

The Role of Using Cost Accounting Techniques in Improving the Quality of Services in the Field of Urology

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Abstract

This study investigates how cost accounting methods can raise the standard of care provided by urologists. This report highlights the significance of efficient cost management, acknowledging that price enhancement alone will not suffice to improve profitability in the current competitive healthcare industry. It specifically looks into how service quality is affected by direct and indirect expenses as well as particular cost accounting techniques connected to urology. Data were gathered from a sample of 100 accountants who worked in both government and private hospitals using a quantitative research methodology. The questionnaires were utilized to collect data, which was then analyzed using smart-PLS. The findings show that participants' perceptions of the contribution of cost accounting approaches to the improvement of urological services were overwhelmingly positive. The study also identifies areas that require improvement, especially in staff knowledge of cost accounting procedures and incorporating them into procedures for quality improvement. By presenting concrete data on the advantages and difficulties of using cost accounting methodologies in the specialized field of urology, this study adds to the continuing conversation on healthcare cost management.

Keywords: Cost Accounting; Urology; Accounting Systems; Direct Cost; Indirect Cost

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Introduction

By putting in place a cost accounting system, information on the efficiency of services rendered and the behavior and structure of expenses are continuously updated. Another reason for documented expenditure is to evaluate how well each government allocated its resources. Accounting standards are being implemented inside the new governmental framework similar to how New Zealand modified its cost structure in 2015 (Bradbury & Scott, 2021). The process of accounting for expenses related to projects or products' production, processing, and sale is known as cost accounting. To help the business, make cost-effective decisions, cost accounting is essential. Various kinds of businesses use a variety of costing approaches and procedures (Walz & Guenther, 2021). According to Kesimli (2022), cost accounting systems are seen as managerial planning and control processes that provide management with the financial instruments required to plan, schedule, and evaluate activities. "The application of costing and cost accounting principles, methods, and techniques to the science, art, and the ascertainment of profit" is another definition of cost accounting that includes the practice of cost control. The information gathered must also be provided in order for administrative decisions to be made.

Currently, a unit's success is determined by the sophisticated facilities it has access to, the number of operations it performs, its complexity, or how it looks on the outside. Paradoxically, the health department's funding is distributed according to category. The health department's budget is distributed based on a consultant's ability to influence the department's higher authorities. The capacity to provide high-quality and cost-effective healthcare should be the defining characteristic of a successful healthcare facility (Špacírová et al., 2020). Any organization's profit cannot be raised in this fiercely competitive business environment by simply raising the selling price. Thus, the only way to increase profit and profitability while maintaining service quality is through cost management practices like cost reduction and control. Therefore, the goal of cost reduction is to produce items at lowest cost without sacrificing product quality. The aim was to create a system that minimizes ineffective activities and increases the effectiveness of different components. Profitability and profit are eventually increased by effective cost reduction (Grossi et al., 2020).

Cost accounting's primary goal is to deliver management with financial and other data for resource planning, control, and evaluation. As the primary component of management accounting, cost accounting has undergone constant evolution during its history. Using various cost accounting methodologies, managers of manufacturing organizations are now capable of creating high-quality products and lowest cost. Internal planning and control can benefit from cost accounting. There is a chance that this is more relevant now since organizations are performing better and making better decisions (da Silva Etges et al., 2020). Previous studies confirmed that many businesses today still do not take advantage of the expense accounting and management technologies that might assist in giving the information to make informed decisions. Some firms, especially the expanding ones, are thought to be unsuccessful because of the absence or ineffective use of the cost accounting and management technologies (Yanamala, 2022). The majority of urology unit doctors rely largely on alternative ways for making decisions, such as instinct, common sense, personal whims, and trial and error, because they lack the traditional management and cost accounting abilities. The majority of judgments made by those doctors are therefore frequently haphazard, disorganized, and ineffective since they are unaware of the benefits of using cost accounting tools and managing operations in an organized, systematic, and well-thought-out manner (Hugh et al., 2024). Additionally, prior research indicates that the creation of QIs was not always uniform throughout specialties, with urology having the least amount of coverage (da Silva Etges et al., 2020). Regarding this, the research seeks to answer the main question; "What is the role of using cost accounting techniques to improve the quality of services in the field of urology?"

