

COST ACCOUNTING PERSPECTIVES ON PHARMACEUTICAL INVENTORY MANAGEMENT: EVALUATING FIFO IMPLEMENTATION AND DIGITAL RECORD-KEEPING IN COMMUNITY PHARMACIES

Nessa Maulidhyna^{1*}

*Corresponding author; Email: 22nessam@gmail.com¹

¹UIN Siber Syekh Nurjati Cirebon, Indonesia

Article history		
Received:	Revised:	Accepted:
December 25, 2025	January 16, 2026	December 31, 2025

Abstract

Effective pharmaceutical inventory management is essential for maintaining operational efficiency, controlling costs, and ensuring the sustainability of community pharmacies. Despite the widespread application of inventory control practices, many small pharmacies continue to rely on manual recording systems, which increase the risk of inventory inaccuracies, medicine expiration, and inefficient cost management. This study aims to analyze pharmaceutical inventory management from a cost accounting perspective by evaluating inventory recording practices, the implementation of the First-In, First-Out (FIFO) method, inventory control mechanisms, and the impact of supplier price fluctuations at Shegia Farma Community Pharmacy. A descriptive qualitative approach was employed using primary data collected through semi-structured interviews, direct observations, and documentary analysis of inventory records, purchase invoices, and stock reports. Data were analyzed using the Miles and Huberman interactive model, consisting of data reduction, data display, and conclusion drawing, supported by methodological triangulation to enhance the credibility of the findings. The results indicate that routine inventory monitoring and consistent FIFO implementation have contributed to minimizing inventory obsolescence and improving inventory traceability. However, manual and spreadsheet-based recording systems remain vulnerable to data-entry errors, reporting delays, and limited real-time inventory visibility. Furthermore, supplier price fluctuations significantly affect procurement costs and profitability, highlighting the importance of effective cost control. This study contributes to the cost accounting literature by demonstrating that integrating FIFO, digital inventory recording, and systematic inventory control enhances financial accountability, operational efficiency, and sustainable pharmaceutical inventory management while supporting ethical business practices grounded in Islamic principles.

Keywords: Cost Accounting, Pharmaceutical Inventory Management, FIFO, Digital Record-Keeping, Community Pharmacy.



By Authors

This work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/).

INTRODUCTION

In the retail pharmaceutical industry, particularly community pharmacies, effective control of raw material costs, represented primarily by pharmaceutical inventories, is essential for maintaining operational efficiency and ensuring business sustainability. Pharmaceutical inventories generally constitute one of the largest components of working capital invested by pharmacies. Consequently, inadequate inventory management may lead to excessive holding costs, stock shortages during periods of peak demand, and financial losses resulting from expired medicines. Previous studies have emphasized that the implementation of robust internal control procedures and inventory information systems can significantly improve inventory record accuracy while reducing non-value-added operational costs in community pharmacies (Febriliyanti et al., 2023).

Despite these recognized benefits, community pharmacies continue to encounter several operational challenges related to inventory cost management. Among the most significant issues are fluctuations in pharmaceutical purchase prices from suppliers, the risk of product expiration due to limited shelf life, and the need for accurate and real-time inventory recording. Supplier price volatility requires pharmacies to continuously adjust procurement strategies and pricing policies, while the limited shelf life of pharmaceutical products necessitates effective inventory issuance methods, such as First-In, First-Out (FIFO), and well-defined reorder policies to minimize inventory losses (Amanda et al., 2024). Previous case studies and evaluations of pharmacy inventory management systems have demonstrated that inventory control techniques, including Economic Order Quantity (EOQ), ABC/VEN analysis, and the adoption of specialized inventory management applications, can substantially mitigate the adverse effects of price fluctuations and product expiration when implemented consistently.

From a cost accounting perspective, inventory management extends beyond physical stock control to encompass accurate cost classification, cost allocation, and the determination of the cost of goods sold (COGS). Reliable inventory recording systems enable pharmacy managers to produce more accurate financial information, support pricing decisions, improve procurement planning, and strengthen operational accountability. Furthermore, the increasing adoption of digital accounting systems has enhanced inventory traceability, reduced human error associated with manual record-keeping, and facilitated more timely managerial decision-making.

