INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN ACCOUNTING, FINANCE AND MANAGEMENT SCIENCES

OPEN ACCESS JOURNAL

Vol 15, Issue 2, (2025) E-ISSN: 2225-8329

Patient Non-Adherence in Healthcare: In-Depth Insights into Shared Decision-Making, Clinical Effectiveness, and Financial Viability

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To Link this Article: http://dx.doi.org/10.6007/IJARAFMS/v15-i2/24883 DOI:10.6007/IJARAFMS/v15-i2/24883

Published Online: 04 April 2025

Abstract

The aim of this study is to empirically investigate the impact of treatment effectiveness, care costs, and shared decision-making on patient compliance. Data were collected through a random sampling technique across five hospitals in Damascus, the capital of Syria. The reliability and validity of the conceptual model were rigorously confirmed using quantitative analyses via Smart-PLS. This study demonstrates that treatment effectiveness, the cost of care, and shared information and decision-making have a significant, positive, and direct influence on patient compliance with medical treatment. Our conceptual model accounts for 49.30% of patient compliance in a statistically significant manner. Policymakers and healthcare providers can leverage this model to assess, analyse, and improve both patient adherence and service quality. Our empirical investigation provides novel insights into overcoming patient non-compliance by advancing treatment effectiveness, minimising care costs, and optimising information sharing. Recognizing and addressing these interconnected factors is essential for fostering sustained patient adherence within the healthcare system in Damascus.

Keywords: Treatment Effectiveness, Care Costs, Healthcare Decision-Making, Information Sharing, Syrian Healthcare System

Introduction

Compliance with medication is a key factor in determining the success of various medical treatment plans, which also considered as an essential element in improving healthcare outcomes. Compliance in healthcare has become a critical topic since the clinical regimens are useless if patients do not comply with their doctor's advice (Diucup & Meleis, 1982). Adherence to the therapeutic treatment is one of the most vital health issues in terms of efficacy, care costs and patient safety. Furthermore, elderly patients are particularly vulnerable to non-compliance because they have higher morbidity rates, as well as social and cognitive difficulties that impede their correct use of medication (Cárdenas-Valladolid et al., 2010). Non-compliance with medication therapy is a longstanding dilemma that has been associated with poor patient-provider communication, leading to disease progression, a

reduced quality of life (Nieuwlaat et al., 2014) and increased the costs of health care (Kennedy-Martin et al., 2017). Poor compliance behaviour reflects the most common reason that leads to non-responsiveness to medication. Studies have shown that patients who adhere to a medical treatment plan achieve better health outcomes compared to those who do not, even when taking a placebo (Murphy & Coster, 1997). Failure to adhere to treatment can be either deliberate or unintentional, a phenomenon referred to as noncompliance with medication regimens. Patients who comply with medical professional's advices have better healthcare outcomes than patients who do not, even though when taking a placebo (Murphy & Coster, 1997). Medication compliance serves as a fundamental determinant of disease management efficacy and improved patient prognosis. In this context, addressing patient complaints is crucial for enhancing adherence, fostering trust, and optimizing overall healthcare outcomes. The reasons for non-compliance are multifactorial and often difficult to recognize. Non-compliance is a complex phenomenon shaped by a combination of individual behaviours and systemic healthcare factors. The reasons for non-compliance are multifactorial and often difficult to recognize (AlOmari et al., 2023b).

Key factors influencing medication compliance include the severity and duration of the illness, dosage regimen and associated complications, polytherapy, cognitive factors, tolerability, clinical inertia, socioeconomic conditions, cultural background, patient education, and social support. These factors significantly impact adherence to medication (Bakar et al., 2016; Settineri et al., 2019; Vivian, 1996). However, scholars often using compliance, adherence, and concordance as synonyms (Barfoed et al., 2015). The World Health Organization (WHO) defined medical adherence as "the extent to which a patient's behaviour coincides with the recommendations of medical professionals" (World Health Organization, 2016). Haynes et al. (1979) defined compliance as "the extent to which a patient's behaviour (in terms of taking medications, following diets, or executing lifestyle changes) coincides with medical or healthcare advice". However, there is no agreement on a commonly accepted definition of compliance that causes to use other terms such as, therapeutic alliance, concordance, co-operation, self-management and adherence. Additionally, challenges remain in achieving reliability and consistency when measuring compliance within healthcare settings (Settineri et al., 2019). Besides, there is a lack of underlying theoretical framework in various studies in selecting compliance's independent factors (Marandu et al., 2015). Evidence for implementation of effective compliance-gaining strategies still inconclusive particularly since other variables can complicate and influence the choice of strategies used (Levesque & Li, 2017; Olynick et al., 2017).

