



Patient Role Clarity and Perceived Healthcare Quality Value: The Mediating effect of Patient Participation Behaviors

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ARTICLE INFO	ABSTRACT
Published Online: 24 August 2026	Purpose – Patient perceived quality value has become a critical concern. The purpose of this study is to develop and test an integrative model that examines the direct and indirect effects of patient role clarity on perceived healthcare quality value, mediated by the four dimensions of patient participation behaviors. Design/methodology /approach – A conceptual model, based on the role theory and service-dominant (S-D) logic, is proposed. The customer role clarity, perceived quality value and patient participation behaviors, including information seeking, information sharing, responsible behaviors, and personal interaction. All variables are measured from the patient's perspective. A structural equation model is developed and tested on a purposive sample of 500 patients who had used the healthcare services in private hospitals in Khartoum state. Findings – The results reveal that patient role clarity positively influences both perceived quality value and all four dimensions of participation behavior. Among these behaviors, information seeking, responsible behavior, and personal interaction enhance perceived quality value, while information sharing shows no significant effect. Moreover, responsible behavior and personal interaction emerge as significant mediators between role clarity and perceived quality value, whereas information-related behaviors do not. Research limitations–This study is limited to private hospitals in Khartoum, Sudan, with data collected through convenience sampling, which restricts generalizability. Future research should explore other regions, service sectors, and customer role constructs, employ probability sampling, and examine broader dimensions of participation and value perceptions. Practical implications –This study offers practical value by showing that hospitals can enhance patients' perceptions of healthcare quality by clarifying patient roles and actively fostering responsible behaviors and personal interactions, thereby improving both treatment outcomes and service experiences. Originality/value –This study uniquely integrates patient role clarity, participation behaviors, and perceived healthcare quality value, highlighting responsible behavior and personal interaction as key mediators and extending role theory and service-dominant logic to a developing-country healthcare context.
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KEYWORDS: Patient role clarity, value co-creation behavior, customer participation behavior, and perceived quality value.	

1. INTRODUCTION

The healthcare sector is one of the most important sectors that contributes to human development, economic growth, and social stability. However, in developing countries such as Sudan, the sector suffers from many challenges, including

limited resources, political instability, and institutional inefficiencies. Following the secession of South Sudan in 2011, Sudan has faced worsening economic conditions, a fragile political environment, and deteriorating healthcare infrastructure, leaving hospitals underfunded and

overstretched. Recent reports confirm that the ongoing conflict has further devastated Sudan's health system, causing widespread service disruptions, supply shortages, and excess patient demand[1]. As a result, patients often experience long waiting times, shortages of qualified personnel, and increased risk of medical errors. Consequently, many patients seek services in the private sector, which now accounts for more than half of all health facilities in Sudan and plays a vital role in providing specialized services, training, and improved facilities, despite challenges of cost and accessibility[1, 2]

In such a fragile healthcare context, patients' perceived healthcare quality value has become a critical concern. Service marketing literature emphasizes that value is not produced solely by providers but co-created through continuous interaction between service providers and customers [3]. Recent research reinforces this service-dominant (S-D) logic in healthcare, showing that value emerges through active participation and relational exchanges during the care process. Furthermore, recent studies confirm that effective communication and relational processes such as empathy, trust, and responsiveness are central to enhancing patients' perceptions of service value and quality[4]

Role theory provides a strong foundation for explaining how patients contribute to value co-creation. Patients who clearly understand their responsibilities, rights, and expected behaviors are more likely to actively engage in healthcare processes, comply with treatment protocols, and perceive higher value from their care. Recent findings confirm that role clarity improves trust, adherence, and value perceptions in both traditional hospital care and digital health contexts [5]. Similarly, research in telemedicine highlights that patients who are informed about their roles and responsibilities show greater acceptance and perceive higher quality of care .

Within this framework, patient participation behavior is conceptualized as a multidimensional construct that includes information seeking, information sharing, responsible behavior, and personal interaction [6]. While earlier studies often treated participation as a unidimensional concept, recent scholarship stresses the need to identify which dimensions most strongly influence value outcomes in healthcare. Emerging evidence also indicates that patient self-efficacy and digital health capabilities shape participation and subsequent value creation [7]. Accordingly, this study develops and tests an integrative model that examines the direct and indirect effects of patient role clarity on perceived healthcare quality value, mediated by the four dimensions of patient participation behaviors. This study contributes to service marketing literature by extending role theory and service-dominant logic into the Sudanese healthcare context, where empirical studies remain scarce. By focusing on a fragile health system with unique resource and institutional

challenges, this research not only broadens the applicability of value co-creation theory but also provides practical insights for improving healthcare service delivery in developing countries.

2. LITERATURE REVIEW

In the healthcare service context, this study delves into the relationship between patients' understanding of their roles, helping them engage in behavior and perceive the value of healthcare quality. Basically, the main question the study focuses on is how patients' knowledge of the expected roles helps boost their participation behaviors such as information seeking, information sharing, responsible behavior, and personal interaction, which, in turn, will lead to building the perception of healthcare quality. Further, the study looks into the mediating role of patient participation behaviors in the case of patient role clarity and the object that is perceived in quality- healthcare value.

This study integrates role theory and Service-Dominant Logic (SDL) within the conceptual framework to clarify how value arises in health interactions among patients as customers and health care providers. Past studies in marketing and healthcare service management have increasingly held that customers, which include patients, are not just passive recipients of services but are part of the active participation during value creation processes. However, even though the interest in healthcare to engage patients has grown considerably, very few empirical pieces address how role clarity forms patient engagement behaviors and result in influencing the perceived quality of patient care. The present one proposes to bridge this gap, through a synthesis of pertinent theoretical perspectives and empirical findings, to forward the conceptual framework presented in Figure 1.

