ASSESSING PHARMACY INFORMATION SYSTEMS AND THEIR SUPPORT FOR PHARMACEUTICAL SERVICE STANDARDS: A MIXED METHODS STUDY IN EAST KALIMANTAN PRIMARY HEALTHCARE CENTERS

ABSTRACT

Background: Primary healthcare centers (PHCs) are required to provide pharmaceutical services according to Ministry of Health Regulation No. 74 of 2016, covering medicine supply management and clinical pharmacy services. Although Pharmacy Information Systems (PIS) have been implemented to support these services, their adoption and contribution to pharmaceutical service standards remain uneven.
Objective: This study assessed the success of PIS in PHCs in East Kalimantan and examined its contribution to pharmaceutical service standards.
Method: A mixed-methods sequential explanatory design was applied. The quantitative phase used a cross-sectional survey of 136 pharmaceutical personnel in PHCs implementing PIS, analyzed with the DeLone and McLean Information Systems Success Model and Partial Least Squares Structural Equation Modeling (PLS-SEM). The qualitative phase involved semi-structured interviews with 12 informants from PHCs and district or city health offices.
Results: The model explained 75.3% of variance in system use, 72.0% in user satisfaction, and 57.0% in net benefits. Information quality significantly affected system use and user satisfaction, while service quality affected both constructs. System quality significantly affected system use but not user satisfaction. System use significantly affected user satisfaction, and both user satisfaction and system use significantly influenced net benefits, with user satisfaction as the stronger predictor ($\beta = 0.425$; $p = 0.005$). Qualitative findings supported these results by showing that PIS was useful for prescription data, medication history, stock information, dispensing, monitoring, and reporting. However, its support for pharmaceutical service standards remained partial because drug planning, medicine use report preparation, warehouse integration, counseling documentation, and medication monitoring were still often handled manually or through parallel systems.
Conclusion: PIS in East Kalimantan PHCs was useful and promising, but still transitional and context-dependent, with effectiveness constrained by fragmentation, incomplete features, weak interoperability, and duplicated workflows.
Keywords : Pharmacy Information System, Pharmaceutical Services, Primary Healthcare, DeLone and McLean, Mixed Methods