PERFORMANCE APPRAISAL ON CLINICAL PHARMACY SERVICE IN THE PUBLIC HEALTH CENTERS OF SAMBAS SUB-DISTRICT, WEST KALIMANTAN

MT Ghozali, Universitas Muhammadiyah Yogyakarta
Adam Layland, National Health Service
Nur Fadila, Universitas Muhammadiyah Yogyakarta

ABSTRACT

The right to health is a fundamental part of human rights and of understanding the right to living a life in dignity; unfortunately, its implementation in the frontier, remote, and disadvantaged areas (known as 3T areas) of Indonesia is not fully optimal. This study aimed to evaluate the performance appraisal of the clinical pharmacy service in the public health centers of the 3T areas. It is an observational field study, conducted from November 2019 to February 2020. Populations and samples, including pharmacists and pharmacy technicians of all health public centers, were taken using a total sampling technique. A descriptive method was utilized to analyze the performance appraisal of clinical pharmacy service based on the Ministerial Regulation of the Minister of Health of the Republic of Indonesia Number 74 of 2016. It includes seven aspects of clinical pharmacy service, namely: assessment and service of prescriptions; drug information service; counseling; patient visits (inpatient); drug side-effect monitoring; drug therapy monitoring; and drug use evaluation. Data of this study were collected through questionnaires, interviews, and checklists with retrospective data using descriptive methods. Results of the study showed that two aspects, *i.e.,* assessment and prescription services and drug use evaluation, were rated as high quality, while one aspect, *i.e.,* counseling, was moderate; two aspects, *i.e.,* drug information services and drug use evaluation, were low; and the last two aspects, *i.e.,* patient visits and drug side-effect monitoring, were very low. Regarding performance appraisal, this study found that the average score was 58.11%, which was considered low. It could be concluded that the performance appraisal on the clinical pharmacy service in public health centers of Sambas Sub-District, West Kalimantan was low.

Keyword: Clinical Pharmacy, Pharmacy Service, Performance Appraisal, Public Health Centers

INTRODUCTION

One of primary roles of a clinical pharmacist is to provide patient care to optimize medication therapy management and encourage health, wellness, and disease prevention in any health care setting Ali, et al., (2021); Hernández, et al., (2016). The American College of Clinical Pharmacy stated clinical pharmacy service as a health science discipline in which pharmacists provide patient-oriented care that optimizes medication therapy and promotes health, wellness, and disease prevention[3]. Improvement in the appropriateness of prescribing is related to the successful implementation of the service. Potential harm due to drug use could be prevented when the clinical significance of pharmacist interventions and the acceptance rate of pharmacists are high Drovandi (2018). Lack of communication between pharmacists and among healthcare teams is commonly associated with a low acceptance rate of pharmacist intervention[4–6]. This is why both community and clinical pharmacists play a key role in the healthcare industry[7,8].

In Indonesia, clinical and community pharmacists are required to practice in accordance with the Ministerial Regulation of the Minister of Health of the Republic of

Indonesia Number 74 of 2016. The regulation includes seven aspects of clinical pharmacy service, namely: assessment and prescription services; drug information services; counseling; patient visits (inpatient); drug side-effect monitoring; drug therapy monitoring; and drug use evaluation. The service allows the pharmacists to demonstrate their pharmaceutical skill and expertise, including: providing information; education; and counseling regarding the use of drugs; reviewing drug therapy; medication therapy management; and other medication-related services[9,10]. Unfortunately, its implementation in the frontier, remote, and disadvantaged areas (known as 3T areas) of Indonesia is not fully optimal[11]. This is why it is important to evaluate the performance appraisal of the clinical pharmacy service in the public health centers of Indonesia located in the 3T areas.

This research took place at the public health centers in Sambas Sub-District, including Sambas, Terigas, and Semberang. The primary reason for choosing these public health centers was that they were located at a frontier, remote, and disadvantaged area. Additionally, they were expected to represent the clinical pharmacy service in the frontier, remote, and disadvantaged areas. Geographically, northern Sambas is bordered by Sarawak (East Malaysia). According to the health profile of Sambas District in 2017, there were 10 inpatient and 18 non-inpatient public health centers in the Sambas District. This observational field study was mainly aimed at evaluating the performance appraisal of the clinical pharmacy service in the public health centers of the Sambas Sub-District, West Kalimantan, Indonesia.

MATERIAL AND METHODS

This study used a nonexperimental method with a descriptive approach, and was conducted at the three public health centers in Sambas District, West Kalimantan, Indonesia, including Sambas, Terigas, and Semberang, during June 2019 to January 2020. The study respondents were certified pharmacists and pharmacy technicians of the public health centers in this District. Primary data were obtained from observations with questionnaires, a checklist of clinical pharmacy services, and the results of interviews with study respondents. Secondary data were obtained from the profiles of community health centers, reports of rational and generic drug use, a checklist of outpatient drug information sheets, and prescription screening sheets. The obtained data were analyzed out by calculating the realization and performance achievement with a formula as shown in **Error! Reference source not found.**. This research obtained ethical clearance from the Research Ethic Commission Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta, Indonesia No.018/EC-KEPK FKIK UMY/I/2019. All participants in this research agreed to participate by signing the consent form.

