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ORIGINAL RESEARCH

A conceptual model of new health service development process: a value-based healthcare view

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Abstract

Objective: The healthcare industry is increasingly exacerbated by costs and demands for quality care, creating opportunities to develop service models that can meet this challenge. Value-based healthcare (VBHC) is one of the emerging solutions for simultaneously considering cost and quality.This study was designed to develop a conceptual model for developing new health services utilizing a VBHC approach to health care.

Materials and Methods: A qualitative methodology was utilized, and semi-structured interviews were conducted with 24 project managers from healthcare organizations. Thematic analysis was then conducted on interviews utilizing MAXQDA software; Reliability was ensured through intercoder agreement (ICA = 0.71) and two-case model testing, with independent coding and conflict resolution by a third coder.

Results: The thematic analysis resulted in 964 coded segments, which were categorized into seven themes: Innovation Evaluation, Innovation Process, Innovation Technology, Innovation Culture, Customer Value, Interactive Interface, and Customer Participation. The primary findings highlighted the importance of acquiring cost-effective new services that enhance customer value, promoting an innovative culture within the organization, utilizing high technology, and actively engaging with patients and referring physicians through a patient-centric approach.

Conclusion: The conceptual model provides an initial guide for healthcare organizations to create new services based on VBHC principles. This model simultaneously addresses cost efficiency, technology-oriented innovation, and patient participation in producing health services aligned with patient improvement per cost. Future research can test and validate this model to context and application within a healthcare setting to better understand its usefulness in helping organizations implement more VBHC services.

Keywords: Value-based health care, Health care reform, New service development, Innovation in healthcare, New service design

Introduction

The healthcare sector is a vital economic commitment and societal foundation, holding substantial financial assets that are rapidly growing worldwide. According to a World Health Organization report (WHO) total health expenditure globally increased from the year 2000 to the year 2018 to reach a staggering $8.3 trillion, which was about 10% of the global GDP However, this huge investment isn't equally felt everywhere, and there is still disparity in healthcare spending by area around the world. In low- and middle-income countries, over 40% of healthcare costs are paid out-of-pocket, emphasizing the heavy financial burden on these populations.(1) However, advanced economies such as the United States continue to suffer from high health care costs. In 2022, the share of healthcare in the GDP of the United States will reach 17.3%, and estimates sounds an annual growth of 5.4% in 2031, which will exceed 20% of the GDP at the end of the period.(2)

As health systems face increasing costs, aging populations, and a growing burden of chronic disease, the need for new service delivery models to meet the challenges has intensified.(3) Various approaches have been presented and tested to solve this problem. One of these approaches aimed at creating a sustainable relationship between business and health, which received considerable attention from diverse stakeholders of the health system is the value-based healthcare (VBHC). VBHC is characterized by a focus on providing high-quality care that maximizes patient outcomes while minimizing their costs. The seminal article by Porter and Tiesberg established the basic principles of VBHC, moving health systems from focusing on volume-based measures (ie, the number of procedures performed) to cost-based measures of patient effectiveness. These changes provide new successes definitions in the healthcare system, go beyond traditional outcome measures and emphasize important patient outcomes such as quality of life, symptom relief and general satisfaction.(4, 5) This approach is gaining popularity worldwide as many health systems have initiated VBHC implementation plans.(6, 7). Concurrently, this has transformed into a distinct healthcare ecosystem, encompassing diverse entities that are driving systemic reforms. These changes aim to enhance care quality and patient outcomes while simultaneously managing expenses more effectively. Abou-Atme et al. highlight how investing in VBHC is more understood to play an essential role not only for achieving maximum effectiveness but also long-term sustainability of healthcare delivery across different contexts (8)

The development of new health services is a critical process in the evolving healthcare landscape, particularly when viewed through the lens of value-based healthcare. This approach emphasizes delivering high-quality care while optimizing resource utilization and improving patient outcomes(9, 10). This paradigm shift necessitates reimagining how new health services are conceptualized, developed, and implemented. A conceptual model that integrates the principles of value-based care into the new service development process can provide a more disciplined framework for healthcare organizations to design services that are not only innovative but also aligned with the goals of improving patient outcomes and system efficiency(3, 9).However, the unique complexities of the healthcare sector, including regulatory constraints, ethical considerations, and the nature of health outcomes, require a tailored approach to new service development.(11)

