The Effect of Management Information System Implementation in Drug Management on the Performance of Hospital Pharmacy Installation Employees

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Abstract. The implementation of the Hospital Management Information System (SIMRS) in drug management must be able to provide access to accurate and timely information. The problems with implementing SIMRS in pharmacy installations are invalid drug stock data, the unavailable feature of the report on the expenditure of goods per unit, and the human resource factors that have been accustomed to the old application. These problems can result in employee activities in the process of planning and reporting drugs that are less accurate and not timely so decision-making will lead to financial losses for the hospital. This study aims to determine the effect of SIMRS implementation in drug management on the performance of Pharmacy Installation employees at RSPAU dr. S. Hardjolukito. This type of research is an analytic survey with a cross-sectional design. The number of samples was obtained by 46 people using the purposive sampling technique. The results showed that there was a positive influence between the implementation of SIMRS in drug management on employee performance when viewed from the t-test with t count > t table (19.951 > 2.015368). The coefficient of determination of the R-value is 0.949, close to 1, so the relationship between SIMRS implementation in drug management and employee performance is very close. SIMRS implementation in drug management is in the high category (56.52%). Employee performance is in the high category (69.57%). The better the implementation of SIMRS in drug management at the pharmacy installation of RSPAU dr. S. Hardjolukito then the level of employee performance will be better.

Keywords: Hospital Pharmacy · Employee Performance · Drug Management · Hospital Management Information System

1 Introduction

Drug management in pharmacies is closely related to the budget and the largest cost of spending in hospitals, in developing countries about 40–50 percent of the budget absorption of the total cost of hospitals [1]. According to research, [2] the absorption of the hospital's routine expenditure budget is around 35 percent for the purchase of pharmaceutical supplies. Drug spending in Indonesia is around 40 percent of the health

budget [3]. Given the importance of financial resources and the allocation of medicines in hospitals, it needs to be managed effectively and efficiently to maximize benefits for patients and the hospital itself. Drug management in hospitals is one of the important elements in the overall managerial functioning of the hospital, because inefficiencies will have a negative impact on the hospital both medically and economically. The purpose of drug management in hospitals is to ensure that the required medicines are available in sufficient quantities, guaranteed quality and affordable when needed to support high-quality services. Drug management or drug management chain in hospitals includes selection, procurement, distribution and use [4].

The development of technology in the health sector, especially hospitals, is supported by the government with the issuance of the rules of the minister of health number 82 of 2013 concerning Hospital Management Information Systems (SIMRS) whose purpose is to improve efficiency, effectiveness, professionalism, performance as well as access and services from hospitals. Each hospital is required to carry out the management and development of SIMRS. Prior to the implementation of accreditation in 2018, the Pharmacy Installation of the Air Force Central Hospital dr. Suhardi Hardjolukito (RSPAU dr. S. Hardjolukito) had used a management information system, but its use was only limited to the pharmaceutical installation environment. The implementation of SIMRS will find out the strengths and shortcomings of the application used, know the availability of the necessary information and find out whether this system can provide information accurately, reliably and on time [5].

The implementation of SIMRS in drug management must be able to provide timely access to information, at the same time it can monitor service activities and cost control quality control activities through "monitoring and evaluation of the use of drugs, medical devices and consumable medical materials in health services periodically carried out through the use of health information systems" [6] (Government rules about Health Information Systems) with the intention of reducing the burden of medical expenses by assessing the restrictions on drug use on the patient's condition. The information system in drug management that has been running is a single entity, so that if there is an error in the data entry process in one part of the drug management function, it will affect other functions in SIMRS. These mistakes can be fatal to the survival of the hospital, one of which is a mistake in decision-making that leads to financial losses for the hospital.