The main question is divided to the sub-questions as follow:

1. What is the role of using direct costs in improving the services quality in the field of urology?
2. What is the role of using indirect costs in improving the services quality in the field of urology?
3. What is the role of using urology services in improving the services quality in the field of urology?

The research aims “to investigate the role of using cost accounting techniques to improve the quality of services in the field of urology”. This main objective is divided to the sub-objectives as follow:

1. Investigating the role of using direct costs in improving the services quality in the field of urology.
2. Exploring the role of using indirect costs in improving the services quality in the field of urology.
3. Studying the role of using urology services in improving the services quality in the field of urology.

The understanding of how cost accounting might raise service quality is what makes this research so important. It is therefore anticipated that carrying out this kind of study on this subject would be quite beneficial and significant. This research will be a useful source of information about the role of applying cost accounting techniques to enhance the services quality in the field of urology. Referring to previous studies centered on the research topic will be crucial. It can be referred to define the role of direct, indirect, and urology costs to enhance the quality of services in the field of urology. On the other hand, the results of this research may help in preparing awareness sessions of the importance of cost accounting techniques (direct, indirect, and urology costs) in enhancing the services quality in the field of urology). Given the dearth of previous research in the fields of cost accounting and urology, this study will be a valuable resource for future research, provided that it provides scholars and future researchers in these fields with relevant literature, important recommendations, and ideas for their planned investigations.

Literature Review

The requirement for managers to have access to comprehensive information regarding the cost of a good or service has led to the recent development of cost accounting. Modern industry is characterized by large-scale production, intense competition, and a complicated production structure, all of which make it necessary to provide goods and services at the lowest feasible cost (Ding et al., 2020). Profit maximization was thought to be achieved through production efficiency (del Río, 2023). The goal of effective control methods at various stages of the manufacturing process was to minimize or completely eliminate losses and inefficiencies. The management became extremely cost-conscious. The field of cost accounting was developed to support management, which has become increasingly cost-conscious, in performing its responsibilities (Peterson et al., 2021).

Cost accounting is one of the accounting specializations listed by Chiang et al. (2021). Providing the information demands of management is its primary goal. To make wise judgments, managers want cost information. Cost accounting gathers, organizes, synthesizes, and evaluates financial and non-financial data using a quantitative technique for three main uses: operational planning, decision-making, and figuring out how much a good or service would cost. Information for financial accounting as well as management accounting is provided by cost accounting. It calculates, measures, and presents both non-financial and financial data pertaining to an organization's resource acquisition and consumption costs. The areas of financial accounting and management accounting where cost data is gathered and examined are included in cost accounting (Feinberg & Wooton, 2020). Discrete direct cost components, such as resources and labor, form the basis of traditional product cost accounting procedures. Often referred to as the overhead, the leftover indirect cost is either arbitrarily assigned to items or written off as period cost (expenses). Cost accounting finds areas for development and gives a more thorough and insightful picture of its performance. It lessens disparities in the distribution of resources among various entities and gives decision-makers trustworthy information about how money is being used (Castor & Neri, 2023). It reduces disparities in the distribution of money and gives

decision-makers trustworthy information about their utilization ([Eckelman et al., 2020](#)). Managers of organizations may find it challenging to enhance daily operations and make choices that will boost the financial performance of their companies without the help of these cost accounting and management technologies. In any event, modern cost accounting and management tools like Differential Analysis, Benchmarking, Value Chain Analysis, ABC/ABM, BSC, and Benchmarking can offer reliable information for decision-making, which can improve an organization's performance, profitability, and sustainability ([Bartsch et al., 2020](#)). In the cutthroat world of today, numerous companies must battle to survive and grow. It could also not be enough to measure effectiveness without taking organizational sustainability into account. The assessment of profitability and sustainability accounting is linked to an organization's sustainability. By making important decisions and carrying them out, sustainability can play a crucial part in generating competitive advantages. Accordingly, companies can benefit from sustainability data and turn into sustainable, which can give them a competitive edge and have an effect on their performance ([Snoswell et al., 2020](#)).

H1: Direct cost has a positive association with the services quality of the helathcare centres.