Recent studies have reinforced the necessity of integrating patient-reported outcomes (PROs) and experiences into care models. For instance, the World Health Organization underscores the importance of tracking universal health coverage and ensuring that healthcare systems are responsive to the diverse needs of populations(12). This perspective aligns with the findings of Di Tosto and colleagues developed a conceptual model highlighting the capacity of patients to engage actively in their healthcare processes. By fostering engagement of patient in their care, healthcare providers can enhance the overall value delivered, ensuring that care is not only effective but also aligned with patient preferences and expectations(3).

Service design in healthcare has garnered significant attention to creating patient-centered, efficient, and effective services. A patient-centred approach is fundamental to ensure that care delivery model is both clinically effective, and user friendly in terms of reflecting the preferences, priorities, needs and expectations of patients. (13, 14) Malmberg

et al. highlight the transformative potential of service design in facilitating the shift toward person-centered care. Their work emphasizes the importance of co-creation and user involvement in service development, aligning closely with VBHC's focus on patient outcomes and patient engagement experiences.(15) Göttgens and Oertelt-Prigione's narrative review reveals that this approach can enhance the relevance, usability, and effectiveness of health interventions. However, they also note that the integration of these methods with traditional healthcare development processes remains a challenge(16).The integration of VBHC principles into new service development processes is an emerging area of research. Yu and Sangiorgi propose a framework for incorporating value co-creation perspectives in new service development. Their study proposes that a co-creation of value might result in services tuned to the needs and resources patient-oriented based on organizational capabilities(17).

Several studies have explored the implementation of VBHC in different healthcare settings. Kaplan et al. examined VBHC implementation in four different health systems, highlighting the adaptability of the VBHC concept across diverse healthcare contexts. However, they also note that successful implementation requires significant organizational and cultural changes(18, 19). Despite these advancements, there remains a notable gap in the literature regarding a comprehensive model that explicitly combines VBHC principles with new service development processes in healthcare. Colldén et al. proposed a value-based taxonomy of improvement approaches in healthcare, but their work does not specifically address the process of new service development(20). Shaw et al. discuss the intersection of digital health innovation and service design, highlighting how these elements are crucial to advancing VBHC initiatives. Their research indicates that digital solutions not only streamline administrative processes but also empower patients by providing them with access to their health information and enabling them to make informed decisions about their care. This empowerment is crucial in a VBHC framework, as it aligns with the fundamental principle of placing the patient at the center of care delivery(21). In conclusion, while significant progress has been made in understanding VBHC and service design in healthcare separately, there remains a critical need for an integrated approach that combines these perspectives in the context of new health service development. This gap in the literature and practices presents an opportunity for research that could significantly impact the future of healthcare service innovation and delivery.

By combining NSD principles with the value-based healthcare perspective, we can create a conceptual model that addresses the specific needs and challenges of developing new health services. This study aims to develop a conceptual model of the new health service development process, incorporating a value-based healthcare view. This model will serve as a guide for healthcare organizations, policymakers, and researchers in understanding the key stages, considerations, and stakeholders involved in creating innovative new health services that deliver high value to patients and the healthcare system. By examining the intersection of NSD and value-based healthcare, we can identify critical factors that influence the success of new health service initiatives and provide a roadmap for their effective development and implementation(22). Our study begins with a review of existing literature in the fields of value-based healthcare and new service development. We specifically focus on studies that have examined the challenges of developing new services in healthcare and potential solutions to overcome these challenges. Additionally, we review successful experiences in implementing value-based approaches in healthcare organizations. Subsequently, using a qualitative approach and drawing on the opinions of experts and key stakeholders in the healthcare sector, we present our initial conceptual model for the process of developing new health services with a focus on value-based healthcare agenda. This study is theoretically anchored in the intersection of NSD and VBHC, building upon seminal works on both areas including those by Porter & Teisberg(4). Yet these fields of research have yet to provide a comprehensive understanding for the challenge met in NSD by

existing theoretical frameworks on ambiguity management. Therefore, there remains a gap for exploring new models that can bridge the above theoretical perspectives to provide an enhanced framework of how ambiguity plays out in practice when developing health services. The study bridges this divide by offering theoretical and practical insights for researchers, policy makers and healthcare practitioners involved in NSD.