Pharmacy Installation is the part responsible for the management of pharmaceutical goods in the form of drugs used by all units in the hospital environment both for out-patient services including emergency and central surgery, inpatient services including intensive care as well as the use of drugs and consumable medical devices in the sup-porting departments of hospitals such as Laboratories, Radiology, Hemodialysis, CSSD, Laundry, Medical Records and K3. So that drug management becomes the most impor-tant factor in the hospital managerial system when it has a positive influence in terms of quality services and the financial management side of the hospital. Meanwhile, in its implementation there are supporting factors that can affect drug management activities such as human resources, organizations, finance and management information systems [4]SIMRS is an application used by Pharmacy Installations to assist and facilitate the

implementation of pharmaceutical tasks both clinical and managerial pharmacy precisely and accurately, the need for accurate, precise, efficient, and effective information and data can have a significant impact on improving employee performance [7].

Good system quality with speed, accuracy, and ease of accessing information systems will provide satisfaction for employees who use the system and can improve the performance of employees of hospital pharmacy installations [8] However, the successful implementation of SIMRS is not only determined by information technology but also human resources as users of the system. The quality of human resources is an important component of an organization's success. Because human resources with the highest quality and quantity can work optimally and optimally. This must also be supported by the facilities and infrastructure owned by the company to create work productivity for employees.

Based on the results of research conducted at RSPAD Gatot Soebroto explained the effect of the application of SIMRS on Employee Performance. The results of the study showed that there was no significant and positive relationship between SIMRS and employee performance. Then the research conducted at Harapan Magelang Hospital explained the influence of driver's licenses and organizational culture on employee performance with the results of research showing that SIM does not affect employee performance, but organizational culture affects employee performance, driver's licenses and organizational culture simultaneously affect employee performance. Meanwhile, research conducted at the PDAM Tirtanadi Padang Bulan Branch office also explained the effect of driver's licenses on employee performance with the results of the study stating that the Management Information System has a significant effect on employee performance and the two variables have a close relationship [9].

However, the SIMRS that is currently being run is still in the development level, so that in the implementation in pharmaceutical installations of drug management, there are still obstacles, one of which is invalid SIMRS stock data. Valid stock data is very important in drug management because invalid data will affect employees' work activities that are not on time such as in the prescription acceptance process, where employees must see the amount of available drugs, in the process of making and submitting planning for drug needs and consumable medical materials (BMHP) as well as reporting the results of enumeration of hospitalized stock, all of which can affect the results of decision making planning and procurement of goods. The purpose of this study was to determine the effect of SIMRS implementation in drug management on the performance of pharmaceutical installation employees at RSPAU dr. S. Hardjolukito.

2 Method

This type of research is analytical survey research. Researchers tried to explore how and why this phenomenon occurs and, in this study, also carried out a correlation analysis between risk factors and effects. While the research design used is cross sectional.

This research was conducted at the Pharmacy Installation of the Air Force Central Hospital dr. S. Hardjolukito which is located at, Banguntapan Bantul Yogyakarta. The data collection was carried out during April 2022.

The population in this study was all employees of pharmaceutical installations at RSPAU dr. S. Hardjolukito which amounted to 53 people. A sample is a part or number

and characteristics possessed by the population [10]. The number of samples based on inclusion and exclusion criteria was obtained by 46 people.

The sampling technique is carried out by purposive sampling, which means sampling is based on certain criteria and considerations [10]. The inclusion criteria in this study are employees who are willing to be respondents in this study and have a minimum service period of 6 months. Meanwhile, the exclusion criteria in this study are employees who are in the assignment period.

This study adopts instruments from research that has been carried out by Lumbanraja [9]. The adoption of the questionnaire used adjusts to the indicators of the variables to be used (Table 1).

The points of statement are collected in a package of research instruments in the form of a questionnaire compiled on a Likert scale with five alternative answers, namely: Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree.

Simple linear regression analysis was used to determine the influence between SIMRS variables and performance by using a simple linear regression analysis with the help of SPSS Version 21. This technique is used to answer the formulation of the problem in this study. A simple linear regression analysis is a linear relationship between one free variable (X) and a bound variable (Y) whether positive or negative.

The hypothesis test is used to prove whether or not the regression value obtained from the t test is significant [10]. Significance testing aims to determine the significant effect of SIMRS implementation in drug management (X) on employee performance (Y). Ho: there is no significant influence between the implementation of SIMRS in drug management on employee performance.