2.1 Patient Role Clarity (CRC)

The operation associated with modern services has shifted users from mere recipients into active performers in service processes. Such transformation is ideally explained by Role Theory, which proposes that service interactions can only be properly appraised as form-based social exchanges, with each party playing specific roles along with expected behaviors [8, 9]. According to this perspective, the role taken up by the customer is that of facilitating service delivery and creating value. Role clarity implies a clear understanding of the responsibilities under which the involved individuals are expected to function, the exchange of roles, and modes of interaction with the producer. Clear understandings of roles allow customers to take appropriate actions in service encounters that further value.

Despite calls to broaden our understanding, the foundational knowledge about such social-skills representations persist with our underdevelopment. Available literature equates this with role conflict, which describes contradictory expectations that consumers are forced to face, and role ambiguity, which

arises when expectations are not easy to discern [10]. Both conditions restrict customer behaviors and do not allow a true customer-dominant value co-creation.

There is a consensus in the existing research regarding the significance of role clarity in determining consumer participation. For instance, [11] proposed that role clarity enhances consumer readiness to participate in service production processes, whereas Yoo and Lee [12] identified role clarity as one of the most influential dimensions of customer role perceptions that affects participation behaviors. Song, et al. [13] also found that consumers who clearly understand their roles are more likely to contribute actively to service delivery. Several latest healthcare studies have provided even more evidence for the connection, such as role clarity having a positive impact on patient adherence, and participation in medical decision-making, as established in Wang, et al. [14].

In the field of digital healthcare, coaching of patients on their roles can enhance trust and participation in telemedicine services as demonstrated by Martin [15]. Similarly, Collin [16] pointed out that improving role clarity could have the beneficial impact of reducing uncertainty while enhancing patient constructive participation in healthcare service recovery situations. Nonetheless, the role of patient role clarity toward shaping value co-creation behaviors within hospital environments remains largely unreviewed. Hence this research seeks to investigate patient role clarity as a potent predictor for patient participation behaviors and the perceived value of healthcare quality.

2.2 Perceived Quality Value

Customer value has been long understood as a central notion in marketing and service research. Following this line of reasoning, value originates from the interaction between a customer and service provider during a service experience, rather than value being embedded exclusively in the service offer [17]. In this framework, I am accustomed to referring to service-dominant logic, which perceives value as co-created in the interaction between firms and clients. The concept of value articulated by Ma, et al. [18] posits an experience that is heavily interactive in its very emergence. Indeed, a thing's value gets developed from the customer interaction with them. Thus, value gets measured from a customer interaction perspective. Subsequent studies discovered multiple dimensions of value, including functional, emotional, social, and epistemic [19]. Among these, functional value, especially the quality of the product or service, has consistently been ranked the most important determinant of the customer evaluation of the service providing firm. Perceived quality value, in healthcare settings, is grounded on the patients' judgments concerning the professional competence of health providers, the usefulness of information provided, the consistency in service-delivery, and the overall quality of healthcare in comparison to alternatives [20]. For healthcare

settings evaluate the cognitive and emotional assessments with regard to different factors in healthcare assessments, thus making the judgment very complicated apart from pure transactional services.

Empirical research has confirmed time and time again that perceived quality value is of essence in healthcare settings. For instance, Ha, et al. [21] discovers how quality of services affects patient satisfaction, customer perceived value, and hospital loyalty in private hospitalization. Similarly, Liu, et al. [22] use their large-scale study in three stages to define and develop a general scale for perceived value of patients during their outpatient encounters. They identifying staff professionalism and information clarity as key determinants of perceived value.

Recent research adds more weight to the above points. Liu, et al. [23] has developed a strong positive link between the healthcare service quality and patient-perceived value in a private hospital, whose analysis has further been corroborated in the study of Kamara and Bangura [24] in which the indirect benefits of administrative efficiency enhanced customer loyalty by increasing their outlook towards the quality of service. However, these researches accentuate the importance of service quality on crafting perceived value, with a particular focus upon an organization service attribute-like service quality, opaque patient perception rather than behaviors. This also generates interest into an area that remains largely understudied, particularly in a hospital setting, which is the role of patient behavior in influencing perceived healthcare quality value.

2.2 Patient Role Clarity and Perceived Quality Value

Role theory implies that individuals are likely to perform better when their roles and expectations are unambiguous. It is evident from the initial research on role clarity that investigation has been focused on employees: early relevant studies include the ones by Akhtar, et al. [25]. However, current research points to the extension of the concept to customers in service delivery processes. In health care settings, patient role clarity refers to a patient's understanding of his/her responsibilities in the treatment phase- providing a history of the disease, adhering to treatment regimens, and participating actively with healthcare providers. Understanding the roles expected of these patients optimizes patients' interactions in the delivery field. Consequently, they increase service performance outcomes and service quality perceptions.