This article is organized into seven sections. In the first section, the literature review will be presented. From the perspective of medication compliance, treatment effectiveness, care cost as well as sharing information and decision making (independent variables) will be discussed. The second section, based on the literature review, presents the development of hypotheses and a conceptual framework that explains the relationship between the dependent and independent variables. The third section presents research methodology. The fourth section presents the statistical analysis and discussion, including detailed results from the tested hypotheses. The fifth section presents the conclusion, organized into three subsections. The sixth section discusses the limitations and suggests directions for future research. Implications and recommendations for hospital managers and healthcare policy makers will be highlighted in the seventh section. To the best of the author's knowledge, this

is the first study conducted to assess patient compliance in the healthcare sector in Damascus, focusing on treatment effectiveness, care cost, and the sharing of information.

Literature Review

Self-determination theory (SDT) (Deci & Ryan, 1985) provides a valuable framework for understanding how social environments influence motivational processes related to adherence and other aspects of organizational and individual behaviour change. According to SDT, patients who perceive their doctor as autonomy-supportive are more likely to adhere to medical treatment compared to those who view their doctor as coercive or controlling. Strasser et al. (1993) developed a comprehensive model for measuring patient satisfaction based on six key elements. These elements include the subjective nature of human perceptions, the multifaceted nature of patient satisfaction, its dynamic nature (evolving over time), and its influence on both attitudinal and behavioural responses. Additionally, patients assume two distinct roles: first, as judges who serve as sources of information, and second, as activists who act as causal and endogenous variables within the system. The model also accounts for individual patient differences, such as values, beliefs, expectations, experiences, socio-demographic characteristics, and current healthcare status. Understanding the underlying motivations for both compliance and noncompliance is essential for healthcare professionals. Furthermore, qualitative exploration should be integrated into clinical trials to assess the impact of compliance levels on the effectiveness of interventions. Initially, patient compliance tends to be high due to loyalty to the healthcare provider, which is often considered an indicator of healthcare success (Campbell et al., 2001). Research suggests that female doctors are generally more communicative with female patients, often providing motivational messages more frequently than their male counterparts (Olynick et al., 2017). Effective communication skills, combined with a patient-centered approach and a trust, contribute to improved care management, enhanced perceived quality of healthcare services, higher patient satisfaction, and greater adherence to treatment (Chandra et al., 2018).

Treatment Effectiveness and Patient Compliance

Non-compliant behaviour among patients negatively impacts the quality of services provided by healthcare professionals (Kostopoulos et al., 2014). Studies indicate that responsiveness, assurance, and empathy significantly improve the likelihood of patient adherence (Golshan et al., 2019). Furthermore, compliance has been found to be strongly correlated with expertise satisfaction, overall satisfaction, and communication satisfaction (Olynick et al., 2017). A clear relationship exists between patient satisfaction and adherence, as dissatisfaction with medical treatment or physician instructions reduces the likelihood of patient cooperation with medical staff (Naidu, 2009). Frequent human interaction has been shown to be more effective than automated reminders in facilitating successful interventions (Campbell et al., 2012). Additionally, empathetic, patient-centered behaviour and compassionate communication positively influence patient satisfaction, ultimately strengthening the patient-physician relationship (Hesse & Rauscher, 2019). Compassionate and effective communication between doctors and patients fosters a positive therapeutic relationship, leading to increased patient satisfaction, greater adherence to prescribed medications, and a higher willingness to engage in discussions with healthcare providers (Baker & Watson, 2015). Non-compliance may arise from several factors, including inadequate clarification of a medication's benefits and side effects, the prescription of complex drug regimens, and a failure to consider the financial barriers patients may face