This study aims to analyze how a community pharmacy manages pharmaceutical inventory costs through inventory recording practices (manual records, Microsoft Excel, and accounting applications), inventory control mechanisms (including FIFO, safety stock, and reorder point), and pricing decisions that reflect fluctuations in procurement costs. Methodologically, this research adopts a descriptive qualitative approach using field observations, semi-structured interviews with pharmacy management, and documentation of inventory records. This approach enables an in-depth understanding of the cost accounting practices implemented in pharmaceutical inventory management (R. A. Maharani, 2022).

The present study contributes to the existing literature by integrating practical pharmaceutical inventory management with fundamental cost accounting concepts, including cost classification, cost allocation, and cost of goods sold determination. In addition, it provides practical recommendations for community pharmacy managers regarding the implementation of more effective inventory control systems, the adoption of digital accounting technologies, and the enhancement of operational efficiency while promoting transparency, accountability, and ethical inventory management practices.

LITERATURE REVIEW

Cost Accounting in Pharmaceutical Inventory Management

Cost accounting provides a systematic framework for measuring, recording, and analyzing costs incurred throughout organizational operations to support managerial planning, control, and decision-making. Within community pharmacies, pharmaceutical inventories represent one of the largest current assets and directly influence operational efficiency, pricing decisions, and organizational profitability. Consequently, inventory management should not only ensure medicine availability but also facilitate accurate cost measurement through appropriate cost classification, cost allocation, and cost of goods sold (COGS) determination.

From a cost accounting perspective, effective inventory control contributes to reducing unnecessary operational costs associated with excessive stock holding, inventory shortages, product expiration, and procurement inefficiencies. Therefore, inventory recording systems should provide reliable and timely information that supports purchasing decisions, inventory valuation, and financial reporting. Previous research indicates that well-designed internal control systems combined with effective inventory information systems significantly improve recording accuracy while reducing non-value-added operational costs in pharmacy management (Febriliyanti et al., 2023).

FIFO as a Cost Control and Inventory Valuation Method

The First-In, First-Out (FIFO) method is one of the most widely adopted inventory valuation approaches in pharmaceutical organizations because it aligns inventory rotation with the limited shelf life of medicines. Under FIFO, products acquired earlier are issued before newer inventory, thereby minimizing the likelihood of product expiration while ensuring more accurate inventory valuation.

Beyond its accounting function, FIFO serves as an operational control mechanism that improves inventory turnover and reduces losses associated with obsolete or expired medicines. Previous studies have demonstrated that consistent implementation of FIFO enhances inventory accuracy, supports cost of goods sold calculations, and strengthens inventory accountability within pharmaceutical organizations. Nevertheless, supplier price fluctuations remain a major challenge because changes in acquisition costs continuously affect procurement planning and pricing policies (Amanda et al., 2024). Consequently, FIFO should be integrated with broader inventory control strategies rather than implemented as an isolated accounting procedure. Recent studies in pharmaceutical

inventory management also indicate that FIFO becomes more effective when supported by computerized inventory systems capable of monitoring stock movement and expiration dates in real time.

Inventory Control Systems and Digital Record-Keeping

Inventory control encompasses planning, monitoring, and evaluating inventory movements to ensure product availability while minimizing total inventory costs. Community pharmacies generally employ inventory control mechanisms such as safety stock, reorder point (ROP), and inventory classification techniques to balance service quality with inventory investment. These operational controls become increasingly effective when integrated with digital inventory recording systems.

Digital record-keeping improves the accuracy, timeliness, and traceability of inventory information by reducing manual recording errors and facilitating continuous stock monitoring. Compared with manual recording systems or spreadsheet-based administration, integrated accounting applications provide real-time information that supports procurement planning, inventory valuation, and managerial decision-making. Research by R. A. Maharani (2022) emphasizes that information systems play a strategic role in improving pharmaceutical inventory management by increasing recording reliability and facilitating operational control. Likewise, previous evaluations of pharmacy inventory systems have shown that digital technologies enhance inventory visibility, reduce reporting delays, and strengthen internal control over pharmaceutical inventories.