Citing this argument, empirical evidence was procured. The findings demonstrated by [26] reflect the role clarity of a patient being parallel in treating compliance and valuation. Furthermore, also Rizky and Bernarto [27] showed influence over trust and perceived value on the digital healthcare platforms. Encircling this study, Cline, et al. [28] confirmed role clarity has a direct effect through a more accommodating process of patient-physician interactions

arising out of failed healthcare services on improving the perceived service quality of patients. These results, then, imply role clarity shapes the buying behavior of patients with regard to healthcare services. It presents the value of role clarity in effectively reducing uncertainty and marks a cooperative effort to lift up the service quality perceptions among all stakeholders in healthcare delivery. Therefore, the following hypothesis is proposed:

Hypothesis H1: *Patient role clarity has a positive effect on perceived healthcare quality value.*

2.4 Patient Participation Behaviors

There's a radical shift in the theoretical perspective by service research from what might be now termed a "customer vs. service provider" framework to an entirely different emphasis on "customer and service provider" ambience or engagement: seeing and acknowledging how operations flow between service, or value 'created Hermeneutically' within several interactions. This change has brought into light customer participation with respect to the role of non-market actors and the co-creation of value from an extended perspective [29]. Customer Participation Behavior- References to the behaviors committed by customers to deliver an operation, which includes tasks, i.e., accurate information providing, following instructions, courteous acts, etc. These stand in contrast to citizenship behaviors, such as discretionary acts representing a voluntary contribution beyond what is asked by the chief function, and they should not be included here due to their arbitrary nature.

In health care settings, patient participation becomes an imperative of utmost import because medical services are so complex and the inter-connection between patients and health care providers is intense. Patients provide important information relevant to medical history and the presenting symptomatology, follow their treatment plan, and collaborate with healthcare service providers during the diagnostic procedure.

Building on the framework developed by Yi and Gong (2008, 2013) patient participation behaviors could be delimited as having many dimensions:

information seeking

Information sharing

Responsible behavior

Personal interaction

These dimensions capture the cognitive, behavioral, and relational aspects of patient participation in healthcare services. The significance of patient participation behaviors is reiterated by recent studies following the work of Tang, Zhao, and Xie, in 2025, where they identified patient self-efficacy and its significant roles in predicting patient involvement in information searching and collaborative communication. Similar findings were observed by Lu, et al. [30] as well, that is, the behaviors of doctor-patient interaction

are instrumental in heightening patient participation and patient satisfaction. Summing it all up, it can be seen that these research convey the importance of patient participation behaviors in contributing to the outcome of health service and the perception of value, respectively.

2.5 Patient Role Clarity and Patient Participation Behaviors

Service processes depend heavily on an individual's role understanding [31]. The more apparent it is to a customer what is expected of the customer, the more likely the customer is to promote service delivery through customer participation. This relationship has received a great deal of support in several analyses. Jain and Perez [32] pointed out that role clarity has a strong effect on customer participation in a service setting. Yang, et al. [33] also found that clarity in expected roles significantly enhanced customer engagement in value co-creation activity. In health care settings, role perception matters in doing so, notably the role clarity of customers, and thus the role will significantly affect whether a customer chooses to participate. In contrast, when patients face role ambiguity, it could suffer from developing the abilities required to actively participate in the service [34]. According to the results, patient role clarity seems to have a major impact on involvement in participation in health care services. Therefore, the following hypothesis is proposed

Hypothesis 2: *Patient role clarity has a positive effect on patient participation behaviors, including (a) information seeking, (b) information sharing, (c) responsible behavior, and (d) personal interaction.*

2.6 Patient Participation Behaviors and Perceived Quality Value

Value emerges only via interactive processes which co-create value between consumers and service organizations [35]. In this sense, customer participation is the crucial mechanism for value creation. Earlier works supported the assumption that customer participation positively affects perceived quality and overall value of services. van Triest [36] argued that a higher level of participation from the customer can enhance the perceived service quality in service delivery encounters. Similarly, [37] illustrates a positive relationship between customer participation and service recovery results. In healthcare, Yoo, et al. [38] supported the claim that patient participation significantly affects patient perceived health service quality. Moreover, Kim [39] is one of the studies argued that participation in health services processes increases experiential value and patient well-being. These studies collectively suggest that patient participation behaviors play a crucial role in shaping perceived healthcare quality value. Therefore, the following hypothesis is proposed:

Hypothesis 3: Patient participation behaviors-(a) information seeking, (b) information sharing, (c) responsible behaviors, and (d) personal interaction have a positive effect on perceived quality value.

2.7 The Mediating Role of Patient Participation Behaviors

Customer participation is increasingly becoming an essential mediating variable in the study of services. Customers' contribution of resources and knowledge during service provision will trigger the value-co-creation process [40]. Empirical studies with stable evidence supporting participation as a mediator include those carried out by Zhou, et al. [41] which established that customer participation mediates the relationship between customer education and service innovation and satisfaction. Similarly, Gao, et al. [42] observed that service innovation capabilities mediate the effect on service quality through set customer participation. The position of this study in the service literature is supported by other studies. For example, Abbas, et al. [43] have shown that customer engagement mediates the relationship between CSR (corporate social responsibility) and customer loyalty in banking services.

Healthcare situations were found by Atakro, et al. [44] to foster the participation of patients through the trust of

healthcare providers leading to profit in relational value and satisfaction. These findings imply that the participation in patients is a vital mediating mechanism between antecedent variables and value outcomes. This study postulates that patient participation behavior is a mediating mechanism through which patients' role clarity impacts perceived healthcare quality value. Hence, the following hypotheses are proposed:

Hypothesis 4: Patient participation behaviors (a) information seeking, (b) information sharing, (c) responsible behaviors, and (d) personal interaction mediate the relationship between patient role clarity and perceived quality value.