Cost accounting is an accounting technique that records the production expenses incurred by the company through estimating production costs at each stage of the process with fixed costs. This involves keeping track of every expense the company incurs in a manner that will help to enhance management. The process of documenting, categorizing, summarizing, and assigning process-related expenses, followed by the development of alternative cost-control strategies, is another way to conceptualize cost accounting ([Collier et al., 2021](#)). A health service is the part of the health system that specifically focused on offering medical treatment to the general population. A health system is an intricate network of population-based and institutional structural links that affect health. The knowledge, abilities, drive, and professional growth of those in charge of organizing and delivering health care play a major role in the effective implementation of those services ([Young et al., 2021](#)). According to previous studies, aside from the patient's subjective assessment, many aspects of the quality of health services are measured, including consistency, completeness, and effectiveness. Customers assess the service depending on how they feel about its provision overall, whereas the latter assesses the service's design and execution. It follows that different stakeholder in the healthcare system have diverse definitions of what constitutes high-quality healthcare ([Riestenberg et al., 2022](#)). Cost information for the health sector is obtained by calculating the financial relationship between the hospital's output services and its resource inputs. Cost data is among the fundamental data that the government, policymakers, and managers want in order to make many decisions on how to raise a hospital's performance. Furthermore, there are several other justifications for cost information, including enhancing sustainability, effectiveness, efficiency, and quality, all of which are critical components that go into pricing ([Abdullah et al., 2021](#)).

According to [Lenzen et al. \(2020\)](#), the medical supply divisions (MSD) of the health department provided a price list, which was used to determine the cost of the medications and consumables. The accountant provided the staff's pay. It serves as both an outpatient clinic and an operating room. The personnel expenses were distributed. Urological labor is done in shifts, and staff costs are distributed based on the amount of time they spend providing urological services. Data on patients, workload, and consumables were gathered. And supplies needed were gathered from the registries kept in the outpatient clinic, operation room, and ward. The process of calculating and categorizing the money that a company spends on expenses is known as cost accounting. According to [Shah et al. \(2020\)](#), the gold standard of cost estimation is service or individual patient pricing, even though departmental or organizational studies of these costs are possible. [Kendzerska et al. \(2021\)](#), appear to have recognized the growing significance of cost accounting in the healthcare industry. His extensively used textbook on healthcare finance and accounting was updated most recently, and it now covers methods for cost estimation at the product or service level in considerably more detail ([Al-Sharifi et al., 2023](#)).

H2: Indirect cost has a positive association with the services quality of the helathcare centres.

The facility's medical staff's possible resistance is yet another significant cost associated with implementing an advanced pricing system. Physicians may feel that efforts to set even more complex systems are impeding their capacity to exercise professional judgment, even while a complex costing system like ABC will help hospitals standardize clinical procedures (Reitblat et al., 2021). The conventional division between "facility fees" paid to hospitals and "professional fees" paid to doctors who work there may exacerbate this issue. The majority of a physician's compensation is based on a fee-for-service basis, whereas hospitals receive case-based reimbursement. As a result, although the hospital is motivated to decrease per-episode resource utilization, the physician is not (Hugar et al., 2021). A cost accounting system cannot be beneficial for many hospitals, even though establishing one has substantial expenditures. This restricted benefit is a result of hospitals' apparent incapacity to control their costs. Even with the development of advanced cost accounting systems, numerous hospitals believe that their potential to increase the rates of payment is constrained (Cocci et al., 2024).

Furthermore, in their pricing discussions, hospitals that have the power to control their rates frequently overlook service-level cost information. Large urban hospitals report using cost information just around half the time for computing charges (which are rarely the real rates paid for hospital services), while rural hospitals report using it only 25% of the time (Tamayo et al., 2020). This is most likely a result of the conventional approaches to hospital service pricing and reimbursement. First, according to Edison et al. (2020), the majority of patients in the United States have historically had insurance and programs that have largely shielded them from the entire expense of medical care. As a result, insurance companies have negotiated prices on behalf of their beneficiaries rather than individual patients buying a combination of services. Negotiating lucrative contracts as a whole has been more crucial for hospitals than determining the reasonable and profitable prices for particular services (Nguyen et al., 2020). Thus, as long as they could work out agreeable insurer contracts, hospitals have not had to precisely cost (or profitably price) individual inpatient treatments. Because discussions have taken place at the contract level rather than the individual service level, hospitals have not reaped much of an advantage from investing in cost accounting systems that offer precise cost estimates at the service or patient level. However, significant changes are occurring in the healthcare sector that could boost the advantages of having an advanced cost accounting system while lowering installation costs and high services quality (Pinar et al., 2021).