Pharmaceutical Inventory Management from a Cost Accounting Perspective

Pharmaceutical inventory management extends beyond maintaining medicine availability and encompasses the strategic management of inventory-related costs. Effective inventory management requires coordination among procurement decisions, inventory valuation, stock rotation, and financial reporting. Cost accounting provides the analytical foundation for evaluating how inventory policies influence operational efficiency, profitability, and resource utilization.

Supplier price volatility, inventory expiration, and recording inaccuracies represent significant sources of avoidable costs in community pharmacies. Consequently, management requires reliable accounting information to evaluate purchasing policies, determine appropriate selling prices, estimate inventory carrying costs, and monitor operational performance. The integration of FIFO, digital inventory recording, and systematic inventory control therefore represents not merely a technical improvement but also a managerial strategy for strengthening financial accountability and improving organizational performance.

Based on this theoretical perspective, the present study examines pharmaceutical inventory management through three interrelated dimensions:

1. Inventory recording practices, including manual records, Microsoft Excel, and digital accounting applications.

2. Inventory control mechanisms, including FIFO, safety stock, and reorder point.
3. Cost accounting practices reflected in procurement decisions, inventory valuation, and cost of goods sold determination.

These dimensions provide the analytical framework for interpreting the empirical findings and discussing how cost accounting principles can improve inventory management practices in community pharmacies.

RESEARCH METHOD

This study employed a descriptive qualitative research design to obtain an in-depth understanding of raw material cost control and inventory recording practices for pharmaceutical products at Shegia Farma Community Pharmacy. A qualitative approach was considered appropriate because the objective of the study was to explore and describe operational processes, managerial procedures, and cost accounting practices within their real-world context rather than to test statistical hypotheses. Accordingly, qualitative data derived from interviews, field observations, and operational documents provided comprehensive insights into inventory management practices and cost accounting decisions, including the implementation of the First-In, First-Out (FIFO) method, inventory monitoring procedures, and managerial responses to fluctuations in supplier prices. Previous studies evaluating pharmacy information systems and inventory management practices have similarly demonstrated that descriptive qualitative approaches are effective in identifying operational strengths, system deficiencies, and opportunities for improving inventory recording systems (Haryanti et al., 2024).

The research was conducted at Shegia Farma Community Pharmacy, where primary data were collected through semi-structured interviews with the pharmacy owner, the responsible pharmacist, and warehouse personnel. Direct observations were also undertaken to examine inventory-related activities, including medicine receiving, storage, stock monitoring, and issuance procedures. Documentary evidence was collected to complement the interview and observational data, including purchase records, inventory stock cards (both manual records and Microsoft Excel files), supplier invoices, expiration-date monitoring records, and product return documentation. In addition to primary data, secondary data were obtained through a comprehensive literature review of previous studies concerning pharmaceutical inventory management, including research on ABC-VEN analysis, Economic Order Quantity (EOQ), and inventory information systems. These sources provided the theoretical foundation for the study and served as benchmarks for interpreting the empirical findings (Paputungan et al., 2024). Previous national studies investigating pharmaceutical inventory control and inventory information systems also offered practical references for comparing the findings of the present case study.

Data analysis followed the interactive model proposed by Miles and Huberman, consisting of three interrelated stages: data reduction, data display, and conclusion

drawing and verification. During the data reduction stage, interview transcripts, observation notes, and documentary evidence were organized, coded, and condensed according to the research objectives. Subsequently, the data were systematically displayed through descriptive narratives, comparison matrices, and summary tables to facilitate the identification of patterns in inventory recording and cost control practices. Finally, conclusions were developed through continuous verification by comparing evidence obtained from multiple data sources.

To enhance the credibility and trustworthiness of the findings, this study employed methodological triangulation by integrating interviews, direct observations, and documentary analysis. Data obtained from each technique were cross-checked to ensure consistency and to identify converging evidence regarding effective pharmaceutical inventory cost control practices as well as operational weaknesses requiring managerial improvement. Furthermore, methodological guidance and comparative findings were drawn from recent national studies examining internal control systems and inventory management information systems within community pharmacy settings, particularly those focusing on pharmaceutical inventory control and system evaluation (Dince & Tokan, 2024).