3. THEORETICAL FRAMEWORK

Based on the above hypotheses, we adopt a path-analysis approach to develop a theoretical framework for this study. In this framework (Figure 1), customer role clarity is hypothesized as an antecedent to both perceived quality value and customer participation behaviors. It is also assumed that customer participation behaviors influence perceived experience quality value.

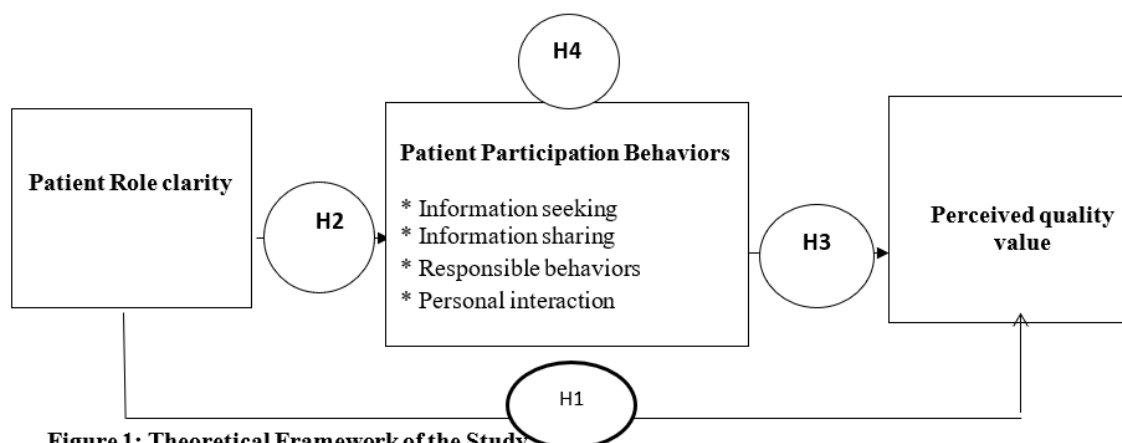


Figure 1: Theoretical Framework of the Study

4. RESEARCH METHODOLOGY

4.1 Data collection and Sampling procedure:

The quantitative method was applied through the distribution of a structured self-administered questionnaire to 600 patients who had used the healthcare services in private hospitals in Khartoum state. Healthcare is an especially rich area to evaluate service marketing topics because of the depth and variety of service experiences. Hospitals have been selected as a proper service setting for four reasons. **First**, hospital settings are classified from the professional services that are characterized by great credence, high interaction and customization, and great interdependence between customers and service providers compared to other contexts such as retailers, fast-food restaurants, etc. **Second**, hospitals are professional services that are characterized by intense

interactions between customers. Customers may also help each other to accomplish their service goals and outcomes [45]. Also, they contain high levels of contact between (service provider-customer), which facilitates investigating the value co-creation process. **Third**, value co-creation behaviors such as customer participation are more prominent in hospital settings where the patient is required to provide adequate information to the doctor about his/her physical condition to accurately diagnose his/her condition, in addition to complying with the rules and orders issued by the doctor, etc. **Finally**, the hospital sector is rarely used in service research as a representative context to study customer role clarity on customer participation and perceived quality value. The paper employed the non-probability sampling method due to the unavailability of a patient database in the hospitals.

According to Vehovar, et al. [46] researchers are advised to use non-probability sampling techniques when they are unable to construct a sampling frame for their studies. Within this method, the judgment sampling technique was used as the paper selected the respondents based on the criterion that they had previously visited the hospital to ensure that patients had some interaction experiences with the staff and the other patients. This technique occurs when a researcher selects sample members to conform to some criterion [47]. Thus, participants were asked not to fill out the questionnaire unless they had at least one experience in that hospital.

A total of 503 qualified respondents completed the survey. A further check revealed that 3 surveys had more than 25% of the items unanswered, resulting in an effective sample of 500 usable completed questionnaires. This figure is considered reasonable for statistical analysis that uses SEM, as earlier scholars have indicated [48]. Ahmad and Halim [49] also suggested a minimum size of 200 participants and a typical range of 300 to 500 respondents as the appropriate sample size for marketing studies.

4.2 Measurement of Variables

All the variables were measured based on an expanded review of relevant literature and have generally met standard criteria for reliability and validity. Role clarity was measured using the Dellande, et al. [50] scale, which consists of four items. On the other hand, customer participation behaviors were assessed in this study based on four dimensions, which include: information seeking (3 items), information sharing (3 items), responsible behavior (4 items), and personal interaction (3 items), adapted [51]. Perceived quality value was conceptualized and measured by Carlos Fandos Roig, et al. [52], which consists of four items that assess staff competence, the usefulness of information, the consistency of quality over time, and the relative quality of services

compared to other hospitals. The questionnaire items were selected in English and then translated into Arabic by two academics who were fluent in both languages. Subsequently, they were back translated to English using back-to-back translation to ensure language compatibility [53]. Before the main survey, a pre-test was conducted with fifty participants, and some small modifications were made to the language to improve the clarity of the statements. All the measurement questions (items) were based on a five-point Likert Scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree).