Materials and Methods

This qualitative research supports reflecting upon the multifaceted and complex processes related to new healthcare service development (NSD). We use this method to paint a clearer picture, capturing the complexity that occurred during the development of new healthcare services. In addition, the research design will include multiple case studies based on Eisenhardt and Bourgeois's recommendations for conducting a comprehensive piece of work by treating each participant as representing an individual healthcare service domain.(23) Our participants are 24 healthcare project managers who agreed to participate in the study and had NSD projects in healthcare. Project managers were interviewed in semi-structured interviews, which turned out to be the foremost source of information.

Data were collected in 24 semi-structured interviews with project managers during online and face-to-face sessions. The interviews were meant to elicit detailed stories of NSD in-house and included what strategies had been applied there as well as the eventual outcomes by topic area. Our semi-structured interview was based on a protocol designed to explore managers' experiences with ambiguous events they confronted during NSD. The questions were derived from a narrative review of the current literature on NSD and VBHC topics and then piloted for clarity and appropriateness. The interview data underwent thematic analysis to identify key themes. This included professional transcription and review by two independent coders of a random sample of responses. Open coding was used to identify major themes and sub-themes until saturation was achieved, followed by iterative thematic coding with additional samples. To analyze the qualitative data, text responses for the open-ended item were imported verbatim from Excel into the 2024.3 version of MAXQDA, a qualitative analysis software which enables systematic data coding and theme identification, ensuring transparency and replicability in the analysis.

Ethical Considerations

At the start point of interviews, all participants were briefed on the study's purpose, procedures, and rights, including the option to withdraw at any time without repercussions.

Reliability and Validity of the Model and Theoretical Saturation of Findings

Reliability is an important consideration in qualitative research, and intercoder agreement (ICA)is one way to measure it. This index evaluates the agreement between different coders on how to properly encode identical data sets in a quantifiable way. Disagreements between coders were resolved by a third coder. To check the coding reliability of the response transcripts, intercoder agreement was calculated. An inter-coder agreement of 0.71 was found. This substantial rate of agreement shows both the reliability of our coding process and moderate strengthens confidence in generalizability for qualitative findings. To assess reliability, the Two-case model test on MAXQDA can be employed as well. Documents P01 and P22 with highest frequencies of extracted codes as 64 and 52 were selected. Figure 1 shows the two-case model diagram that was identified for participants P01 and P22. Common codes between the two participants were extracted and illustrated in the middle of diagram. It also shows how often each person referred to a specific code.

Figure 1 Two-Cases Model extracted from MAXQDA

By utilizing a detailed methodological framework, the study aims to create a initial conceptual model for new health service development processes in a value-based healthcare setting. The results are anticipated to offer valuable insights into handling ambiguity in service development, thereby advancing healthcare service innovation.

Results

The sample included 18 men and 6 women with an average of 17.25 years of work experience in healthcare, ranging from 4 to 30 years. Their educational backgrounds varied, with one holding an associate's degree in dental prosthetics, one a master's degree in mechanical engineering, and the rest having professional doctoral degrees in medical sciences. Data analysis involved 24 interview files, and main themes and subthemes were identified through three stages: open coding, axial coding, and selective coding. The study concludes with an initial conceptual model of the new service development in healthcare based on a value-based healthcare approach.

Frequency Distribution of Themes

One useful tool in qualitative software is frequency, which is presented based on two groups: coded segments and coded documents. Coded segments represent the number of strings or lines in a paragraph that can be coded with a specific theme. Table 2 displays the frequency distribution of coded segments for each interview separately.

Table 2- Frequency of codes extracted from interviews.

