeithaml et al., 1996). This underscores the complexity of patient loyalty in healthcare, particularly in developing regions where infrastructure limitations may play a more significant role than expected (Ha et al., 2023).
A key contribution of this research is the emphasis on AVD, which mediates the relationship between HSQ and PS. The study highlights that patients in Libya respond not only to how they are treated by healthcare providers but also to the tangible, measurable benefits they receive from the care they receive. This finding aligns with the Value-Based Healthcare (VBHC) framework proposed by Porter and Lee (2013), which emphasizes the need for healthcare systems to focus on outcomes and cost-efficiency rather than just service volume. AVD, as a measure of outcome-based value, was found to be a significant predictor of patient satisfaction and loyalty (Liu et al., 2023; Teisberg et al., 2020), reinforcing the notion that value in healthcare should go beyond mere patient impressions to include health outcomes and cost-effectiveness.

Although switching costs were hypothesized to strengthen the link between PS and PL, this relationship was not statistically supported in this study. This finding contradicts traditional models that assume SC as a significant moderator in loyalty formation (Burnham et al., 2003). In the Libyan context, it appears that patients may remain loyal out of necessity, driven by external constraints such as limited healthcare options, rather than emotional satisfaction or service quality alone (Kock et al., 2021). This suggests that in healthcare systems with limited competition and infrastructure challenges, SC may not have the same moderating effect on the satisfaction-loyalty link as in more developed or competitive settings.

The adapted measurement model used in this study was found to be both statistically reliable and contextually relevant to the Libyan private healthcare sector. However, as with all context-specific studies, caution should be exercised when generalizing these findings to public hospitals or other national contexts without further validation. Healthcare systems vary significantly, and factors influencing loyalty in Libya may differ from those in other regions with more developed healthcare infrastructure (Canolle et al., 2022).

For future research, expanding the model to include emotional, cultural, and digital engagement factors could provide a more comprehensive understanding of patient loyalty in the Libyan context. Digital health engagement, in particular, could be an important factor to explore, given the increasing role of technology in healthcare delivery and patient interactions.

From a practical standpoint, the findings suggest that hospital managers and policymakers should focus not only on improving HSQ but also on delivering tangible value through better health outcomes, cost-efficiency, and transparency. Reducing systemic barriers such as limited access to alternative healthcare providers and bureaucratic challenges will also be crucial in improving patient loyalty and promoting long-term retention. By embracing a more value-based approach to healthcare, hospitals can foster a more sustainable and patient-centered healthcare system in Libya.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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Appendices

Appendix 1: Full Questionnaire Table

PART 1: Demographic Characteristics

The following information is required for classification and comparison purposes. Please indicate your response by selecting the most appropriate option.

No.	Demographic Question	Options
1	**Kindly specify your Gender**	Male Female
2	**Kindly specify your Age**	Less than 25 | 25-35 | 36-45 | 46-55 | 56-65 | Greater than 65
3	**Marital Status**	Single | Married | Other
4	**Kindly specify your Educational Background**	Bachelor's Degree | Master's Degree | Doctorate Degree | Other (please specify) _____
5	**Kindly specify your Occupation**	Employee | Self-employed | Military/policeman | Homemaker | Student | Retired | Other
6	**Monthly Income**	Less than 1000 | 1000-2000 | 2000-3000 | More than 3000

PART 2: Questionnaire Statements

Instructions: Please select one number for each statement based on your opinion using the following scale: (1) Strongly Disagree | (2) Disagree | (3) Neutral | (4) Agree | (5) Strongly Agree

Section A: Hospital Service Quality (HSQ)

Dimension	No.	Statement	1 2 3 4 5
Cost	CO1	The billing process at the hospital is transparent and fair	
	CO2	The costs of healthcare services provided by the hospital are reasonable	
	CO3	I receive tangible value for the money spent on healthcare services at the hospital	
Facilities and Environment	FE1	The hospital's buildings are clean and well-organized	
	FE2	The hospital facilities are comfortable and well-maintained	
	FE3	The overall atmosphere of the hospital is satisfactory	
Service Provision	SP1	The appointment scheduling system at the hospital is effective and efficient	
	SP2	The hospital's check-in and check-out processes are streamlined and convenient	
	SP3	The information provided about medical procedures and treatments is clear and comprehensive	
Physicians	PH1	The physicians at the hospital are skilled and experienced	
	PH2	The physicians listen to my concerns and involve me in treatment decisions	
	PH3	The physicians have good communication skills with patients	
Nursing Staff	NS1	The nursing staff was attentive and responsive during my hospital stay	
	NS2	The nursing staff communicates information related to care and treatment effectively	

	NS3	The nursing staff demonstrates empathy and compassion
Administrative Personnel	AP1	The administrative staff is professional and courteous in handling administrative tasks
	AP2	The administrative staff is helpful in responding to my inquiries and concerns
	AP3	Administrative processes such as registration and billing are smooth and simple