5. FINDINGS

5.1 Sample Characteristics

The sample profile revealed a higher number of female respondents (268) compared to male respondents (232), resulting in a ratio of 53.6% to 46.4%, respectively. In terms of age distribution, 7.4% of respondents were under 20 years old, 38.6% were aged 20–30, 28% were aged 31–40, 18.4% were aged 41–50, 5.6% were aged 51–60, and 2% were over 60. Regarding marital status, 33.9% were single, 55.9% were married, and 10% were widowed or divorced. Most respondents were tertiary educated, with 4.8% uneducated, 55.5% holding a university diploma, 17.8% having completed secondary school, and 21.6% holding a bachelor's degree. In terms of occupation, 46.4% of respondents were employed. Regarding medical service payments, 45.2% of patients relied on private payments, 39.8% were sponsored by companies, and 12% were covered by insurance. Additionally, 41.2% of respondents reported that they visited the hospital more than once. Finally, 77.2% of respondents indicated they had visited multiple hospitals, while 22.8% reported otherwise. This diversity in the sample indicates its suitability for statistical causal tests based on variation theory.

Table 1: Profile of Respondents (N =500 cases)

Demographic Profile	Number of Respondents	Valid Percent (%)
Gender		
Male	232	46.4
Female	268	53.6
Age		
Less than 20 years	37	7.4
20 – 30	193	38.6
31 – 40	140	28.0
41 – 50	92	18.4
51 – 60	28	5.6
60 and above	10	2.0
Marital Status		
Single	169	33.9
Married	279	55.9
Widowed /divorced	50	10.0

Educational Level		
Uneducated	24	4.8
School Level	89	17.8
Diploma	276	55.2
Bachelor	108	21.6
Postgraduate	3	.6
Occupation		
Student	87	17.6
Employed	232	46.9
Unemployed	60	12.1
Retired	73	14.7
Housewife	43	8.7
Medical Service payment/ sponsor		
Private/ Family	226	45.2
Company	199	39.8
Insurance	60	12.0
Other	15	3.0
Frequency of hospital visits a year		
Only one time	226	45.2
2 to 3 times	199	39.8
4 to 5 times	60	12.0
More than 5 times	15	3.0
Several hospitals		
Yes	386	77.2
No	114	22.8
Number of hospitals that you deal with		
2	118	23.6
3	206	41.2
4	79	15.8
More than 4	97	19.4

5.2 Data analysis and survey results

Structural equation modeling [54] is used to test the hypotheses arising from the theoretical model. To perform the SEM analysis, the two-stage approach (measurement model and structure model) recommended by [55] was adopted.

5.2.1 Measurement model

To ensure the robustness of the measurement model, several reliability and validity tests were conducted. First, reliability was assessed through the factor loadings of individual items. As shown in Table 2, the factor loadings of all items across the six constructs were statistically significant, indicating satisfactory measurement quality. Second, Cronbach's alpha was examined as an additional measure of reliability. A coefficient of 0.7 or higher is considered acceptable [56], while values between 0.7 and 0.8 indicate good reliability [57]. In this study, all constructs exceeded 0.7, confirming strong internal consistency.

Third, the validity of the measurement model was evaluated. Discriminant validity was tested using Voorhees, et al. [58] average variance extracted (AVE) criterion. Specifically, the square root of each construct's AVE must exceed its correlations with other constructs. For instance, the square roots of the AVEs for information seeking (0.739) and information sharing (0.747) are both higher than their correlation (0.314), as reported in Tables 1 and 2, thereby supporting discriminant validity. This condition was satisfied for all constructs.

Finally, convergent validity was confirmed since the AVEs of all constructs were above the recommended threshold of 0.5 [59], as shown in Table 2.

Overall, the findings demonstrate that the constructs exhibit acceptable reliability, convergent validity, and discriminant validity, thereby confirming the adequacy of the measurement model.

Table 2: Measurement properties of scales

ITEMS	Factor loading	CR	AVE	$\sqrt{AVE}$
Customer Role clarity				
I feel certain about how much authority I have for using hospital services.	.759			
I know what my responsibilities are for using hospital services.	.616			
When I am at the hospital, explanations of what has to be done are clear.	.821			
I am asked to perform activities that I clearly understand at the hospital.	.809	0.822	0.546	.739
Information seeking				
I have asked others for information on what this hospital offers.	.646			
I have searched for information on where this hospital is located.	.625			
I have searched for information on how to use this hospital.	.608	0.835	0.558	.747
Information Sharing				
I gave the service provider proper information.	.775			
I provided the necessary information so that the service provider could perform his or her duties	.772			
I answered all the service provider’s service-related questions.	.66	0.859	0.607	.779
Responsible behavior				
I performed the tasks that were required	.656			
I adequately completed the expected behaviors.	.711			
I fulfilled the responsibilities that were required at the hospital.	.690			
I followed the service provider’s directives or orders.	.677	0.886	0.721	.849
Personal Interaction				
I was kind to the service provider.	.723			
I was polite to the service provider.	.885			
I was courteous to the service provider.	.765	0.895	0.740	.860
Quality Value				
The staff knows their job well.	.676			
The information provided by the staff has been very valuable to me.	.742			
The quality has been maintained all of the time in this hospital.	.666			
The level of quality is acceptable in comparison with other hospitals.	.610	0.752	0.503	.709

Note: CR=Composite Reliability, AVE=Average Variance Explain

Table 3 presents the descriptive statistics and Pearson correlation coefficients for the study variables. Mean scores range from 1.41 to 2.23 on a five-point Likert scale (1 = strongly agree, 5 = strongly disagree), indicating generally high agreement across all variables. The highest agreement was for Responsible Behavior (M = 1.41, SD = 0.55), followed closely by Personal Interaction (M = 1.53, SD = 0.60) and Customer Role Clarity (M = 1.63, SD = 0.60). The

lowest agreement was for Information Seeking (M = 2.23, SD = 0.80). All correlations are positive, with the strongest relationship observed between Personal Interaction and Responsible Behavior ($r = .388$), followed by Customer Role Clarity and Quality Value ($r = .364$). Given the reversed scale, the low mean values reflect favorable customer perceptions, suggesting that respondents tend to agree with the positive statements measured by these variables.