H3: Urology services has a positive association with the services quality of the helathcare centres.

Methodology

The goal of this study is to find out how cost accounting methods can enhance the caliber of care provided by urologists using a quantitative research methodology. The technique is intended to gather and analyze data from pertinent stakeholders in order to answer the main and supporting questions of the research. In order to offer unbiased and statistically sound conclusions, a quantitative research approach was selected for this investigation. Structured questionnaires will be used to collect data, and Smart-PLS will be utilized for data analysis. The goal of this strategy is to guarantee the findings' accuracy and dependability. Accountants employed for government and private hospitals are included in the research population. The cause for the focus on this group is their direct experience in using and the management of cost accounting procedures in healthcare sectors. Random sampling is implemented for the choice participants from this population. There was a sample size of 100 respondents adequate to produce statistically significant results. Questionnaires are distributed as part of the data collection process. The surveys are to gather comprehensive data on the use of direct and indirect costs, together with specific cost accounting procedures related to urology services. The questions will be formatted using five point Likert scales and other closed-ended question styles for

facilitating quantitative analyses.

The collected data is tested by the smart-PLS software. It is summarized regression analyses for examining the relationships between the independent variables (direct costs, indirect costs, and costs unique to urology) and the dependent variable (quality of urology services). This investigation will be valuable for the determination of how cost accounting method affects the caliber of care which urologists provide. The study follows ethical research principles which ensures participants' confidentiality and anonymity. We asked all respondents for their informed consent before beginning the survey. The data gathered are securely stored and utilized exclusively for this study. The details of the respondents are given under a descriptive analysis. According to the findings, 68% of the sample consist of men and 32% women. The sample is primarily male, with little under one-third of women participants and over two-thirds being men. [Table 1](#) shows these figures.

Table 1: Gender Characteristics

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	68	68.0	68.0	68.0
	Female	32	32.0	32.0	100.0
	Total	100	100.0	100.0	

In addition, according to the findings, 73% of the sample's accountants hold a bachelor's degree and work in public and private hospitals. Also, 10% of accountants hold PhDs, and 17% hold master's. Based on this distribution, most accounting staff members at these hospitals hold a bachelor's as a foundational degree and a smaller percentage have pursued higher education.

Table 2: Qualification Characteristics

Qualification					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor degree	73	73.0	73.0	73.0
	Master degree	17	17.0	17.0	90.0
	PhD	10	10.0	10.0	100.0
	Total	100	100.0	100.0	

The results show that accountants who work in both public and private healthcare facilities have a wide range of expertise levels. Specifically, 10% of accountants have been in the field for less than a year, indicating that a relatively small proportion of employees are brand-new to the industry. Professionals with one to five years of experience make up a larger number (31%), suggesting that many are still in the early to mid-phases of their careers. An additional thirty-one percent of accountants have ten to fifteen years of experience, meaning they have a moderate to significant expertise. Lastly, a significant portion of the workforce has a high level of skill, as evidenced by the 28% of accountants who have worked for more than ten years. This distribution shows a well-rounded group comprising both young and seasoned workers, which is advantageous for an efficient and dynamic accounting department.

Table 3: Experience Characteristics

Experience					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1	10	10.0	10.0	10.0
	1-5	31	31.0	31.0	41.0
	6-10	31	31.0	31.0	72.0
	More than 10 years	28	28.0	28.0	100.0
	Total	100	100.0	100.0	

Finally, the study used Smart-PLS for analysis that is the commonly used statistical tool with the primary data and provides best results even though the researchers utilized the large data sets or complex models (Hair Jr et al., 2020). Finally, three predictors were used such as direct cost (DC), indirect cost (INC) and urology services (US) while one dependent variable is used called services quality (SQ). These are shown in Figure 1.