RESULTS AND DISCUSSION

Pharmacy Operational Overview

Shegia Farma Community Pharmacy operates as a retail pharmaceutical outlet serving local patients through the provision of both over-the-counter (OTC) and prescription medicines. Based on field observations and semi-structured interviews, the most frequently purchased products include analgesic and antipyretic medications such as paracetamol (Panadol and Sanmol), combination analgesics (Bodrex), and commonly prescribed medicines, including amoxicillin and antihypertensive drugs. Demand patterns were found to be highly seasonal. During the rainy season, the pharmacy experiences a substantial increase in demand for antibiotics and antipyretic medications due to the higher incidence of respiratory infections and dengue fever. Consequently, inventory levels must be adjusted proactively to accommodate seasonal demand fluctuations.

These findings are consistent with previous studies on pharmaceutical inventory management, which suggest that medicine demand is inherently dynamic and strongly influenced by seasonal factors, thereby requiring adaptive inventory planning and responsive procurement strategies (Laiya, n.d.). From a cost accounting perspective, anticipating seasonal demand enables pharmacies to optimize inventory investment while minimizing stock shortages and unnecessary holding costs.

Raw Material Cost Recording Practices

The findings indicate that Shegia Farma employs a hybrid inventory recording system that combines manual documentation with Microsoft Excel spreadsheets. Although a simple digital application has been introduced for selected administrative activities, the system has not yet been fully integrated into the pharmacy's operational

processes. Manual and spreadsheet-based recording methods remain practical for employees with limited information technology competencies; however, they also increase the likelihood of data-entry errors, reporting delays, and difficulties in monitoring medicine expiration dates in real time (Sany, n.d.).

Previous studies concerning pharmaceutical inventory information systems have demonstrated that computerized inventory applications improve recording accuracy, reduce calculation errors, and facilitate more efficient inventory reporting. From the perspective of cost accounting, reliable inventory recording is fundamental for determining inventory valuation, calculating the cost of goods sold (COGS), and supporting evidence-based managerial decision-making.

Regarding inventory issuance procedures, Shegia Farma consistently applies the First-In, First-Out (FIFO) method in organizing storage shelves and distributing pharmaceutical products. FIFO is particularly appropriate for pharmaceutical inventories because medicines possess limited shelf lives, requiring products received earlier to be issued first in order to minimize expiration losses. Previous field studies conducted in Indonesian community pharmacies similarly conclude that FIFO represents the most appropriate inventory valuation and control method for pharmaceutical products with limited storage periods (I. Maharani & Ulyah, n.d.). Nevertheless, consistent FIFO implementation requires disciplined storage procedures and accurate documentation of inventory receipt dates.

Each recording method possesses distinct advantages and limitations. Manual and spreadsheet-based systems require relatively low implementation costs and are easy for employees to operate without specialized technical training. However, these systems remain vulnerable to human error, lack automated expiration monitoring, and offer limited scalability as business operations expand. Conversely, digital inventory applications provide comprehensive audit trails, automated expiration notifications, and demand analytics, although they require additional investment in software implementation and employee training. The findings therefore suggest that a gradual digital transformation beginning with automated expiration-date monitoring and minimum stock-level alerts would enable Shegia Farma to combine the flexibility of manual recording with the accuracy and efficiency of digital technologies.

Cost Control and Pharmaceutical Inventory Management

Inventory monitoring at Shegia Farma is generally conducted weekly for routine medicines and daily for fast-moving products during periods of peak demand. According to pharmacy management, this monitoring frequency represents a practical compromise considering limited human resources. Nevertheless, field observations revealed inconsistencies in daily inventory recording, creating discrepancies between physical inventory balances and recorded stock quantities.

Inventory management literature recommends integrating periodic stock counts with cycle counting to maintain inventory accuracy while minimizing operational disruption. Such an approach is particularly suitable for small community pharmacies

because it balances inventory control effectiveness with operational efficiency (Martono, 2025). From a cost accounting perspective, regular inventory verification contributes to accurate inventory valuation, minimizes inventory shrinkage, and enhances the reliability of financial reporting.