(Kripalani et al., 2008; Osterberg & Blaschke, 2005). Patient involvement in the healthcare process, particularly through behavioural compliance such as accurately describing symptoms, is a fundamental aspect of service quality in healthcare. The limited time allocated for patient consultations, coupled with resource constraints and high patient volumes, poses significant challenges in addressing individual patient needs. These factors also impede the comprehensive assessment and understanding of patients' medication adherence behaviours. Insufficient consultation time may further restrict opportunities for engaging patients in discussions about the importance of adherence to prescribed medication regimens (Brown & Bussell, 2011). Non-compliance is particularly prevalent when patients fail to have prescriptions filled or do not take medications as prescribed by medical professionals (Pottegård et al., 2014). Nieuwaalt et al. (2014) emphasized that effective communication and a strong, positive relationship between caregivers and patients are critical determinants of improving patient adherence to medication. The quality of a physician's interpersonal communication skills has been recognized as essential for achieving optimal health outcomes, including enhanced patient satisfaction, improved effectiveness of medical treatments, and better adherence to healthcare regimens (McCabe & Healey, 2018; Slade et al., 2015). Alam et al. (2018) highlighted that factors such as overall satisfaction, convenience, side effects, and treatment effectiveness are reliable and valid indicators for evaluating patient satisfaction with medication.

Care Cost and Patient Compliance

In the context of consumer behaviour, purchasing decisions are often made under conditions of limited information about alternatives, coupled with considerable uncertainty regarding the attributes of the services being considered. Tull et al. (1964) argued that, under such uncertainty, consumers tend to rely more heavily on price as a proxy for quality when making purchase decisions. The Health Belief Model (HBM), developed by Rosenstock (1974), posits that for a patient to engage in behaviours aimed at curing or preventing a particular disease, they must perceive minimal barriers or obstacles to taking action. These barriers may include financial constraints, communication difficulties with medical staff, or inconveniences related to the diagnostic and treatment processes. Compliance is significantly influenced by financial factors, such as insurance coverage or self-payment. A number of studies have highlighted a notable difference in compliance levels between patients with insurance and those who pay out-of-pocket (Abeskharon et al., 2018; Wilson & Harris, 2015). Factors contributing to non-compliance include inadequate communication regarding the benefits and side effects of medications, the complexity of prescribed drug regimens, and the failure to address the financial barriers patients may encounter (Kripalani et al., 2008; Osterberg & Blaschke, 2005). Conversely, Dickens et al. (2008) reported no significant difference in compliance based on the type of payment. Naidu (2009) identified several factors influencing patients' switching behaviour, including competitive practices among service providers, the cost of care, service failures, ethical concerns, and inadequate or inappropriate staff responses during service failures.

Sharing Information Decision Making and Patient Compliance

Social Cognitive Theory (SCT) proposed by Bandura (1988), explains individual behaviour through a continuous, dynamic, and reciprocal interaction between the individual and their environment. Predicting behavioural compliance is complex; however, beliefs and knowledge alone are insufficient to drive changes in patient behaviour, particularly in the context of

chronic conditions. It is essential for doctors to seize chances to intervene and help patients understand the nature of their illness. This should be done in a supportive, trusting manner, encouraging patients to promptly adhere to their prescribed medication regimen to facilitate recovery. Failure to communicate essential information regarding a patient's medical condition in an effective manner can lead to deterioration of both mental and physical health, with gradual worsening over time. Inadequate communication and interaction between medical staff and patients may contribute to unnecessary distress, depression, and the exacerbation of serious health conditions. Mazzei et al. (2009) identified that the most significant factors influencing patient satisfaction are the cost of care, the clarity of information regarding medical treatment, and the doctor-patient relationship. Milky and Thomas (2019) investigated elements associated with shared decision-making (SDM) and explored whether SDM was linked to patient satisfaction or medication adherence. Their findings indicated that patients who experienced higher levels of SDM reported greater satisfaction with their healthcare. However, no significant association was found between SDM and adherence to antidiabetic medication. Patients who are satisfied with the information provided by their healthcare providers regarding topical corticosteroids (TCS) tend to experience less anxiety about using TCS and exhibit greater adherence to the instructions given by medical staff (Lee et al., 2019). Abd Manaf et al. (2012) found that the registration service factors, such as communication and courteousness by counter staff, exhibited a stronger correlation with patient satisfaction than the services provided by doctors, including listening, explaining, knowledge, consultation time, courteousness, shared decision-making, and keeping the patient updated. Furthermore, a safe and appropriate discharge procedure, in addition to shared decision-making, plays a significant role in enhancing medication compliance and patient satisfaction (Stevens et al., 2019). Providing a rationale for treatment may also encourage patients to disclose non-adherence behaviours, thus facilitating a discussion with their healthcare providers (Brown & Bussell, 2011). Health belief model (HBM) (Rosenstock, 1974) posits that providing information about the effectiveness of various health behaviours can reduce the risk of illness.

