

INTISARI

Pengelolaan persediaan farmasi yang efektif dan efisien sangat penting dalam operasional rumah sakit karena menyerap anggaran yang cukup besar. Rumah Sakit Muhammadiyah Lamongan saat ini belum mempunyai metode khusus dalam pengendalian persediaan sehingga masih didapati permasalahan dalam pengelolaan persediaan. Berdasarkan beberapa penelitian terdahulu, metode *Economic Order Quantity* (EOQ) dan *Reorder Point* (ROP) dapat meningkatkan efisiensi dan efektifitas pengelolaan persediaan di rumah sakit. Penelitian ini bertujuan untuk menganalisis penerapan metode EOQ dan ROP secara terpadu, serta dampaknya terhadap nilai persediaan, *inventory turnover ratio*, tingkat layanan resep dan *dead stock* di RS Muhammadiyah Lamongan.

Penelitian ini menggunakan desain kuasi eksperimental dengan pendekatan *One-group pretest-posttest without control group design*. Data retrospektif diperoleh melalui data riil penggunaan obat sebelum penerapan metode EOQ dan ROP. Sampel didapatkan melalui analisa ABC yang berfokus pada item obat rawat jalan BPJS kategori A (*high cost* atau *high volume*). Data setelah penerapan metode EOQ dan ROP dilakukan secara prospektif. Analisa data dilakukan dengan menggunakan SPSS versi 26 yang diuji dengan *Paired T-test* atau *Wilcoxon Signed Rank Test* untuk mengetahui pengaruh penerapan metode EOQ dan ROP pada nilai persediaan, nilai *Inventory Turn Over Ratio* (ITOR), tingkat layanan resep dan nilai *dead stock*. Perbedaan kejadian *dead stock* sebelum dan sesudah penerapan akan di uji dengan uji McNemar.

Hasil menunjukkan penerapan metode EOQ dan ROP dapat menurunkan nilai persediaan dari Rp395.259.918 menjadi Rp231.075.982 dengan nilai $p = 0,019$, meningkatkan ITOR dari 15,12 menjadi 27,43 dengan nilai $p = 0,013$, meningkatkan tingkat layanan resep dari 99,65% menjadi 99,69% dengan nilai $p = 0,655$, menurunkan nilai *dead stock* dari Rp577.491 menjadi Rp410.628 dengan nilai $p = 0,593$ tetapi tidak menyebabkan perubahan pada kejadian *dead stock*. Penerapan metode *Economic Order Quantity* (EOQ) dan *Reorder Point* (ROP) memberikan dampak positif dalam upaya pengendalian persediaan untuk meningkatkan efisiensi persediaan di Rumah Sakit Muhammadiyah Lamongan.

Kata kunci: Pengendalian persediaan, EOQ, ROP, ITOR, tingkat layanan resep

ABSTRACT

Effective and efficient pharmaceutical inventory management is crucial for hospital operations, as it accounts for a significant portion of the hospital's budget. Muhammadiyah Lamongan Hospital currently has not implemented a specific inventory control method, resulting in persistent inventory management issues. Previous studies have demonstrated that the Economic Order Quantity (EOQ) and Reorder Point (ROP) methods can enhance the efficiency and effectiveness of pharmaceutical inventory management in hospital settings. Therefore, this study aimed to analyze the integrated application of the EOQ and ROP methods and their impact on inventory value, inventory turnover ratio (ITOR), prescription service levels, and dead stock at Muhammadiyah Lamongan Hospital.

This study employed a quasi-experimental design using a one-group pretest–posttest approach without a control group. Retrospective data were obtained from actual drug utilization records before the implementation of the EOQ and ROP methods. Samples were selected through ABC analysis, focusing on category A BPJS outpatient drugs, which represent high-cost or high-volume items. Post-implementation data were collected prospectively. Data analysis was conducted using SPSS version 26. A paired t-test or Wilcoxon signed-rank test was used to evaluate the effects of the EOQ and ROP methods on inventory value, Inventory Turnover Ratio (ITOR), prescription service levels, and dead stock value. Differences in dead stock occurrences before and after implementation were analyzed using the McNemar test.

The results indicated that the implementation of the EOQ and ROP methods significantly reduced inventory value from IDR 395,259,918 to IDR 231,075,982 (p -value = 0.019) and significantly increased ITOR from 15.12 to 27.43 (p -value = 0.013). The prescription service level increased from 99.65% to 99.69%; however, this change was not statistically significant (p -value = 0.655). Dead stock value decreased from IDR 577,491 to IDR 410,628, although the difference was not statistically significant (p -value = 0.593). No difference was observed in the incidence of dead stock before and after implementation. Overall, the implementation of the EOQ and ROP methods had a positive impact on inventory control by improving inventory efficiency and optimizing operational costs at Muhammadiyah Lamongan Hospital.

Keywords: inventory control, EOQ, ROP, ITOR, prescription service level