Correlation coefficient analysis is used to find out the direction and strength of the relationship between free variables and bound variables. According to Sugiyono [10] strong and weak relationships are expressed in the magnitude of the correlation

Table 1. Research Instrument

No	Variabel	Indicators	Item
1	Information System Management Hospitals In Drug Management(X)	SIM assist in decision making	1,4, 5, 9
		SIM helps planning function	8,10, 12
		SIM informing which is complete and timely	2,6, 11
		SIM assist in the implementation of work program	3,7, 13, 14, 15
2	Employee Performance(Y)	Quality	2,4,5,7
		Quantity	6, 8, 10
		Timeliness	3, 12, 13
		Presence	9, 14
		Interpersonal impact	1, 11, 15

coefficient whereas, direction is expressed in the positive and negative relationships (-1 $< r \leq +1$).

3 Result and Discussion

SIMRS in drug management at the RSPAU Pharmaceutical Installation dr. S. Hardjolukito consists of the functions of planning, procurement, receiving, distributing, using and controlling inventory.

3.1 Characteristics of Respondents

Based on the results of the distribution of questionnaires, the characteristics of respondents in this study can be seen in Table 2.

From this data, it is known that the identity of respondents is dominated by employees who are female (71.7%). This means that most of the employees related to the use of SIMRS are women where in their use, women are influenced by the convenience factor

Table 2. Respondent's Characteristics

Characteristic		N	%
Gender	Male	13	28,3
	Female	33	71,7
	Sum	46	100
Age (years) (Priyonodan Yasin (2016))	22–40	40	87,0
	41–50	4	8,7
	≥ 51	2	4,3
	Sum	46	100
Education	High School	4	8,7
	Diploma (D3)	25	54,3
	Bachelor (S1)	1	2,2
	Pharmacist Professional Program	15	32,6
	Magister (S2)	1	2,2
	Doktor (S3)	0	0
	Sum	46	100
Length of Work (years)	<1	0	0
	1 – 3	13	28,3
	> 3	33	71,7
	Sum	46	100

Source: Processed Primary Data

[11]. Meanwhile, the convenience factor in the use of technology can increase a person's confidence to facilitate all efforts [12].

Based on the age of the respondents most of the employees of the RSPAU pharmaceutical installation dr. S. Hardjolukito aged between 22–40 years (87.0%) are at a productive age who is able to use all abilities to practice all the intellectual potential, talent interests and skills acquired formally and informally. According to the Manpower Law Number 13 of 2003, manpower is a population of working age between 15–64 years or the number of residents in a country who can produce goods and services both to meet their own needs and for society. The age between 20–40 years is considered a very productive age for the workforce because the average age under 20 years old is still in the process of undergoing education and does not have sufficient skill maturity, while, at the age of over 40 years, there begins to be a decrease in physical ability [13].

Based on the latest education, most of the employees are Diploma/D3 graduates (54.3%). This shows that higher levels of education can increase employee productivity and can understand and overcome problems [14]. Education with its various programs has an important role in obtaining and improving the quality of individual competencies. Through education, a person is prepared to have provisions to be ready to know, know and develop systematic thinking methods in order to solve problems that will be faced in life in the future [15].

Most of the respondents have a service life of more than 3 years. The longer a person works, the better their skills will be, because they can adjust to the work environment in the use of SIMRS. A worker who has more work experience will certainly better understand what to do when facing a problem that arises. In addition, these workers will be faster at work and do not have to adapt to the tasks carried out because they already have experience in their respective fields [16]. Work experience can be measured by the time span that has been used for a job or task [17]. An employee who has high work experience will have advantages in several ways including being able to detect errors, understand errors and find the cause of the appearance of errors [18]

3.2   SIMRS Implementation in Drug Management

The implementation of SIMRS is an organizational policy and a form of organizational attention to the needs of employees in supporting their performance. Increasing the

Table 3. SIMRS Implementation Categories In Drug Management

Category	Frequency	Percentage (%)
Very High	12	26,09
High	26	56,52
Medium	2	4,35
Low	3	6,52
Very Low	3	6,52

Source: Processed Primary Data

quality of SIMRS will improve employee performance and organizational performance [19] (Table 3).