Conceptual Framework and Proposed Hypotheses

Based on the discussion in literature review, three hypotheses had been proposed:

H1: There is a significant relationship between treatment effectiveness and patient compliance**.**

H2: There is a significant relationship between care cost and patient compliance.

H3: There is a significant relationship between sharing information and patient compliance.

Figure 1 illustrates the conceptual framework that mainly clarifies the relationships among independents variables (treatment effectiveness, care cost and sharing information, decision making) and patient compliance (dependant variable).

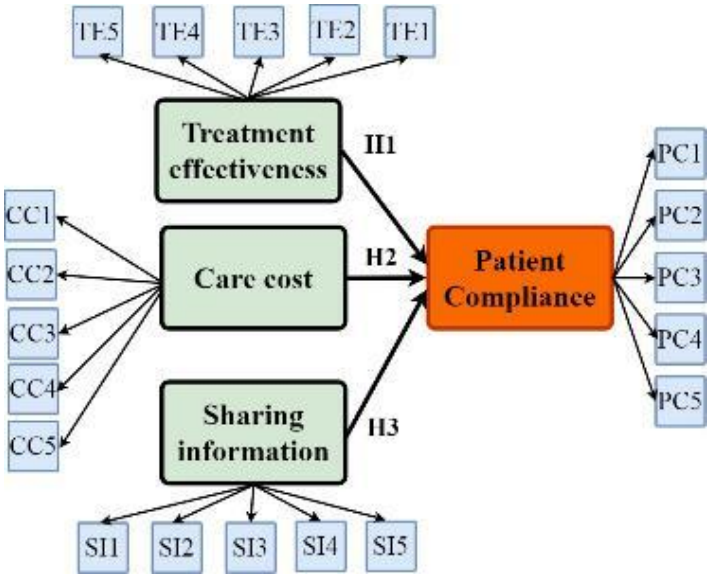

Figure 1 presents a conceptual framework comprising four constructs and twenty items. Three hypotheses (H1, H2, H3) will be tested to explore the relationships between three independent variables and a single dependent variable.

Research Methodology

Sampling Method and Sample Size

Data were collected using a random sampling method. The surveys were distributed across five hospitals in Damascus, the capital of Syria. A total of 604 questionnaires were completed and returned; however, 350 were excluded due to missing data or incomplete responses (Hair 1998). As a result, 254 questionnaires were selected for analysis.

Questionnaire and Measurement Instrument

All scales were measured using a 5-point Likert scale, ranging from "Strongly Disagree" (1 point) to "Strongly Agree" (5 points). The questionnaire was translated into Arabic to minimize language bias. The study questionnaire consisted of two sections: the first section gathered demographic information from the patients, including age, gender, marital status, occupation, and the number of visits. As a result: (male: 153, female: 101); marital status (single: 140, married: 114); age (20-30 group: 55, 31-40 group: 73, 41-50 group: 82, 51-60 group: 25, above 60 group: 19). The second part contains the instruments to measure the constructs. Patient compliance has five items which mainly adapted from Lin and Hsieh (2011). Care cost has five items that basically adapted from Marshall et. al (1993). Treatment effectiveness was basically adapted from Kim et al. (2017). The construct of information sharing and decision-making is shaped mainly by key dimensions that reflect facilitating patient comprehension of their health status and underlying conditions, elucidating the benefits and risks associated with diverse therapeutic options, providing essential knowledge and analytical tools for critically assessing available choices, actively engaging in attentive discourse to address patient concerns, and involving patients into the decision-making process to improve their understanding of the medical complexities related to their condition.