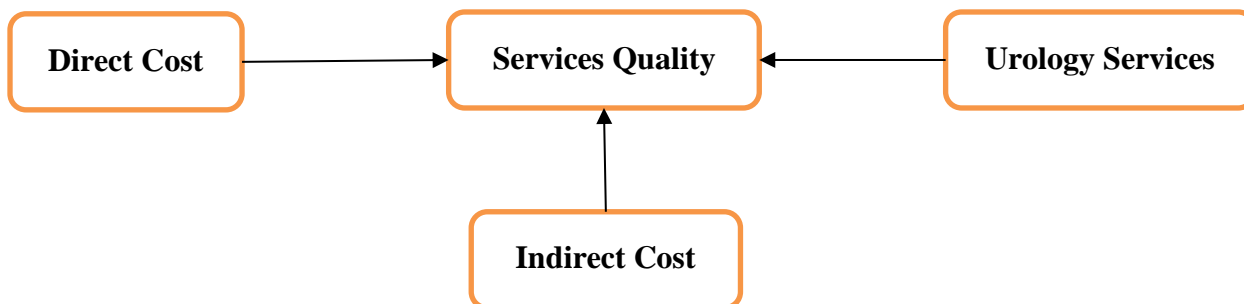


Figure 1: Theoretical model

Results of the Study

The study checks convergent validity that exposed the correlation between items. This correlation is examined using Alpha and CR and both figures are larger than 0.70. In addition, it is also examined using the average variance extracted (AVE) and factor loadings and both are bigger than 0.50. These values revealed a high correlation between items as in in Table 4.

Table 4: Convergent validity

Constructs	Items	Loadings	Alpha	CR	AVE
Direct Cost	DC1	0.922	0.949	0.961	0.830
	DC2	0.926			
	DC3	0.907			
	DC4	0.869			
	DC5	0.929			
Indirect Cost	IDC1	0.815	0.901	0.927	0.718
	IDC2	0.883			
	IDC3	0.855			
	IDC4	0.883			
	IDC5	0.797			
Services Quality	SQ1	0.870	0.901	0.921	0.626
	SQ2	0.813			
	SQ3	0.738			
	SQ4	0.811			
	SQ5	0.812			
	SQ6	0.710			
	SQ7	0.774			
Urology Services	US1	0.729	0.794	0.866	0.618
	US2	0.737			
	US3	0.840			
	US4	0.832			

The study tests discriminant validity depicting the correlation between variables. This correlation is examined by Heterotrait Monotrait (HTMT). The ratio and figures are lower than 0.90 entailing a low

correlation between variables as in [Table 5](#).