Table No. 3: Descriptive Statistics and Correlation Matrix for Study Variables (N = 500)

Variables	Mean	SD	1	2	3	4	5	6
1.Customer Role clarity	1.63	.601	1					
2.Information seeking	2.23	.804	.158	1				
3.Information Sharing	1.63	.656	.173	.317	1			
4.Responsible behavior	1.41	.553	.276	.135	.362	1		
5.Personal Interaction	1.53	.598	.237	.099	.256	.388	1	
6.Quality Value	2.05	.779	.364	.205	.193	.228	.200	1

Note. Standard Deviation. Pearson correlation coefficients are presented below the diagonal.

5.2.2 Structure Model and Hypotheses Testing

The structural model was estimated using CB-SEM. Fit measures relating to absolute fit, incremental fit, and parsimonious fit were calculated to evaluate the goodness-of-fit criteria for the model. The structural model yielded satisfactory fit indices: Chi-square/df = 2.1623; GFI = 0.922; NFI = .955; TLI = 0.965; RMSEA = 0.047.

The results of the structural model are summarized in Table 4. The analysis revealed that customer role clarity had a significant positive effect on quality value (H1: $\beta = 0.472$, $p < 0.001$), supporting the hypothesized relationship. In addition, customer role clarity significantly influenced information seeking (H2a: $\beta = 0.212$, $p < 0.001$), information sharing (H2b: $\beta = 0.235$, $p < 0.001$), responsible behavior

(H2c: $\beta = 0.254$, $p < 0.001$), and personal interaction (H2d: $\beta = 0.189$, $p < 0.001$), thereby supporting all four hypotheses related to customer role clarity.

Regarding the impact of customer participation behaviors on perceived quality value, the results showed that information seeking had a significant positive effect (H3a: $\beta = 0.150$, $p < 0.001$). However, information sharing did not demonstrate a significant effect on perceived quality value (H3b: $\beta = 0.076$, $p = 0.185$), and thus this hypothesis was not supported. In contrast, both responsible behavior (H3c: $\beta = 0.197$, $p = 0.004$) and personal interaction (H3d: $\beta = 0.148$, $p = 0.014$) exerted significant positive effects on perceived quality value.

Table 4. The results of the structural model.

Hypotheses	Estimate	S.E.	C.R.	P-value	Result
H1: Customer role clarity → Quality Value	.472	.054	8.719	***	Supported
H2a: Customer role clarity → Information seeking	.212	.059	3.586	***	Supported
H2b: Customer role clarity → Information sharing	.235	.043	5.439	***	Supported
H2c: Customer role clarity → Responsible behavior	.254	.040	6.426	***	Supported
H2d: Customer role clarity → Personal interaction	.189	.048	3.921	***	Supported
H3a: Information seeking → Quality Value	.150	.043	3.460	***	Supported
H3b: Information sharing → Quality Value	.076	.057	1.325	.185	Not support
H3c: Responsible behavior → Quality Value	.197	.068	2.900	.004	Supported
H3d: Personal interaction → Quality Value	.148	.061	2.448	.014	Supported

The mediating effects of customer participation behaviors were examined and are presented in Table 5. The analysis shows that the indirect effect of information seeking on the relationship between customer role clarity and quality value was not significant (H4a: $\beta = -0.071$, 95% CI [-0.565, 0.034], $p = 0.441$). Similarly, information sharing did not mediate the relationship (H4b: $\beta = -0.042$, 95% CI [-0.271, 0.011], $p = 0.275$). In contrast, responsible behavior was found to be a significant mediator between customer role clarity and perceived quality value (H4c: $\beta = -0.383$, 95% CI [-1.225, -

0.111], $p = 0.005$). Likewise, personal interaction significantly mediated this relationship (H4d: $\beta = -0.180$, 95% CI [-0.612, -0.027], $p = 0.027$).

Overall, the findings indicate that while information-related behaviors (seeking and sharing) did not mediate the link between customer role clarity and perceived quality value, responsible behavior and personal interaction served as significant mediating mechanisms, highlighting their critical role in value co-creation processes.

Table 5: The analysis of indirect effects (Mediating Effects)

Hypotheses	Direct	Indirect	Confidence Interval		P-value	Result
			Lower	Upper		
H4a: Customer role clarity → Information seeking → Quality Value	1.410 (***)	-.071	-.565	.034	.441	Not supported
H4b: Customer role clarity → Information sharing → Quality Value	1.396 (***)	-.042	-.271	.011	.275	Not supported
H4c: Customer role clarity → Responsible behavior → Quality Value	1.618 (***)	-.383	-1.225	-.111	.005	Supported
H4d: Customer role clarity → Personal interaction → Quality Value	1.456 (***)	-.180	-.612	-.027	.027	Supported

6. DISCUSSION

This study set out to examine the relationship between patient role clarity and perceived healthcare quality value, highlighting the mediating role of patient participation behaviors. Guided by role theory and service-dominant logic, the research positioned patients as active co-creators of value whose engagement is influenced by their understanding of expected roles. The findings contribute to services and healthcare marketing literature by demonstrating that role clarity is a critical driver of participation behaviors, which in turn enhance patients' perceptions of service quality and overall value.