Client ID	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	Sum
Frequency	64	39	33	44	37	35	42	44	37	36	33	41	37	40	40	41	36	42	35	39	37	52	41	39	964

Finally, 964 coded segments were identified from 24 interview files. Interviewee P01 had the highest frequency with 64 coded segments, while interviewee P11 had the lowest with 33 coded segments. In this study, themes extracted from the interview files were considered as codes and then categorized based on similar concepts to form research themes.

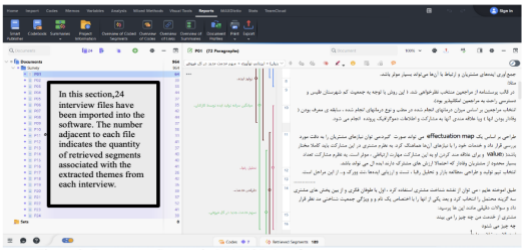

Figure 2- Document System in MAXQDA software

Based on the findings of the preliminary stage of thematic analysis, a total of 24 interview transcripts were scrutinized. These transcripts produced 964 coded segments, which refer to specific text excerpts that can be allocated to a particular code multiple time. The quantity of coded segments identified corresponds to the count presented in the Retrieved Segments window. Furthermore, adjacent to each interview file in the window, a numerical value is provided to indicate the number of codes generated from that specific document (see Figure 2).

Figure 3 illustrates the process of axial theme coding. In MAXQDA software, axial coding is visible in the Document Browser window. Upon selecting a document, its contents are displayed on the right-hand side, and a unique code is assigned after reviewing each line. Subsequently, the next phase in coding with MAXQDA software involves selective coding. Figure 4 depicts the selective coding process of the current study within the MAXQDA software interface. As indicated in the figure, a total of 964 segments were coded under 7 main themes: innovation evaluation, innovation process, innovation technology, innovation culture, customer value, interactive interface, and customer participation.

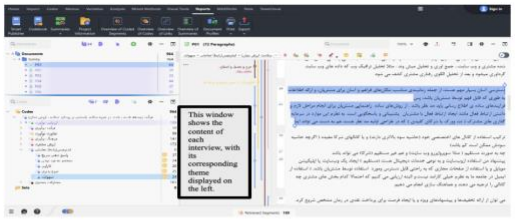

Figure 3- Axial coding of core categories in MAXQDA

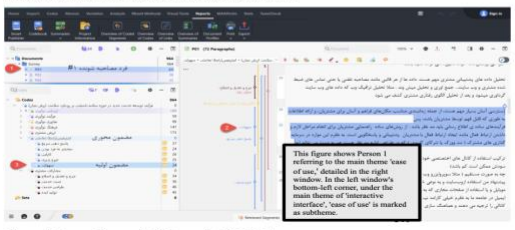

Figure 4- Overarching and Subthemes in MAXQDA

Examination of Extracted Themes

The research process utilized a qualitative method through thematic analysis. Initial themes were extracted from interview content and then categorized into broader themes. The study identified 7 main themes and 31 subthemes, as summarized in Table 3.

Table 3- Categorization of Themes and Subthemes identified.

The main theme	Themes	Subthemes	Frequencies
New health service development process: a value-based healthcare view	Innovation Evaluation	New benefit-to-cost ratio	24
		Systematization of the innovation process	28
		Innovative knowledge-sharing index	25
		Idea generation per capita by employees	44
		proportion of innovative ideas transformed into a new product	25
		Share of new service in total sales	43
	Innovation Process	Innovation in processes	32
		Process improvements	27
	Innovation Technology	Cros industry benchmarking	27
		Product/Service Innovation	24
		New service concept screening	24
		Determining the future needs of the customer	24
	Innovation Culture	Encouraging employee innovation	28
		Innovation learning system	41
		teamwork spirit	24
		Top management support	24
		Organizational changes	30
	Customer Value	customer loyalty	24
		Customer response	42
		Customer satisfaction	29
		Competitive analysis	34
		Creating a customer value analysis system	44
	Interactive Interface	Rapid response	37
		Uniqueness	24
		Efficiency	26
		Variability	25
		Ease of use	24
	Customer Participation	Adjustment and modification	34
		Service test	36
		Service design	46
		Idea generation	45

Designing the initial Conceptual Model

In this section, we develop a initial conceptual model for the new service development process in healthcare based on a value-based healthcare approach and identified factors. One of the key features of MAXQDA software is the word cloud tool, which helps identify frequently occurring codes in qualitative projects and their significance. Figure 5 shows the output of the word cloud tool based on 16 coded files.