Statistical Analysis and Discussion

IBM SPSS Statistics (version 23.0) was used for descriptive analysis, while Smart PLS was employed to conduct Partial Least Squares Structural Equation Modelling (SEM). Factor loadings (FL), composite reliability (CR), and average variance extracted (AVE) were calculated

to assess both convergent and discriminant validity (Hair et al., 2017). The factor loadings for all items should exceed the recommended threshold of 0.70, while the Average Variance Extracted (AVE) scores for all constructs should exceed the critical value of 0.50. Cronbach's alpha for the constructs was calculated to ensure high internal consistency, with a critical value set at greater than 0.70. The results of the statistical analysis indicated that the factor loadings for the treatment effectiveness construct ranged from 0.765 to 0.886, for the care cost construct from 0.774 to 0.850, for the sharing information and decision-making construct from 0.789 to 0.848, and for the patient compliance construct from 0.755 to 0.869. The reliability of these four constructs was assessed through the calculation of Cronbach's alpha. The Cronbach's alpha values were 0.78 for care cost, 0.837 for patient compliance, 0.88 for sharing decision-making, and 0.839 for treatment effectiveness. Additionally, the Average Variance Extracted (AVE) for the independent variables (treatment effectiveness, care cost, sharing information and decision-making) and the dependent variable (patient compliance) were analysed. The AVE values were 0.658 for care cost, 0.646 for patient compliance, 0.672 for sharing information, and 0.701 for treatment effectiveness. All AVE scores exceeded the critical threshold of 0.5, confirming convergent validity. The results for discriminant validity are presented in Table 1.

Discriminant Validity of Model's Constructs					
		1	2	3	4
1	Care Cost	0.811			
2	Patient Compliance	0.608	0.815		
3	Sharing Information Decision Making	0.576	0.546	0.82	
4	Treatment Effectiveness	0.595	0.618	0.505	0.837

Table 1 presents the discriminant validity of the constructs, including care cost, patient compliance, sharing information, and treatment effectiveness.

After confirming the reliability and validity of the conceptual framework, the structural model was used to test the hypotheses. Figure 2 illustrates the path coefficients, factor loadings, and adjusted R-squared of the conceptual model. As a result, all three proposed hypotheses (H1, H2, and H3) were accepted.

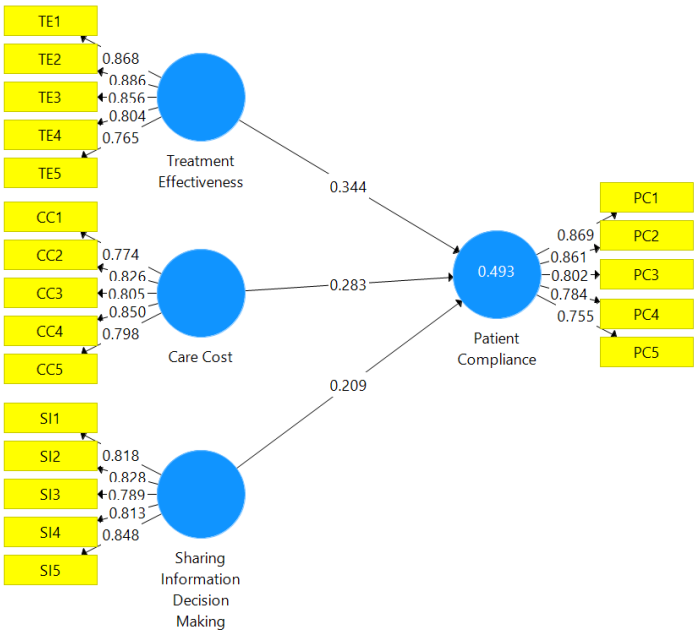

Figure 2 illustrates the use of Partial Least Squares Structural Equation Modelling (PLS-SEM) to estimate path models, outer loading values, and the adjusted R-squared for the dependent variable, patient compliance.