The empirical results indicate that patient role clarity has a positive effect on perceived healthcare quality value. This finding is consistent with role theory, which posits that individuals perform more effectively when they clearly understand the expectations, rights, and responsibilities associated with their roles [60]. It also aligns with service-dominant logic, which views value as co-created through the integration of resources between providers and customers [61]. When applied to healthcare, role theory suggests that patients who are given clear guidance about their responsibilities, authority, and expected behaviors are better equipped to participate effectively in the service process, thereby enhancing their perceptions of service quality. Recent studies have echoed this point, showing that greater role clarity leads to stronger adherence, higher trust, and more favorable value perceptions in both traditional and digital health contexts [62, 63]. Taken together, these results suggest that when patients have a clear understanding of their roles, encompassing responsibilities, authority, expected actions, and the explanations provided by healthcare staff, they are more likely to perceive hospital personnel as competent, recognize the value of staff contributions, and evaluate service quality as consistently maintained and comparable to that of other hospitals.

The results demonstrate that patient role clarity positively influences all four dimensions of participation behavior; information seeking, information sharing, responsible behavior, and personal interaction, each of which plays a critical role in co-creating healthcare value. These results supported past studies as customer role clarity is seen as an impetus for the customer to participate [3, 64, 65]. Drawing on role theory, when patients clearly understand their responsibilities, boundaries, and expectations, they are better positioned to enact these behaviors effectively, thereby reducing ambiguity and enhancing engagement [66].

Role clarity encourages patients to actively seek information about their treatment, responsibilities, and available resources. When patients understand that part of their role involves being informed, they are more likely to ask questions, observe processes, and pursue relevant knowledge before and during care encounters. Recent evidence supports

this view: Rimal [67] found that patients with higher self-efficacy and clearer role understanding were significantly more proactive in searching for health information, which improved adherence and value perceptions.

It also prompts patients to share accurate and relevant information such as symptoms, medical histories, and lifestyle factors that is essential for effective diagnosis and treatment. According to role theory, individuals are more forthcoming when they recognize that information provision is an explicit responsibility within their role. In line with this, Preaux, et al. [68] showed that clarity about patient responsibilities in telemedicine contexts improves the accuracy and transparency of information sharing, which in turn enhances trust and perceived service value.

In addition, patients with role clarity are more likely to display responsible behaviors such as following medical instructions, cooperating with staff, and adhering to institutional policies. Ciasullo, et al. [69] confirmed that role clarity supports a strong patient safety culture, suggesting that clearly defined expectations enhance responsibility and reduce errors in clinical processes. This demonstrates how role clarity translates directly into responsible participation behaviors that sustain effective value co-creation.

Finally, role clarity strengthens interpersonal interactions by helping patients navigate their relationships with healthcare providers respectfully and constructively. By clarifying not only task-related but also relational expectations, role clarity fosters openness, courtesy, and trust in patient-provider exchanges. Traylor, et al. [70] emphasized that clarity around clinical roles enhances collaboration and communication within care teams, a dynamic that extends to patient-provider relationships. Patients who understand their relational role responsibilities are therefore more likely to engage in positive, trust-building interactions with healthcare staff.

This study further examined how the four dimensions of patient participation behavior; information seeking, information sharing, responsible behavior, and personal interaction affect perceived healthcare quality value. While marketing and service theories highlight the customer's role in value co-creation, limited empirical research has addressed how these specific patient behaviors influence perceived value in healthcare. Grounded in service-dominant logic [71], the results show that information seeking, responsible behavior, and personal interaction significantly and positively affect perceived healthcare quality value. These findings suggest that patients who actively seek information are better informed about their conditions and treatment options, which not only improves clinical outcomes but also strengthens their confidence in the service. Those who follow instructions and cooperate responsibly with healthcare staff reduce service disruptions and build reliability into the care process, reinforcing perceptions of quality. Equally, positive personal interactions marked by respect, courtesy, and trust

help patients feel valued, which enhances the overall experience of care. These findings are consistent with earlier research that underscores the importance of engagement and cooperation in shaping service quality perceptions[72] [73]. Surprisingly, however, information sharing did not emerge as a significant predictor of perceived healthcare quality value. At first glance, this result may seem counterintuitive, given the centrality of patient input to effective diagnosis and treatment. Yet broader service research helps explain this pattern. Studies consistently show that participation behaviors yield higher evaluations only when providers are responsive and provide feedback that makes customer input feel meaningful[73]. In other words, information sharing by patients is a necessary input, but it does not enhance value perceptions unless it is acknowledged, acted upon, and visibly integrated into care decisions. If patients feel that their contributions are overlooked or dismissed, they may not interpret the act of sharing as adding value to the encounter.

Finally, this study examined the mediating role of patient participation behaviors between role clarity and perceived healthcare quality value. This relationship represents an important and novel contribution of this study. To the best of our knowledge, prior research has not empirically tested how participation behaviors function as mechanisms that explain this relationship in healthcare contexts. Drawing on role theory, patients who understand their rights, responsibilities, and expectations are better positioned to enact role-consistent behaviors, thereby reducing ambiguity and enhancing engagement [74]. From the perspective of service-dominant logic, such behaviors become resources that integrate with provider actions to co-create value[75]

The findings confirm that role clarity has both a direct and an indirect effect on perceived quality value. Directly, patients with greater role clarity tend to perceive higher quality because they can navigate the care process more confidently, evaluate staff professionalism more accurately, and interpret service interactions more positively. Indirectly, role clarity enhances perceived quality value through responsible behavior and personal interaction. Patients who clearly understand their role are more likely to comply with medical instructions, follow hospital procedures, and interact respectfully and constructively with staff. These behaviors, in turn, improve the efficiency of service delivery, strengthen relational trust, and increase patients' perceptions of professionalism and reliability.