Figure 5- Word cloud tool extracted from MAXQDA software.

Based on our results, the most frequent codes extracted include customers, design, evaluation, and participation, with "Service" at the core as illustrated in Figure 5. An initial model for this study is then outlined, based on a conceptual model of new service development in healthcare, rooted in a value-based healthcare approach. This model includes the factors and components identified in Figure 6.

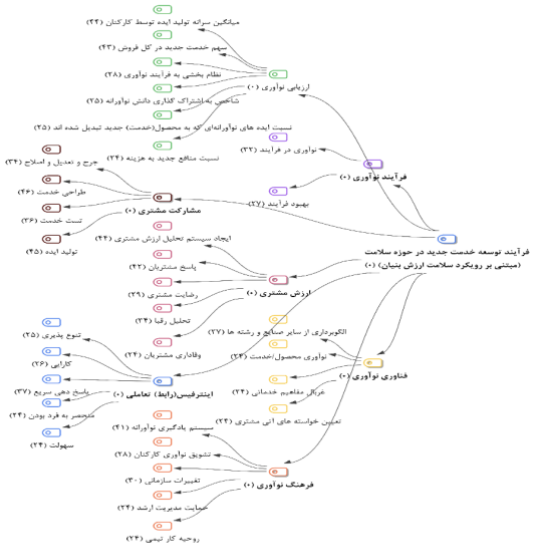

Figure 6- A conceptual model of new health service development process: a value-based healthcare view.

This study presents a conceptual model for developing new health services based on value-based healthcare. The qualitative section used thematic analysis with three stages: open coding, axial coding, and selective coding. Initially, basic themes were identified through open coding. Codes were then grouped and integrated using MaxQDA software. Each basic theme was precisely defined, and titles were assigned. Higher-level organizing themes were identified, and main themes were combined to form organizing themes. These organizing themes were then categorized under comprehensive themes.

The analysis of 24 interview files identified 964 coded segments categorized into seven main themes: 1) Innovation Evaluation, 2) Innovation Process, 3) Innovation Technology, 4) Innovation Culture, 5) Customer Value, 6) Interactive Interface, and 7) Customer Participation.

In the Innovation Evaluation section, sub-themes like the ratio of new benefits to costs, organization of the innovation process, index of innovative knowledge sharing, proportion of innovative ideas turned into new

products/services, and share of new services in total sales were identified. To enhance the ratio of new benefits to costs, using cost optimization approaches and increasing the service value can be effective. More flexibility in the development process can speed up idea conversion into new products. Organizations should promote employees to suggest innovative ideas. Strategic marketing aligned with the organization's mission can boost the share of new services in total sales. Building closer customer relationships is essential for understanding their needs and preferences.

In the Innovation Process section, this study identified the themes of innovation and improvement. Conclusion: Advanced technology and how to use it most effectively for faster, more sustainable improvement in the innovation process These processes should facilitate collaboration and encourage participants to interact with each other. These innovation processes can be evaluated and improved through management tools, in order to ensure high quality of final products and services for customers.

The section Innovation Technology reflects themes such as: benchmarking from other sectors, product/service innovation, screening service concepts and forecasting future customer needs. Collaborate with other industries to benchmark innovative methodologies. Making product and service innovations a priority is necessary to keep hold of existing customers, attract new ones. Organizations should solicit customer input to help home in on new service concepts, hopefully making the end result both an innovative but also satisfaction increasing and value adding. Flexibility in adapting future customer demands is essential.