Section B: Patient Satisfaction (PS)

No.	Statement	1 2 3 4 5
PS1	The healthcare services meet my needs	
PS2	The hospital staff show empathy, respect, and understanding	
PS3	The overall services provided at the hospital are satisfactory	
PS4	The services provided are good, although there are aspects that could be improved	
PS5	Service improvement is needed immediately	
PS6	I am satisfied with the value for money of the services I received at the hospital	

Section C: Actual Value Delivery (AVD)

No.	Statement	1 2 3 4 5
AVD1	I am able to manage my health issues after thoroughly discussing them with the doctor	
AVD2	The medication prescribed by the doctor is effective	
AVD3	I don't mind paying more because the doctor's diagnosis exceeds the treatment fee	

Section D: Switching Cost (SC)

No.	Statement	1 2 3 4 5
SC1	Switching to another hospital would be more expensive	
SC2	The potential increase in cost prevents me from considering switching to another hospital	
SC3	A strong relationship with the medical staff at my current hospital prevents me from considering switching	
SC4	Concerns about receiving lower quality services at another hospital prevent me from considering switching hospitals	
SC5	The possibility of unexpected difficulties prevents me from considering switching hospitals	
SC6	The likelihood of having to restart my diagnostic and treatment plan prevents me from considering switching hospitals	
SC7	The reputation or brand of the hospital does not affect my decision when choosing a healthcare provider	

Section E: Patient Loyalty (PL)

No.	Statement	1 2 3 4 5
PL1	I rarely consider switching to another hospital, even when facing minor inconveniences	
PL2	I will continue to use the services of the same hospital even if the costs increase	
PL3	I often recommend this hospital to those who seek my advice	
PL4	I feel comfortable and satisfied after each visit to this hospital	
PL5	I consistently share positive experiences about this hospital with friends and family	
PL6	I frequently promote positive messages about this hospital	

THANK YOU

Appendix 2: Pilot Testing for Refinement

Table 3.2 Reliabilities of Survey Items Based on Pilot Data

Main Constructs	Dimensions		Items	Cronbach's Alpha
Hospital service quality		**SQ**	**18**	
	Cost	SQC	3	0.888
	Facilities and environment	SQF	3	0.964
	Service productions	SQS	3	0.767
	Physicians	SQP	3	0.829
	Nurse	SQN	3	0.700
	Administrative staff	SQA	3	0.968
	Patient satisfaction	**PS**	**6**	0.847
	Actual value delivered	**AVD**	3	0.972
	Switching cost	**SC**	7	0.908
	Patient loyalty	**PL**	6	0.772

Appendix Table A1: Summary Results of Constructs' Convergent Validity and Reliability Analysis

Construct		Measurement Items	Factor Loadings	Composite reliability (CR)	Cronbach's Alpha	Average of variance extracted (AVE)
Hospital Service	Cost	SQCO1	0.937			
Quality (HSQ)		SQCO2	0.895	0.903	0.939	0.837
Independent		SQCO3	0.912			
Variable	Facilities and	SQFE1	0.925			
----------	Environment	SQFE2	0.931	0.925	0.876	0.804
Cronbach's		SQFE3	0.829			
Alpha =0.938	Service Provision	SQSP1	0.890			
----------		SQSP2	0.904	0.931	0.889	0.818
CR= 0.946		SQSP3	0.919			
----------	Physicians	SQPH1	0.887			
AVE= 0.505		SQPH2	0.929	0.855	0.741	0.674
		SQPH3	0.925			
	Nursing Staff	SQNS1	0.897			
		SQNS2	0.904	0.926	0.879	0.805
		SQNS3	0.891			
	Administrative Personnel	SQAP1	0.905			
		SQAP2	0.891	0.922	0.874	0.798
		SQAP3	0.884			
Patient Satisfaction (PS)		PS1	0.709			
Mediating Variable		PS2	Deleted			
		PS3	0.830	0.924	0.899	0.709
		PS4	0.881			
		PS5	0.887			
		PS6	0.889			
Actual Value Delivery (AVD)		AVD1	0.867			
Mediating Variable		AVD2	0.890	0.918	0.867	0.788

	AVD3	0.905			
Switching Cost (SC)	SC1	0.827			
Moderating Variable	SC2	0.851			
	SC3	0.845			
	SC4	0.765	0.930	0.909	0.689
	SC5	0.835			
	SC6	0.854			
	SC7	Deleted			
Patient Loyalty (PL)	PL1	Deleted			
Dependent Variable	PL2	0.712			
	PL3	0.887	0.835	0.824	0.516
	PL4	0.891			
	PL5	0.893			
	PL6	0.883			

Source: SmartPLS4 output (2024).

Note: items, PS2, SC7, PL1, deleted due to lack of saturation were less than 0.7.