Expired medicines were identified as one of the primary sources of avoidable operational costs. At Shegia Farma, expired pharmaceutical products are managed through documented disposal procedures and, where permitted by supplier agreements, product returns. However, the effectiveness of these procedures depends largely on supplier return policies and accurate inventory documentation. Previous studies indicate that pharmacies lacking automated inventory monitoring systems are more likely to accumulate expired inventory, thereby increasing operational losses (Natsir & Nastiti, n.d.). Consequently, implementing automated expiration alerts and establishing minimum-maximum inventory levels are recommended to reduce the risk of medicine expiration and improve inventory turnover.

Procurement activities are supervised through direct coordination with several local pharmaceutical suppliers and invoice verification upon product receipt. The pharmacy has adopted a procurement strategy that involves maintaining multiple alternative suppliers for essential medicines while periodically negotiating purchase prices. This practice aligns with inventory management recommendations advocating supplier diversification as a strategy to reduce supply-chain disruption and mitigate supplier price volatility. However, supplier diversification should also be accompanied by consistent quality evaluation and delivery performance monitoring to ensure uninterrupted patient services.

The Impact of Supplier Price Fluctuations

Supplier price volatility emerged as one of the most significant operational challenges identified during interviews with pharmacy management. When procurement prices increase substantially, management faces three principal strategic alternatives: adjusting selling prices to preserve profit margins, absorbing part of the increased procurement costs to maintain sales volume, or sourcing pharmaceutical products from alternative suppliers offering more competitive prices.

The findings indicate that Shegia Farma generally adopts a combination of these strategies. Pharmacy management periodically renegotiates procurement prices with primary suppliers, selectively adjusts selling prices for products with relatively flexible margins, and substitutes branded medicines with generic alternatives whenever appropriate. These practices are consistent with previous studies emphasizing that pharmaceutical pricing decisions should simultaneously consider demand elasticity, healthcare ethics, and long-term business sustainability (Magister Perencanaan Ekonomi dan Kebijakan Pembangunan, Fakultas Ekonomi dan Bisnis, Universitas Indonesia et al., 2021).

From a cost accounting perspective, increases in procurement prices directly increase the cost of goods sold (COGS), thereby reducing gross profit margins unless

selling prices are adjusted accordingly. For relatively small-scale pharmacies such as Shegia Farma, increases in COGS have an immediate impact on net profitability. Consequently, operational cost efficiency including electricity consumption, workforce scheduling, and other controllable overhead costs becomes increasingly important for maintaining financial performance. These findings reinforce the relevance of applying a full-costing approach to evaluate the contribution of both fixed and variable costs in determining sustainable pharmaceutical pricing policies.

The Implementation of Islamic Principles in Cost Management

An important qualitative finding concerns the integration of Islamic ethical values into daily operational practices. Pharmacy management emphasized the principles of honesty (*sidq*), transparency, and accountability in determining selling prices and managing expired medicines. Customers are provided with accurate information regarding medicine origins, expiration dates, and pricing decisions, while damaged or expired products are handled transparently according to established procedures.

These practices are consistent with the Islamic business ethics literature, which emphasizes justice (*'adl*), trustworthiness (*amanah*), and the promotion of public welfare (*maslahah*) in commercial transactions (Aini & Mei Santi, 2025). Beyond their ethical significance, these principles also contribute to long-term organizational sustainability by strengthening customer trust and enhancing the pharmacy's reputation.

From the perspective of cost accounting, Islamic ethical values encourage stronger internal control practices by minimizing waste associated with expired inventories and promoting accountability in inventory recording. Accurate inventory documentation and consistent FIFO implementation support the principle of *amanah* by ensuring that inventory movements and financial transactions remain transparent, traceable, and auditable. Accordingly, the findings suggest several managerial recommendations, including strengthening inventory recording procedures, implementing automated expiration-date notification systems, and developing transparent pricing policies grounded in both sound cost accounting principles and Islamic ethical values.