Under Innovation Culture, the core theme is followed by sub-themes such as fostering innovation in staff, innovative recruitment and development mechanisms, a culture of team spirit and changes to organizational structure. Management has to develop a motivating atmosphere that promotes innovation and improves innovative learning systems. It is important to assemble teams with innovative minds and high collaboration abilities, encourage employees for putting forth their creative ideas, offer prompt feedback. Only then should organizational changes be developed and implemented to meet those demands, through increased customer loyalty and strengthened relationships for growth in the face of market pressures. It's important to respond quickly and well to customer needs, address issues swiftly, and make sure the client is happy by constantly following up on their concerns as well improving our service.

Customer Value identified themes such as customer loyalty, responses to changes in satisfaction/competitor analysis and value analysis systems. Rather than acting competitively and adversarial, the focus should be on customer loyalty -strengthening relationships – fast problem resolution to retain market share. The competitive advantage is generally developed by observing how competitors behave. We suggest performance evaluation programs like value analysis systems should be employed.

Interactive Interface factor stands for fast responsiveness, creativity, efficiency which includes variety and agility in interacting with the customer. To make this model successful the organizations need to focus on quickly reacting to customer demands, creating a differentiation network for competitive advantage improvement in efficiency and service quality by providing varied services and easy access.

Customer Participation is related to many sub-themes such as adaptation, service testing, test and preparation for launch of new services or product offerings and innovation ideas. To start with, organizations must interact with their customers to see what they need for passing feedback and updating the services. Customer taste should be in the service design on getting ideas and building on them iteratively based on feedback is one of the main parts of new service development.

Discussion

The study introduces a conceptual model for applying value-based healthcare (VBHC) and capturing challenges/opportunities of the health service sector through the process of creating new services. It was built using an iterative process comprising a thematic analysis that included open coding, axial coding and selective coding. After this analysis, we derived

a higher-level categorization of themes which produced an initial conceptual model which helps new health service developers understand and adopt the introduction of new health services based on patients' values. Based on the analysis of 24 interview files, seven major themes were recognized: Innovation Evaluation, Innovation Process, Innovation Technology, Innovation Culture, Customer Value and Interactive Interface with health service development in terms at different levels.

Innovation Evaluation

The model represents three levels of maturity in healthcare, with a different set of innovation priorities for each: The first level is Innovation Evaluation which prioritizes cost optimization and service value enhancement congruent to principles of value-based care aimed at patient outcomes-maximization-per-cost. Furthermore, sub-themes include new benefits to cost ratio, innovation process organization and the percentage of new services' share in total sales which reminds us about the importance to reach higher efficiency with quality more than once. In this regard, it has been argued that cost optimization and increasing service value are important to maintain financial sustainability of health innovation through patient values. Teisberg et al. emphasize the role of cost optimization interventions to improve overall patient outcomes in relation to expenditure.(22) Sub-themes like the ratio between new benefits and costs and a certain organizational process of innovation reveal how resource management also offers partial explanations for this balance. However, several sources support this perspective and suggests an organized means of coordinating innovation evaluation based on both economic as well as clinical performance measures.(5, 18, 24)

Innovation Process

The term management of advanced technologies Sustaining patient safety, quality and performance improvement (QI) is an essential part of healthcare delivery which cannot be achieved until continuous process improvement becomes routine. This area highlights the requirement to have technologies involved in improving healthcare processes, supporting more teamwork and providing high-quality care for patients. New studies have highlighted these trends and that companies should put this high on the agenda; tailor their measures to evaluate innovation process improvement continuously by using appropriate tools. We agree with van Staalduinen et al, who recommends continuous improvement and implementation of new technologies as key drivers to foster innovation in health care (25). These improvements need to be prioritized by top management while utilizing appropriate tools and techniques, so that the innovation process continues to remain agile in producing effective new service solutions. (19) As studies demonstrated, combined use of lean methodologies and Six Sigma can provide significant results in improving end-to-end process efficiency and effectiveness in the healthcare service quality.(26-28) Moreover, empirical research on dynamic capabilities in new ventures has emphasized the importance of four factors for their emergence: management team characteristics, firm resources and competences which together represent organizational capital as well ability to reconfigure that capital for reshaping assets and also exploiting existing assets. These factors need to be provided before the development of dynamic capabilities in new health service innovation. Consequently, healthcare organizations that emphasize these features may be able to improve their ability to innovate and adjust in the forces of turbulent environmental circumstances with a strengthening effect on their innovation processes and overall performance of value-based provision of care.(29)