Conclusion

Improving Treatment Effectiveness to Foster Patient Compliance

As shown in Figure 2, treatment effectiveness has the strongest influence (β=0.344, P=0.000) on patient compliance, compared to care cost as well as shared information and decision-making. Our result is consistent with previous studies, as Pilman et al. (Pilman et al., 2004) demonstrated a significant positive direct effect between patient compliance to treatment process and patient satisfaction. Similarly, Mohamed and Azizan (2015) highlighted that improving compliance can directly enhance the overall quality of healthcare services and patient outcomes. In line with these findings, Nieuwlaat et al. (2014) highlighted that effective communication during medical treatment and a strong caregiver-patient relationship are key determinants in improving patient adherence to medication. Furthermore, Scotto et al. (2009) identified warm and empathetic communication by medical staff, particularly nurses at reception, as a crucial factor in determining patient satisfaction. The quality of the patient-doctor relationship is considered a crucial factor in interventions aimed at enhancing patient adherence (Alam et al., 2018). However, effective communication remains a challenge, as clinical language and medical terminology used by doctors are often not well understood by patients, leading to misunderstandings and the transmission of unclear or incorrect information (Ghosh, 2014). Establishing mutual cooperation between caregivers and patients plays a pivotal role in improving healthcare outcomes, fostering greater patient satisfaction, and reducing the risk of non-adherence behaviour (Walters-Salas, 2012). Additionally, complex treatment regimens further contribute to non-adherence. Some physicians inadvertently encourage non-adherence by overlooking patients' financial constraints, failing to adequately explain the benefits and potential adverse effects of medications, and prescribing overly complicated medical regimens (Brown & Bussell, 2011).

Reducing Care Costs to Promote Patient Adherence

In a competitive environment, the significant impact of cost on customer healthcare outcomes varies between developing and developed countries (Fornell, 1992). Our findings indicate that care cost has a significant positive effect on patient compliance (β= 0.283, P=0.000). The World Health Organization has highlighted the high proportions of healthcare spending paid out-of-pocket in most developing countries. In 2014, out-of-pocket expenditure as a percentage of total health expenditure was notably high in several Arab countries, including Egypt (58.0%), Iraq (36.5%), Jordan (23.5%), Lebanon (34.3%), and Syria (53.9%). Kennedy-Martin et al. (2017) examined the relationship between healthcare costs and adherence to diabetic medication, finding that non-adherence leads to higher healthcare costs. While several studies (Buysman et al., 2015; Cheng et al., 2013) indicated that healthcare costs were higher for adherent patients compared to non-adherent patients, Rose et al. (2004) suggested that care costs have a minimal impact on quality perception, particularly in private hospitals. The cost of healthcare is a critical determinant of patient compliance, as financial burdens, particularly during economic downturns, can hinder patients' ability to adhere to prescribed treatments. To optimize adherence and healthcare outcomes, it is imperative for providers to implement financially adaptive approaches, including pricing based on patients' financial capacity, while ensuring high-quality services to maintain patient satisfaction and loyalty (AlOmari et al., 2023a).

Optimising Information Sharing and Decision-Making to Support Patient Compliance

Although sharing information and decision-making had the least impact on patient compliance (β= 0.209, P=0.000) compared to treatment effectiveness and care cost, it still played a significant role in addressing patient non-adherence. In developing countries, doctors are typically considered the most essential players in the healthcare process (Chahal and Mehta, 2013). However, involving patients in the decision-making process, fostering empathetic interactions, and establishing clear, informative, and respectful communication can encourage patients to disclose relevant information, ultimately improving patient trust (Doyle et al., 2013).

Patients emphasized the importance of staying informed about their medical treatment and estimated waiting times, noting that this could be proactively managed through effective communication (Kilaru et al., 2016; Ranney & Peimer, 2016). In developing countries, doctors often fail to explain the rationale behind drug administration, potential side effects, and post-discharge health symptoms (Ghosh, 2014). Consequently, patient education is regarded as a fundamental element in improving adherence (Roumie et al., 2006). Some doctors argue that most patients lack the knowledge to assess the technical and clinical aspects of care, thus considering interpersonal quality less important. However, patients tend to evaluate the functional performance of healthcare providers based on medical professionals' behaviours and interpersonal communication (Eleuch, 2011). Another strategy to address this gap is the use of persuasion, which has proven effective in enhancing patient experiences is still rarely employed in practice (Levesque & Li, 2017).