Table 5: Discriminant validity

	DC	IDC	SQ	US
DC				
IDC	0.625			
SQ	0.689	0.661		
US	0.669	0.761	0.756	

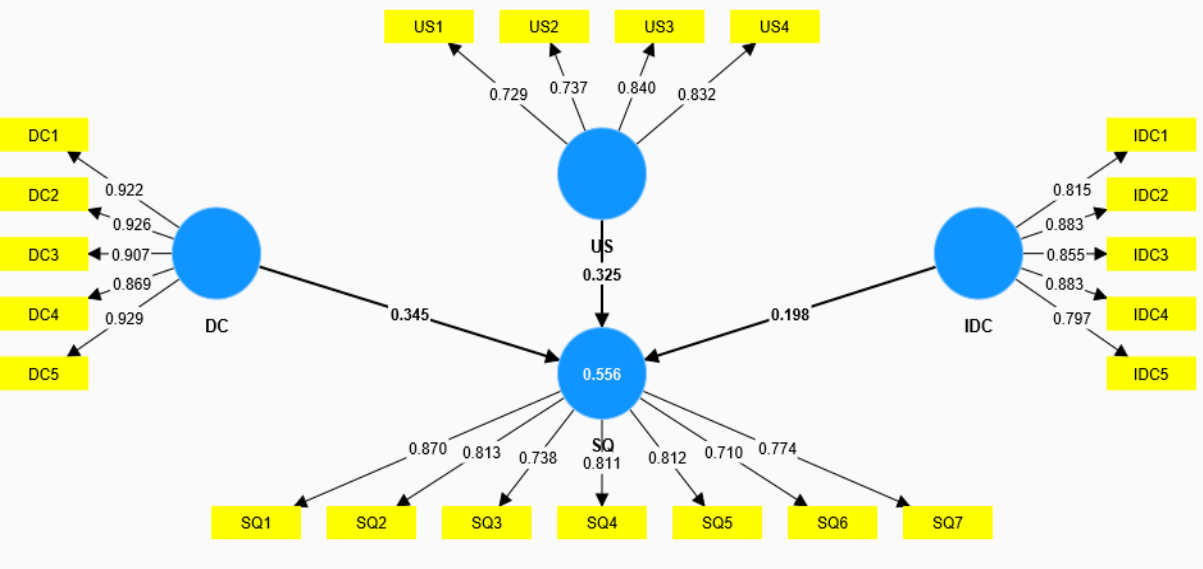


Figure 2: Measurement assessment model

The path analysis explains the association among the variables. The outcomes revealed that the direct cost, indirect cost and urology services have a positive association with the services quality of healthcare centers. SoH1, H2 and H3 are confirmed. These relationships are given in [Table 6](#).

Table 6: Path analysis

Relationships	Beta	Standard deviation	T statistics	P values
DC -> SQ	0.345	0.057	6.102	0.000
IDC -> SQ	0.198	0.059	3.343	0.001
US -> SQ	0.325	0.054	6.067	0.000

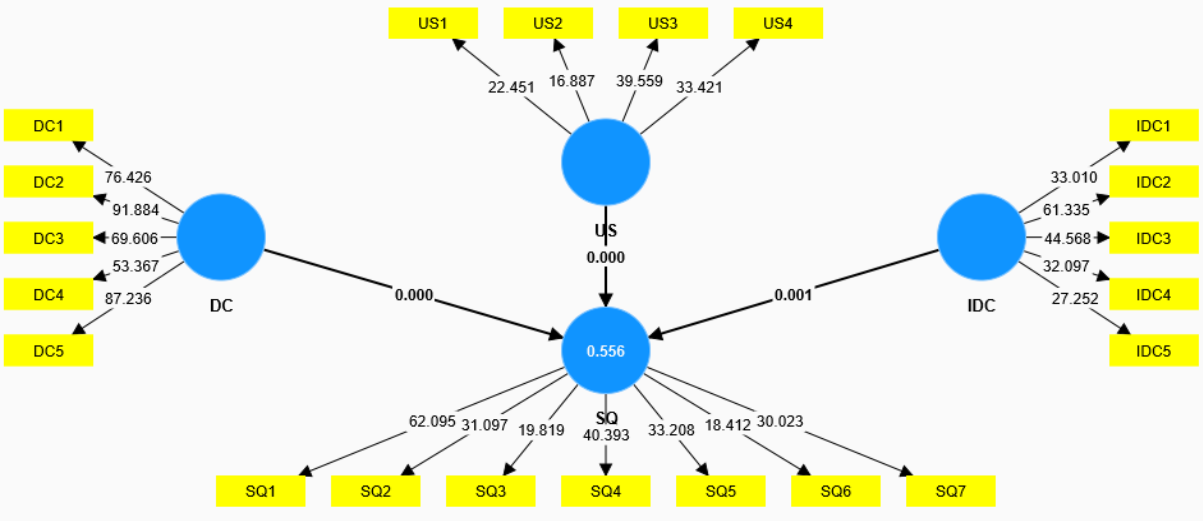


Figure 3: Structural assessment model

Discussions

The results confirm past research on the potential cost accounting benefits of for healthcare services, in particular urology-related therapies. The participants acknowledged contemporary cost accounting method importance in the improvement of urological care standards which enables the improvement of decision-making, and managing costs. This confirms the literature that current cost accounting is needed in the current complex and competitive healthcare environment, where the provision of high-quality treatments at the lowest practical cost is important (Alzoubi et al., 2022). This work confirms past studies showing the cost accounting significance as management tools for hospitals minimizing inefficiencies and optimizing resource allocation finally leading to better patient outcomes (Zhou et al., 2021). Also, the current work highlights the strategic cost accounting significance in decision-making and accurate pricing in urology confirming with the literature's discussing the evolving cost accounting role in healthcare. The literature has demonstrated the accurate criticality and thorough cost data for bolstering managerial decisions and ensuring the financial healthcare sustainability over the long haul (Slack et al., 2020). According to the literature Prentice et al. (2020), the statements pertaining positive reception to activity-based budgeting and costing systems highlights the systems' relevance in the provision of comprehensive financial data supporting high-quality urological services.