Discussion

The findings of this study demonstrate that pharmaceutical inventory management at Shegia Farma Community Pharmacy reflects the practical application of cost accounting principles in supporting operational efficiency and inventory control. The study sought to examine how pharmaceutical raw material costs are managed through inventory recording practices, inventory control mechanisms, and pricing decisions under fluctuating procurement costs. Overall, the findings indicate that although the pharmacy has established fundamental inventory control procedures, opportunities remain for improving recording accuracy and strengthening digital integration.

The first research objective concerned the implementation of inventory recording practices from a cost accounting perspective. The findings reveal that Shegia Farma currently operates a hybrid recording system that combines manual documentation with Microsoft Excel, while digital applications are only partially utilized. Although this

approach offers operational flexibility and requires relatively low implementation costs, it also exposes the pharmacy to data-entry errors, reporting delays, and limited real-time inventory visibility. From the perspective of cost accounting, accurate inventory records constitute the foundation for reliable inventory valuation and cost of goods sold (COGS) calculation. Inaccurate recording may distort inventory valuation, reduce the reliability of financial statements, and ultimately affect managerial decision-making. These findings support previous studies emphasizing that computerized inventory information systems improve recording accuracy, reduce administrative errors, and strengthen internal control over pharmaceutical inventories (Sany, n.d.). Consequently, digital transformation should not merely be viewed as a technological investment but as a strategic initiative for enhancing accounting information quality.

The second research objective examined the implementation of FIFO as an inventory control mechanism. The findings demonstrate that FIFO has been consistently applied in inventory arrangement and medicine issuance to minimize the risk of product expiration. This practice is particularly appropriate in pharmaceutical organizations because medicine inventories possess limited shelf lives and require systematic stock rotation. Consistent with the literature, FIFO contributes not only to reducing inventory losses but also to improving inventory valuation and ensuring that the cost of goods sold reflects the actual flow of inventory (I. Maharani & Ulyah, n.d.). Nevertheless, the effectiveness of FIFO depends on disciplined inventory recording and accurate documentation of inventory receipt dates. Therefore, the findings suggest that FIFO should be integrated with digital inventory management systems capable of automatically tracking stock movement and expiration dates, thereby enhancing operational effectiveness beyond traditional manual procedures.

Another important finding concerns inventory control practices. Inventory monitoring at Shegia Farma is conducted periodically, with more frequent inspections during periods of increased demand. Although this approach enables the pharmacy to respond to seasonal fluctuations, inconsistencies in daily inventory recording occasionally result in discrepancies between recorded and physical inventory balances. From the perspective of cost accounting, inventory discrepancies represent avoidable operational costs because they reduce inventory accuracy and increase the risk of inventory shrinkage and expired products. These findings reinforce recommendations within inventory management literature advocating the combination of periodic inventory counts and cycle counting to improve inventory reliability while maintaining operational efficiency (Martono, 2025). Furthermore, the identification of expired medicines as a major source of inventory loss demonstrates the importance of integrating inventory control with automated expiration monitoring and inventory replenishment systems. Such measures would reduce unnecessary carrying costs while supporting more efficient inventory turnover, as suggested by previous studies (Natsir & Nastiti, n.d.).

The findings also highlight the managerial implications of supplier price fluctuations for pharmaceutical cost management. The pharmacy adopts a combination

of procurement strategies, including supplier price negotiations, selective selling price adjustments, and the substitution of branded medicines with generic alternatives. These decisions illustrate the close relationship between procurement management and cost accounting because changes in acquisition costs directly affect inventory valuation, the cost of goods sold, and ultimately organizational profitability. This finding is consistent with previous studies indicating that pharmaceutical pricing decisions should simultaneously consider market demand, healthcare ethics, and long-term business sustainability (Magister Perencanaan Ekonomi dan Kebijakan Pembangunan, Fakultas Ekonomi dan Bisnis, Universitas Indonesia et al., 2021). The results further indicate that effective cost control should extend beyond inventory purchasing by incorporating operational cost efficiency and comprehensive cost analysis through full-costing approaches, enabling pharmacies to establish sustainable pricing strategies while maintaining financial performance.