Appendix Table A2: Discriminant Validity (Fornell-Larcker Criterion)

Variables	Actual Value Delivery (AVD)	Administrative Personnel	Cost	Facilities and Environment	Hospital Service Quality (HSQ)	Nursing Staff	Patient Loyalty (PL)	Patient Satisfaction (PS)	Physicians	Service Provision	Switching Cost (SC)
Actual Value Delivery (AVD)	**0.888**										
Administrative Personnel	0.462	**0.893**									
Cost	0.630	0.323	**0.915**								
Facilities and Environment	0.607	0.368	0.914	**0.896**							
Hospital Service Quality (HSQ)	0.720	0.547	0.894	0.891	**0.711**						
Nursing Staff	0.589	0.457	0.491	0.442	0.721	**0.897**					
Patient Loyalty (PL)	0.426	0.137	0.367	0.330	0.429	0.406	**0.719**				
Patient Satisfaction (PS)	0.694	0.754	0.461	0.456	0.640	0.516	0.318	**0.842**			
Physicians	0.502	0.279	0.638	0.629	0.799	0.557	0.375	0.451	**0.821**		
Service Provision	0.620	0.285	0.799	0.807	0.885	0.518	0.409	0.470	0.738	**0.905**	
Switching Cost (SC)	0.546	0.081	0.469	0.409	0.505	0.423	0.765	0.290	0.461	0.523	**0.830**

Source: SmartPLS4 output (2024).

Appendix Table A3: Summary Variance Inflation Factor Check Test (VIF)

Variables	VIF
Actual Value Delivery (AVD) -> Patient Satisfaction (PS)	2.075
Hospital Service Quality (HSQ) -> Actual Value Delivery (AVD)	1.000
Hospital Service Quality (HSQ) -> Patient Loyalty (PL)	2.132

Hospital Service Quality (HSQ) -> Patient Satisfaction (PS)	2.075
Patient Satisfaction (PS) -> Patient Loyalty (PL)	1.712
Switching Cost (SC) -> Patient Loyalty (PL)	1.437
Switching Cost (SC) x Patient Satisfaction (PS) -> Patient Loyalty (PL)	1.097

Source: SmartPLS4 output (2024).

Appendix Table A4: Summary Results R-Square

Variables	R-Square
Actual Value Delivery (AVD)	0.518
Patient Loyalty (PL)	0.600
Patient Satisfaction (PS)	0.523

Source: SmartPLS4 output (2024).

Source: SmartPLS4 output (2024).

Appendix Table A5: Summary Results for Q^2_predict

Variables	RMSE	MAE	Q^2_predict
Actual Value Delivery (AVD)	0.704	0.515	0.510
Patient Loyalty (PL)	0.666	0.481	0.559
Patient Satisfaction (PS)	0.783	0.558	0.398

Source: SmartPLS4 output (2024).

Source: SmartPLS4 output (2024).

Appendix Table A6: Result of Effect Size (F2)

Relationship	F^2	Level
Actual Value Delivery (AVD) -> Patient Satisfaction (PS)	0.238	Strong
Hospital Service Quality (HSQ) -> Actual Value Delivery (AVD)	1.075	Strong
Hospital Service Quality (HSQ) -> Patient Loyalty (PL)	0.000	Small
Hospital Service Quality (HSQ) -> Patient Satisfaction (PS)	0.085	Moderate
Patient Satisfaction (PS) -> Patient Loyalty (PL)	0.022	Moderate
Switching Cost (SC) -> Patient Loyalty (PL)	0.908	Strong
Switching Cost (SC) x Patient Satisfaction (PS) -> Patient Loyalty (PL)	0.010	Small

Source: SmartPLS4 output (2024).

Appendix Table A7: Summary of the Hypothesis, Bootstrapping Test

Hypothesis	Testing	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T_Statistics	P_Values	Remarks

H1	Hospital Service Quality (HSQ) -> Patient Loyalty (PL)	0.396	0.204	0.155	2.552	0.011	Supported
H2	Hospital Service Quality (HSQ) -> Patient Satisfaction (PS)	0.291	0.292	0.063	4.584	0.000	Supported
H3	Patient Satisfaction (PS) -> Patient Loyalty (PL)	0.122	0.119	0.069	1.762	0.078	Not Supported
H4	Hospital Service Quality (HSQ) -> Patient Satisfaction (PS) -> Patient Loyalty (PL)	0.035	0.034	0.022	1.616	0.106	Not Supported
H5	Hospital Service Quality (HSQ) -> Actual Value Delivery (AVD) -> Patient Satisfaction (PS	0.349	0.348	0.039	9.059	0.000	Supported
H6	Switching Cost (SC) × Patient Satisfaction (PS) -> Patient Loyalty (PL)	-0.054	-0.055	0.028	1.890	0.059	Not Supported

Note: Level of Significance (5% i.e. 0.050). Source: SmartPLS4 output (2024).