The literature's conclusions that sophisticated costing techniques, like Activity-Based Costing (ABC), offer significant advantages in accurately capturing and analyzing healthcare costs is further supported by the participants' confidence in the accuracy and reliability of modern cost accounting systems (Feinberg & Wooton, 2020). According to Bartsch et al. (2020), accurate cost data is necessary for enhancing operational efficiency and cutting waste in healthcare services. This precision is crucial for efficient financial management and planning. This assertion is supported by the literature. However, the current analysis also identifies areas that need improvement, most notably in terms of staff training on cost accounting methods. This issue has been previously studied, as it was shown that hospitals had challenges when attempting to incorporate advanced costing methods (Kashani et al., 2021). Finally, the current study's findings, which suggest that urologists should more effectively incorporate cost accounting systems into quality improvement procedures, are in line with past research that emphasized the limited benefits that hospitals have traditionally reaped from putting cost systems in place due to high costs and opposition from medical staff (Young et al., 2021). The current study's participants acknowledge the potential of these systems; nevertheless, further work is needed to fully realize their benefits in improving service quality for cost accounting's effectiveness in minimizing errors. Prior studies have shown that hospitals commonly underuse cost information in their operations and decision-making processes (Nachum et al., 2021). This result confirms that the healthcare sector has to better integrate and use advanced cost accounting methods more widely.

Conclusion

This study determines whether using cost accounting techniques could improve the standard of care provided to urologists. This was done by the use of a quantitative research for a random choice of a sample of accountants working at public and private hospitals and administer standardized questions to them. The SPSS software was used to analyze the data, focusing on the relationships between direct, indirect, and urology-specific costs and these relationships affect the standard of urological services. The key results show that modern cost accounting techniques increase the standard of urological care. The respondents largely favor the use of cost accounting for reducing costs, improving decision-making, and maintaining a high level of services. This work showed that the importance and accuracy of cost information is to facilitate data-driven decision-making and ensure the long-term urological service financial sustainability. In addition, the activity-based budgeting integration and costing systems gained a positive acceptance which underscores their significance in providing comprehensive financial insights facilitating the superior service delivery. In contrast, the current research identified

areas still needing attention, which provides staff with more effective training on cost accounting techniques and integrating these systems into workflows enhancing quality.

While cost accounting techniques help in the improvements of the quality of services, their potential is not completely understood, in particular in the reduction of patient care errors and complaints. The study also stressed the importance of accurately recording direct and indirect costs for the provision of accurate cost estimation and competitive pricing for urology. In general, the results support the research highlighting the important role cost accounting in managing healthcare, in particular in urology. The current work concludes that although the cost accounting techniques help in raising the caliber of services rendered, hospitals can get benefit more from the enhancement of employees' education and the better integration of these techniques into their operational and decision-making processes.

Recommendations

The study recommended that the hospitals make investments in comprehensive staff training initiatives, in teaching staff members to use modern cost accounting techniques. This is to ensure giving knowledge to all the employees on these techniques and enable them to utilize them in the improvement of the caliber of services. To truly get benefit from this technology, hospitals can work for incorporating cost accounting systems into their quality improvements more effectively. This may mean developing protocols that employ cost data to identify inefficiencies and implement fixes. The education of the hospital staff members on the benefits and use of cost accounting techniques, from management to front-line employees including regular seminars, workshops, and updating cost accounting improvement of service quality is required. The accurate accounting for indirect expenses must be a priority for hospitals in pricing urological treatments. This comprehensive method to cost measurement ensures all aspects of service delivery, leading to more economical rates and more effective resource utilization. In addition to focusing on cost containment, hospitals should consider physically improving their urology departments. Enhancements to the waiting area's lighting, cleanliness, and comfort level can significantly affect patients' level of satisfaction with the caliber of the services. In order to get more precise data regarding the costs associated with urology services, hospitals should consider putting advanced costing systems like Activity-Based Costing (ABC) into place. In the end, this will result in better decision-making, more precise pricing, and higher-quality services.

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