Based on these data, an idea was obtained that the implementation of SIMRS in drug management at the RSPAU Pharmaceutical Installation dr. S. Hardjolukito was in the high category (56.52%). The statements on the questionnaire are the development of variable indicators that can measure whether a hospital management information system is good or not in drug management applied by pharmaceutical installations. This can be seen from the answers in which there are 4 indicators, namely SIM assists in decision making, SIM assists in planning functions, SIM provides complete and precise information and SIM helps the implementation of work programs. Based on the results of these statements, the highest response was found in the 10th statement by giving an affirmative and strongly agreed answer of 82.6%, "With the use of a good driver's license, it can save time, funds and thoughts at work". This shows that most employees agree that the use of a driver's license can increase efficiency, effectiveness, professionalism, and performance in helping the planning function [20].

Based on the data above, the lowest response was found in the 7th statement by giving an affirmative and strongly agreed answer of 19.57% "During the application of the driver's license, you did not find any obstacles in using it during work". This shows that during the implementation of the management information system, there are still obstacles found in the use of SIMRS during work. Although in its implementation there are still problems in the form of invalid stock data in SIMRS and some features that are not yet available, SIMRS in pharmaceutical installations is a system used to support and as a tool for employees in expanding employee competencies but not to replace employee assessments because the existing data will be processed became an information [21]. Based on this, the weaknesses of SIMRS can be resolved by the characteristics of employees who are productive and could understand and overcome existing problems so that the implementation of SIMRS in drug management in RSPAU pharmaceutical installations.

3.3 Hospital Pharmacy Installation Employee Performance

The data was obtained by distributing 15 statements in the form of questionnaires to 46 respondents. All these statements are to measure employee performance by category [22] (Table 4).

Based on these calculations, it was obtained that the performance of employees related to the implementation of SIMRS in drug management at the RSPAU Pharmaceutical Installation dr. S. Hardjolukito was in the high category (69.57%) and if it was associated with the current SIMRS problems, it should be able to reduce employee performance. This can be explained from the results of respondents' statements which are the development of variable indicators to measure whether or not employee performance is good or not.

Based on the results of the statement, the highest response was found in the 12th statement by giving an affirmative and strongly agreed answer of 84.78% "With the implementation of management information systems, the implementation of tasks and work is more efficient and effective". This shows that most employees agree that with the implementation of SIMRS, the implementation of tasks and work is more efficient

Table 4. Employee Performance Categories

Category	Frequency	Percentage (%)
Very High	6	13,04
High	32	69,57
Medium	3	6,52
Low	3	6,52
Very Low	2	4,35

Source: Processed Primary Data

and effective. The use of SIMRS in drug management according to respondents is very important because in addition to reducing workload, it can provide input for decision makers optimally and reduce losses [23].

Based on the quality concerned about the suitability of the results obtained shows that the SIM can improve performance, especially in the suitability of the responsibilities of each employee, the results of achieving employee performance are in accordance with the work program, the SIM helps in achieving work results in accordance with the targets that have been achieved. Based on quantity, it shows that the working time is in accordance with the workload to be completed and employees can make optimal use of computers in obtaining information to complete work. Based on timeliness, it shows that the SIM supports employees in every task implementation and work is completed properly according to the specified time, with the implementation of the SIM the implementation of tasks and work is more efficient and effective, and the application of the SIM data management can be done faster than the manual method. Based on attendance shows that employees use all work time to carry out tasks that must be carried out optimally and the employee's attendance is in accordance with the company's SOP while working. Based on interpersonal impacts, it shows that the application of driver's licenses can improve skills related to technological capabilities, with the application of driver's licenses employees find more efficient work methods and the application of driver's licenses can motivate employees in improving performance.

Employee problems with the use of SIMRS are currently in accordance with the statements of the 5th and 8th respondents who have the lowest response. In the 8th statement by giving an affirmative and strongly agreed answer by 58.69%. "Delays in completing work often occur due to the amount of workload and unsuitable time". This shows that most employees agree that delays in completing work often occur due to inappropriate amounts of workload and time, but this only happens to some employees in certain units such as inpatient pharmacy depots, outpatient pharmacy depots and emergency room depots. Meanwhile, in the fifth statement with an affirmative and strongly agreed answer of 58.70% "The results of your work are in accordance with the company's vision and mission". This shows that the work of some employees is in accordance with the company's vision and mission in terms of quality and quality pharmaceutical services.