Innovation Technology

Innovation Technology is a crucial category that involves benchmarking from other industries, product and service innovation, and assessing future customer needs. Benchmarking allows healthcare organizations to learn from the best practices of other sectors, fostering continuous learning and improvement. According to Colldén and Hellström, cross-industry benchmarking can provide valuable insights into innovative practices that can be adapted to healthcare.(30) By prioritizing product and service innovations and gaining insights into prospective customer requirements, organizations can effectively maintain the relevance and competitiveness of their offerings. This proactive strategy is crucial for addressing the changing expectations of patients and sustaining a competitive advantage in the healthcare sector. The comprehension and anticipation of future customer needs are

imperative for developing services that cater to present demands and are adaptable to forthcoming transformations. Additionally, the deliberate integration of health information technologies, such as electronic health records (EHRs) and telemedicine, has demonstrated enhancements in patient outcomes and operational efficiencies.(31)

Innovation Culture

The impact of innovation culture on an organization's capacity to create and execute new health services is substantial. The Innovation Culture category encompasses elements like promoting employee innovation, cultivating an innovative learning environment, and fostering team cohesion. It is essential to establish a motivating atmosphere where employees are appreciated and empowered to offer innovative ideas. Additionally, implementing a framework that encourages ongoing learning and teamwork can foster continuous innovation and flexibility within the organization. Organizational adjustments that correspond to innovation requirements are vital to uphold this culture and enable the effective deployment of new health services.(32) Empirical research provides evidence to corroborate these conclusions, indicating that organizational support, leadership dedication, and a culture of transparent communication play pivotal roles in promoting innovation within the healthcare sector.(33-35) Studies in other public sectors like the banking industry also show a positive link between organizational climate and innovation, emphasizing the need for a supportive environment to drive innovation across various sectors, including healthcare.(36)

Customer Value

Customer Value is central in the Value-Based Healthcare (VBHC) approach, emphasizing the importance of building strong relationships with patients and ensuring their satisfaction. Providing patient-centered care, understanding patient needs and preferences, and focusing on aspects like customer loyalty, quick response, and patient satisfaction are essential for healthcare organizations. Effective communication, prompt issue resolution, and ongoing feedback mechanisms are vital for maintaining high levels of patient satisfaction and loyalty. Hurst et al. highlight patient-centered care as a core element of VBHC, requiring healthcare organizations to prioritize patient experiences and outcomes.(6) By analyzing competitor behavior, organizations can identify areas for improvement and opportunities for differentiation, strengthening their competitive advantage. Research indicates that using robust customer relationship management (CRM) systems and effective patient feedback mechanisms are essential for achieving these goals.(37-40)

Interactive Interface

This category pertains to provider-patient interactions and encourages providers who rapidly answer calls, initiate new ideas or offer a multitude of services while creating an improved patient experience. Facilitating frictionless experiences and enabling access to services will significantly increase patient satisfaction & engagement. As Zanotto et al. pointed out that only those interactions and services, optimally designed in relation to each other, can succeed as well as the overall quality of service be maximized.(41) Moreover, research shows that the utilization of digital health tools and patient portals can significantly improve patient-provider interactions and service delivery efficiency.(42, 43) Healthcare institutions can gain a competitive edge and improve service quality by optimizing interaction processes and offering a variety of services.(44)

Customer Participation

Customer Participation plays a crucial role in the development of new health services. This category encompasses themes such as service design based on customer input, testing services, and generating ideas. Engaging patients in the process of developing new services guarantees that the services offered are tailored to meet their essential needs and preferences. Batalden et al. highlight that collaborating with patients in service provision can result in increased satisfaction levels and improved health outcomes. Incorporating patient feedback mechanisms facilitates ongoing enhancement and refinement of healthcare services.(45) Moreover, through the establishment of avenues for patient involvement, institutions can elevate the quality of services and cultivate a feeling of ownership among patients. Research indicates that

involving patients in decision-making and service design within the healthcare sector results in enhanced quality of care and increased patient satisfaction.(44, 46)