By contrast, information-related behaviors such as seeking and sharing did not mediate the relationship. This suggests that while role clarity may encourage patients to acquire or provide information, these actions alone do not consistently elevate perceptions of quality value unless they are reinforced by provider responsiveness and visible feedback. Thus, responsible behavior and personal interaction function as the

critical behavioral pathways through which role clarity is translated into higher perceptions of healthcare quality.

Together, these findings underscore that role clarity is a powerful determinant of value creation in healthcare, not only by shaping patients' direct evaluations of service quality but also by channeling their engagement into responsible and relational behaviors that amplify these perceptions. This dual pathway highlights both the cognitive and behavioral dimensions of role clarity, extending theoretical understanding of its effects and offering actionable guidance for providers aiming to strengthen patient-centered care.

In sum, this study demonstrates that role clarity not only strengthens patients' direct perceptions of healthcare quality but also translates into higher value through responsible behavior and personal interaction. These findings highlight that when patients know their role, value is created most powerfully through responsibility and relationships.

7.1 Theoretical implications

This study has several theoretical implications. This study makes several contributions to theory. First, it demonstrates that patient role clarity significantly shapes perceived healthcare quality value both directly and indirectly through participation behaviors. By grounding this relationship in role theory, the study confirms that patients who clearly understand their responsibilities and rights are more effective in fulfilling their roles, which enhances service quality perceptions. Simultaneously, applying service-dominant (S-D) logic highlights the co-creative nature of healthcare, where patients' knowledge, compliance, and interactions are integral to value creation.

Second, the study introduces an integrative model that connects role clarity, participation behaviors, and perceived quality value. Unlike earlier work that often-treated participation as a single construct, this research disaggregates it into four dimensions; information seeking, information sharing, responsible behavior, and personal interaction. This multidimensional approach provides a more nuanced understanding of how role clarity activates different forms of participation and which of this most strongly mediate value creation. The results show that responsible behavior and personal interaction are critical mediators, whereas information-related behaviors are less influential, thus refining theory on the mechanisms through which value co-creation occurs in healthcare.

Third, the study contributes contextually by extending service and healthcare marketing research to Sudan, a setting where empirical studies remain scarce. By testing established theories in a developing country context, the study expands their generalizability beyond predominantly Western and Asian samples, offering fresh cross-cultural insights.

7.2 Managerial implications

The findings also provide actionable insights for healthcare managers and practitioners. First, the findings underscore the importance of enhancing role clarity for patients. Hospitals and healthcare providers should invest in clear communication strategies, such as orientation sessions, written guidelines, and interactive digital platforms that articulate patient responsibilities and expected behaviors. This clarity reduces uncertainty, builds trust, and increases patients' willingness to engage productively.

Second, the results highlight that responsible behavior and personal interaction are the strongest pathways through which role clarity translates into perceived value. Managers should therefore design interventions that not only encourage compliance with medical instructions but also foster respectful, empathetic, and cooperative relationships between staff and patients. Training programs that emphasize communication, empathy, and shared decision-making can strengthen these interpersonal dynamics and boost perceived service value.

Third, while information seeking and sharing were not significant mediators, they remain necessary for effective care. Healthcare managers should reframe these activities as two-way dialogues rather than one-time information exchanges. For example, using feedback systems, patient portals, or follow-up consultations can encourage patients to share relevant information in a structured and meaningful way.

Finally, in the broader policy and managerial context of developing countries like Sudan, these findings highlight the need for patient-centered service models that balance efficiency with relational care. By prioritizing role clarity and co-creation mechanisms, healthcare institutions can improve both treatment outcomes and patient satisfaction, thereby enhancing service quality and institutional reputation.

8. LIMITATIONS AND FUTURE RESEARCH

Although this study offers significant insights into the relationship between, role clarity, participation behaviors, and perceived quality value of patients in the healthcare services context, it includes some limitations that restrict the generalization of the findings and opens directions for future research. First, the private healthcare sector in Sudan was targeted, specifically in Khartoum state. Therefore, future studies can test respondents who belong to other cultures (within Sudan or in other countries). On the other hand, calling for further studies in other service sectors, such as banking and education, or other sectors such as hospitality domains, tourism, and shopping sector to help generalize the results study. Second, due to the inability to obtain access to the database of the patients in hospitals for random selection of the sample, the non-probability sampling technique (i.e., convenience sampling) was used. As a result, future studies

can adopt random sampling to generalize the results. Third, the present study focuses only on the role clarity of customers; there is more knowledge regarding customer roles in the marketing literature, so future studies could examine other types of customer roles such as role conflict and role ambiguity, in the same model. Fourth, customer participation was measured by multi dimensions scale there may be other specific dimensions that are relevant to patients' practices in health care or can be used single scale. Fifth, While the study hypothesized that information sharing would significantly predict perceived healthcare quality value, the results did not support this. Prior service research suggests that information sharing enhances value only when providers respond and integrate patient input. Future studies should explore the moderating role of provider responsiveness and feedback in strengthening this relationship. Finally, while the perceived quality value framework used in the current study was contextualized towards the hospital context, there may be other specific value perceptions that are relevant to the study line such as social, economic, and emotional value.

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