An additional contribution of this study lies in demonstrating how Islamic ethical principles complement cost accounting practices within pharmaceutical inventory management. The integration of honesty (*siddq*), transparency, and accountability into inventory recording and pricing decisions reflects that ethical values can reinforce managerial control systems rather than function merely as normative guidelines. Accurate inventory documentation, transparent pricing policies, and the consistent implementation of FIFO collectively embody the principle of *amanah* by ensuring that inventory transactions remain traceable and auditable. These findings are consistent with Islamic business ethics literature, which emphasizes justice, trustworthiness, and public welfare as essential components of responsible commercial activities (Aini & Mei Santi, 2025). Therefore, ethical values and cost accounting practices should be viewed as complementary mechanisms that jointly improve operational accountability and organizational sustainability.

Overall, the findings suggest that pharmaceutical inventory management should be approached as an integrated cost accounting system rather than solely an operational activity. The combination of accurate inventory recording, consistent FIFO implementation, systematic inventory control, digital accounting technologies, and ethical managerial practices enables community pharmacies to reduce avoidable inventory costs, improve financial reporting quality, and strengthen long-term organizational performance. Accordingly, this study extends previous research by demonstrating that cost accounting principles provide an effective analytical framework for improving pharmaceutical inventory management while simultaneously supporting managerial decision-making, operational efficiency, and sustainable business practices.

CONCLUSION

This study examined pharmaceutical inventory management from a cost accounting perspective by evaluating inventory recording practices, FIFO implementation, inventory control mechanisms, and the impact of supplier price fluctuations at Shegia Farma

Community Pharmacy. The findings indicate that the pharmacy has established an adequate inventory control system through routine inventory monitoring and the consistent implementation of the First-In, First-Out (FIFO) method. These practices contribute to minimizing inventory obsolescence, reducing the risk of medicine expiration, and improving inventory traceability, thereby supporting more accurate inventory valuation and cost of goods sold (COGS) determination.

However, the study also identified several operational challenges that limit the effectiveness of the existing system. The continued reliance on manual and spreadsheet-based inventory recording increases the likelihood of data-entry errors, reporting delays, and limited real-time inventory visibility. In addition, fluctuations in supplier prices significantly influence procurement costs and subsequently affect the cost of goods sold and overall profitability. These findings demonstrate that effective pharmaceutical inventory management requires not only appropriate inventory control techniques but also reliable accounting information systems capable of supporting timely managerial decision-making.

From a theoretical perspective, this study contributes to the cost accounting literature by demonstrating that pharmaceutical inventory management should be viewed as an integrated cost control system encompassing inventory recording, inventory valuation, procurement management, and pricing decisions. The findings further indicate that the integration of FIFO, digital record-keeping, and systematic inventory control strengthens financial accountability while improving operational efficiency. Moreover, the incorporation of Islamic ethical principles particularly honesty (*sidq*), transparency, and *amanah* complements conventional cost accounting practices by reinforcing accountability and promoting sustainable business operations within community pharmacies.

Practically, the findings suggest that community pharmacies should progressively adopt integrated digital inventory and accounting systems equipped with automated expiration-date monitoring, real-time inventory tracking, and cost reporting functions. Regular supplier performance evaluations and continuous employee training in inventory management and cost accounting procedures are also recommended to improve operational efficiency, enhance reporting accuracy, and strengthen internal control over pharmaceutical inventories.

Suggestions for Future Research

Future studies are encouraged to expand the scope beyond a single case study by employing comparative analyses across multiple community pharmacies or healthcare institutions to improve the generalizability of the findings. Quantitative or mixed-method approaches may also be adopted to examine the statistical relationships between digital inventory systems, inventory control practices, operational efficiency, and financial performance. Furthermore, future research could investigate the effectiveness of advanced inventory management techniques, such as ABC-VEN analysis, Economic Order Quantity (EOQ), and integrated Enterprise Resource Planning (ERP) systems, in

improving pharmaceutical inventory performance. Finally, given the growing emphasis on ethical business practices, future studies may further explore how Islamic accounting principles and ethical governance influence inventory management effectiveness, financial accountability, and organizational sustainability within the pharmaceutical sector.