Limitation and Future Work

Patient involvement in service quality, particularly through behavioural compliance, is intrinsic to healthcare, as adherence to medical guidance and satisfaction with prescriptions or advice directly influence treatment compliance. Patient retention, a key marketing metric,

is directly linked to patient satisfaction and conflict resolution (Mahmoud et al., 2018), as well as switching costs and reputation (Milan et al., 2015), while patient satisfaction remains a crucial indicator of healthcare quality and organizational success (Leisen Pollack, 2008). Therefore, the variables investigated in this study and their effects on patient adherence should be further examined in future research to determine their influence on patient satisfaction and loyalty. Additionally, this study's conceptual model, which incorporates treatment effectiveness, care costs, and information sharing, explains 49.30% of patient compliance statistically. Therefore, other significant factors influencing patient compliance should be considered in future investigations.

Implications and Recommendations

Key dimensions such as tangibility, empathy, assurance, responsiveness, and reliability play a crucial role in shaping patient perceptions and fostering positive impressions of healthcare services, thereby enhancing the overall patient experience and ensuring high quality care delivery (AlOmari et al., 2022; Gaur et al., 2011; Hu et al., 2011).This study advocates for the adoption of a patient-centered care philosophy, emphasizing active patient involvement in decision-making. Policymakers and healthcare providers can utilize our model to assess, analyse, and improve patient compliance. It offers new insights into overcoming patient non-compliance by enhancing treatment effectiveness, reducing care costs, and fostering information sharing and collaborative decision-making. In developing countries, doctors play a central role in treatment decisions, often without consulting patients or seeking their feedback (AlOmari et al., 2023b). However, Authoritarian and unsympathetic behaviour from medical practitioners is increasingly outdated in today's patient-driven healthcare environment. Therefore, hospital administrators and healthcare providers should embrace patient-centered approaches to strengthen relationships with patients and improve healthcare outcomes(Owusu-Frimpong et al., 2010). Such behaviour can significantly harm patients by fostering an atmosphere of mistrust throughout the diagnostic and treatment processes.

In contrast to research trends in developed countries, studies in developing nations often overlook the importance of shared decision-making when evaluating healthcare outcomes. Instead, the focus tends to be on measuring overall service quality, amenities, technical aspects of care, patient satisfaction, and the professionalism of doctors and nurses. This study aims to illuminate the impact of information sharing and shared decision-making on patient compliance with medical treatment. Engaging in discussions about treatment options and preferences with healthcare professionals allows patients to better understand their alternatives and fosters a sense of confidence that they have made the most informed and appropriate choice. Central to this decision-making process is the availability of comprehensive information, whether medical, administrative, or financial. Various tools, such as interactive websites, patient education leaflets, DVDs, and informational brochures, are available to assist patients throughout their treatment journey. Our study provides strong evidence that healthcare professionals must allocate sufficient resources and time for patients to evaluate their treatment options, empowering them to make informed, preference-based decisions.

The ongoing economic downturn, instability in Syria, and the rising cost of medications have led many patients to seek lower-cost alternatives, often at the expense of treatment

effectiveness. This highlights broader concerns about healthcare costs, shaped by medical advancements, insurance complexities, and policy interventions. Examining drug pricing regulations, treatment cost-effectiveness, and healthcare accessibility is fundamental for balancing affordability with quality. In this context, medical insurance becomes vital in alleviating the financial burden of healthcare costs, particularly in developing countries. Government-supported insurance programs, including subsidies for low- and middle-income individuals and the establishment of health insurance marketplaces, offer a sustainable solution by ensuring broad coverage across various societal groups, improving access to care, and ultimately enhancing overall health outcomes. Therefore, given these significant complexities, attention should be directed towards optimizing pricing models, addressing disparities, continuously evaluating healthcare policies, and fostering the integration of medical equipment, especially in Damascus, where resource allocation and infrastructure play a crucial role.

Disclosure Statement: The authors declare that no potential conflicts of interest exist. They received no financial support for this research or for the publication of this article.

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