3.4 Test of Classical Assumptions

The first step is carried out a normality test using the Kolmogorov Smirnov one sample test. When the sig > 0.05, then the data meets the assumption of normality. The test results showed that the significance value Sig (2-tailed)) of 0.690, the value is greater than 0.05 (0.690 > 0.05), so it can be concluded that the normality test results based on the residual value are normally distributed.

Secondly, a heteroskedasticity test is carried out. The result of the heteroskedasticity test showed that the significance value was 0.079 > 0.05. It can be concluded that the estimated model is free from heteroskedasticity.

3.5 Analisis Regresi Linear Sederhana

The results of a simple linear regression analysis showed a constant value (a) of 6.711 while, the value of SIMRS Implementation in Drug Management (b/regression coefficient) was 0.949 so that the regression equation could be written:

$$Y = a + b$$
$$XY = 6,711 + 0,949X$$

The equation can be explained as follows:

a. Constant (a) of 6.711 means that if the free variable (SIMRS Implementation in Drug Management) is worth 0.000 or there is no change in the variable, then it is directly proportional to the value of the bound variable (Employee Performance) which is 6.711.
b. The regression coefficient X (b) of 0.949 states that every 1% addition of the SIMRS Implementation value in Drug Management (free variable or X) and the value of the constant (a) is 0, then the Employee Performance value (bound variable or Y) increases by 0.949.

3.6 Hypothesis Test

A t-test is carried out to test the research hypothesis. The results showed that free variables had a positive and significant effect on bound variables, this can be seen from the significant free variables of 0.000 < 0.05. Based on the data above, it can be seen the influence between free variables on bound variables. t count in the table above is 19.951. The hypothesis is accepted if t counts > t of the table, so to find t the table can be used the formula:

$$\text{t table} = (a/2;\ n - k - 1)$$
$$= (0,05/2;\ 46 - 1 - 1)$$
$$= (0,025;\ 44)$$
$$= 2,015368$$

where:

a = standard value

n = number of samples
k = number of variables X

Then it can be concluded that the calculated t value > t of the table (19.951 > 2.015368) so that the hypothesis (Ha) is accepted. So, it can be said that the implementation of SIMRS in drug management has a significant effect on employee performance. The value of t calculating the value is positive, it means that with the implementation of SIMRS in drug management, employee performance will also be better.

From the results of the correlation test, it is known that the value of the correlation coefficient (R) is 0.949 or 94.9%. The closer to number 1 shows that the relationship between SIMRS implementation in drug management and employee performance is very close [10].

Based on the calculation results, it shows that there is a positive and unidirectional influence between the implementation of SIMRS in drug management on employee performance. This means that the better the implementation of SIMRS used in drug management, the better the employee performance will be. This is in accordance with research conducted by Siregar (2022), Dewi, et al., (2022), Lumbanraja (2017) and Larasati. et al., (2013) [9, 24–26] which revealed that the existence of a management information system will improve employee performance for the better, effective and efficient. The implementation of SIMRS, which is used in carrying out drug management at the RSPAU Pharmaceutical Installation, dr. S. Hardjolukito, is expected to improve employee performance and provide benefits for hospitals which is characterized by the implementation of work programs effectively and efficiently in accordance with what has been planned.

4   Conclusion

The implementation of SIMRS in drug management which includes planning, storage and distribution at the RSPAU Pharmaceutical Installation dr. S. Hardjolukito is in the high category. The performance of employees at the RSPAU Pharmacy Installation dr. S. Harjolukito is in the high category. The implementation of SIMRS in drug management has a significant effect and has a high contribution to the performance of employees. So that the better the implementation of SIMRS in drug management in the pharmaceutical installation of RSPAU dr. S. Hardjolukito, the better the level of employee performance will be.

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