Our initial conceptual model for new health service development within a Value-Based Healthcare (VBHC) framework offers a comprehensive approach to addressing the intricacies of the healthcare sector. By concentrating on critical areas such as innovation evaluation, process improvement, technology utilization, organizational culture, delivering customer value, managing interaction interfaces, and promoting customer participation, healthcare organizations can adeptly navigate the challenges of healthcare innovation. This model underscores the significance of continual improvement, patient-centered care, and the strategic deployment of technology to improve health outcomes while optimizing costs. Subsequent research endeavors should concentrate on validating this model and investigating its practical implementations in diverse healthcare environments, thereby contributing to the ongoing advancement of VBHC.

There are several reasons why value-based care stands out as a promising approach to health reform. The primary and most significant rationale is that value-based care contributes to the preservation of life expectancy for patients. Healthcare providers exhibit heightened awareness of health conditions as they encounter similar types of pain on different days. Additionally, health information enables physicians to make more accessible, leads doctors to better interpret patients' conditions, and facilitates patients' comprehension of their treatment journey.

The adoption of value-based healthcare practices results in reduced errors and enhanced health outcomes.(47) On the contrary, value-based healthcare endeavors to tackle the problem of fragmentation and disintegration within the healthcare system by redirecting the emphasis from medical specialization towards the requirements of various patient demographics. This approach places significant importance on thorough outcome assessments and reimbursement mechanisms that aim to maximize value.(48)

While value-based healthcare could help the health sector to bring about these changes, it is not a panacea. This means there probably are competing values amongst the institutions and groups that play a part in this area, which can result potentially conflicting interests as well as differing objectives. While patient values are given precedence, patients may articulate varying values that are subject to change. The availability of a wide range of treatment options is not assured. Moreover, there is a lack of standardized, easily accessible database pertaining to valuable indicators that correlate with quality of life. The criteria established for the cost-benefit ratio are often unclear. Furthermore, comparing countries with distinct economic frameworks and healthcare delivery systems may not be feasible.(49)

During this research, several limitations and challenges were encountered. Firstly, the study was confined to the healthcare services sector, thereby excluding other segments within the health industry that possess distinct characteristics. Consequently, the generalizability of our findings to other sectors may be limited. Nonetheless, this limitation creates opportunities for future research to delve into other areas within the health industry. Secondly, the study solely focused on the conceptual model within the context of developing a new service, neglecting the evaluation of innovation in various health products. Therefore, it is suggested that future research directions explore product innovation in the health sector utilizing a value-based approach and compare the outcomes with the initial model outlined in this study. Thirdly, the research was carried out through interviews and by analyzing the perspectives and attitudes of project managers involved in new health service development. It did not encompass the viewpoints of other crucial stakeholders in this field, such as policymakers, insurance companies, patients, and healthcare service providers. Future studies could provide richer findings by considering the processes involved when different stakeholders are incorporated into decision making. Additionally, the study was conducted within a specific geographical and cultural context, potentially limiting its applicability to healthcare systems in other regions or countries. Cross-cultural comparisons could offer valuable insights into the universality of the proposed model. Furthermore, the research was conducted at a specific moment in time and given the rapidly evolving nature of the healthcare industry,

some findings may quickly become outdated. Longitudinal studies could help mitigate this limitation and provide insights into the evolution of value-based healthcare processes.
While our qualitative approach yielded detailed and comprehensive data, it does not possess the statistical generalizability characteristic of quantitative studies. Subsequent research endeavors could consider utilizing mixed method approaches to amalgamate the profound qualitative insights with the extensive quantitative data. Despite these constraints, our study establishes an initial groundwork for comprehending the development of new value-based healthcare services. We advocate for future researchers to expand on this study, tackling these limitations to enhance our comprehension of this pivotal domain in healthcare management and innovation.

Conflict of interest
Author declares no conflict of interest.

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