REFERENCES

- Aini, F. & Mei Santi. (2025). Etika Bisnis Islam Dalam Menanggapi Fenomena Harga Obat Yang Tinggi Di Apotek. Eksyar: Jurnal Ekonomi Syari'ah & Bisnis Islam, 12(1), 178–189. <https://doi.org/10.54956/Eksyar.V12i1.754>
- Amanda, R. J., Saputra, Y. D., & Amira, A. (2024). Pengendalian Persediaan Obat Antidiabetes Di Apotek X Menggunakan Metode Safety Stock Dan Rop. Jurnal Kesehatan <https://doi.org/10.31004/Jkt.V5i4.35808> Tambusai, 5(4), 10344–10348.
- Dince, M. N., & Tokan, M. G. M. (2024). Analysis Of Internal Control Over Drug Supplies At The Sikka District Health Office.
- Febriliyanti, H., Bahri, S., & Puspitosarie, E. (2023). Sistem Pengendalian Internal Terhadap Persediaan Obat (Studi Kasus Pada Apotek Domat Anugra Farma Kota Malang). 12.
- Haryanti, S. S., Indrasari, F., Suwarni, S., Mesak, I. J., & Diyah, Y. (2024). Analisis Efektivitas Sistem Informasi Pengelolaan Obat Dengan Metode Hot-Fit Di Apotek K24 Kecamatan Banyumanik Kota Semarang. 01(03).
- Hotmaida Harahap, P. (2024). Perhitungan Harga Pokok Produksi Untuk Menentukan Harga Jual Pada Usaha Roti Ilham Ulak Karang Kota Padang. Jurnal Riset Akuntansi, Perpajakan Dan Auditing, 2(1), 39–47. <https://doi.org/10.62194/1ct19072>
- Laiya, A. W. (T.T.). Sistem Informasi Manajemen Persediaan Obat Di Apotek 17. Magister Perencanaan Ekonomi Dan Kebijakan Pembangunan, Fakultas Ekonomi Dan Bisnis, Universitas Indonesia, Agusriana, R., Wikarya, U., & Lembaga Penyelidikan Ekonomi Dan Masyarakat, Fakultas Ekonomi Dan Bisnis Universitas Indonesia. (2021). Pengaruh Kebijakan Harga Obat Terhadap Peluang Peredaran Obat Substandar Dan Palsu. Jurnal Kebijakan Ekonomi, 61–80. <https://doi.org/10.21002/Jke.2021.05>
- Maharani, I., & Ulyah, H. (T.T.). Analisis Penerapan Metode Fifo (First In First Out) Pada Persediaan Obat Di Puskesmas Sinar Baru.
- Maharani, R. A. (2022). Evaluasi Sistem Informasi Pengelolaan Persediaan Obat Di Apotek Indobat Pedungan. Jurnal Manajemen Informasi Kesehatan Indonesia, 10(2), 198. <https://doi.org/10.33560/Jmiki.V10i2.376>
- Martono. (2025). Perancangan Sistem Persediaan Stok Obat Pada Apotek Keluarga Jaya Berbasis Web. Publikasi Teknik <https://doi.org/10.62951/Repeater.V3i1.351> Informatika Dan Jaringan, 3(1). 124 Vol. 5 No. 2 Desember 2025

- Maulana, M. R., & Lubis, R. (2021). Sistem Informasi Manajemen Persediaan Obat Di Gudang Apotek Keluarga Cianjur. *Komputa : Jurnal Ilmiah Komputer Dan Informatika*, 10(2), 53–60. <https://doi.org/10.34010/Komputa.V10i2.6804>
- Natsir, F., & Nastiti, T. I. (T.T.). Desain Sistem Informasi Manajemen Stok Obat Berbasis Metode Fifo Pada Apotek Ban Cui Kramat Jaya.
- Paputungan, N. R., Citraningtyas, G., & Rundengan, G. E. (2024). Pengendalian Persediaan Obat Dengan Metode Eoq Dan Rop Di Rsud Kotamobagu. 13.
- Sany, E. (T.T.). Aplikasi Data Stok Obat Pada Apotek Asiapharm Jambi Berbasis Web.