Table 1
FORMULA OF REALIZATION AND PERFORMANCE ACHIEVEMENT OF PHARMACY WORKERS IN THE PUBLIC HEALTH CENTERS OF SAMBAS DISTRICT, WEST KALIMANTAN PROVINCE, INDONESIA

Instrument	Realization	Performance Indicator	References
Checklist	= number of "YES" answers	$\frac{\text{number of "YES" answers} \times 100\%}{\text{number of statements}}$	Indonesian Department of Health, 2002
Questionnaires	#NAME?	$\frac{\text{realization of questionnaire} \times 100\%}{\text{number of statements}}$	Indonesian Ministry of Health, 2016
Percentage of generic drug use	= $\frac{\text{number of generic drug use on each period}}{} \times 100\%$	realization $\times 100\%$	a. World Health Organization, 2003

	number of prescribed drugs on each period	standard	b. Indonesian Ministry of Health, 2015
			c. Indonesian Ministry of Health, 2017
Rational Drug Use			
Use of antibiotics for non-pneumonia Acute Respiratory Infection (ARI)	= number of antibiotic use for non-pneumonia ARI x 100%	(100% - realization) x 100%	a. World Health Organization, 1993
	number of non-pneumonia ARI cases	80%	b. Indonesian Ministry of Health, 2015
Use of antibiotics for non-specific diarrhea	= number of antibiotic use for non-specific diarrhea x 100%	(100% - realization) x 100%	c. Indonesian Ministry of Health, 2017
	number of non-specific diarrhea cases	80%	
Use of injection for myalgia	= number of injection use for myalgia x 100%	(100% - realization) x 100%	
	number of myalgia cases	99%	
Average number of drug items prescribed for the three disease above	= number of the drug items x 100%	(1 - realization) x 4.0	
	number of prescriptions	41.4	

The average assessment of performance achievement and performance predicate were then categorized into the rating value scale as shown in the **Error! Reference source not found.**.

Table 2 SCALE OF PERFORMANCE ACHIEVEMENT VALUE		
No	Interval of Performance Realization Value (%)	Criteria of Performance Realization Assessment
I	$91 \leq 100$	Very high
II	$76 \leq 90$	High
III	$66 \leq 75$	Average
IV	$51 \leq 65$	Low
V	≤ 50	Very low

RESULTS

In this study, the analysis of the clinical pharmacy services' performance referred to how much the public health centers in Sambas District have achieved in the implementation of the Indonesian Minister of Health Regulation No. 74 of 2016 concerning the standardized pharmaceutical services. The services included seven main aspects, including assessment and service of prescription, drug information service, counseling, patient visit (inpatient), drug side-effect monitoring, drug therapy monitoring, and drug use evaluation. Furthermore, the

obtained data will be analyzed and categorized into the value scale, as shown in the **Error! Reference source not found.**.

Assessment and Service of Prescription

The aspect of assessment and service of prescription in this study was observed by using a prescription review checklist consisting of 12 activity items, a drug delivery and information provision checklist consisting of 14 activity items, and a questionnaire comprising 22 question items completed with interviews. The results of the study reported that Semberang ranked the highest in terms of prescription review with a score of 12 (100%), while Terigas was the first in drug delivery and information provision observation with a score of 14 (100%). In the questionnaire, both Terigas and Semberang took first place, each with a score of 83 (93%). The complete results of the observation are seen in **Error! Reference source not found.**.

Table 3 THE OBSERVATION RESULTS OF THE ASSESSMENT AND SERVICE OF PRESCRIPTION ASPECT									
Community Health Centers	The result of observation								
	Prescription Review			Drug Delivery and Information Provision			Questionnaires		
	Score	%	Assessment	Score	%	Assessment	Score	%	Assessment
Sambas	9	75	Average	12	86	High	78	89	High
Terigas	10	83	High	14	100	Very High	83	94	Very High
Semberang	12	100	Very High	13	93%	Very High	83	94	Very High
Average	10.3±1.5	86.1±12.7	High	13±1	92.8±7.1	Very High	81.3±2.8	92±3	Very High

Drug Information Service

The aspect of drug information services was observed by using a questionnaire consisting of eight question items. The results of the observation reported that Terigas ranked the highest with a score of 19 (53%). The complete results obtained can be seen in **Error! Reference source not found.**.

Table 4 THEOBSERVATION RESULT OF THE DRUG INFORMATION SERVICE ASPECT			
Community Health Centers	Score	%	Assessment
Sambas	15	47	Very Low
Terigas	19	59	Low
Semberang	17	53	Low
Average	17±2	53±6	Low

COUNSELING

The aspect of counseling in this study used two observation instruments, namely a checklist and a questionnaire. The checklist has 8 activities; there are 11 question items on the questionnaire. The results of the observation showed that, in terms of the counseling review, Sambas achieved the highest with a score of 7 (88%), while Semberang was ranked

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first in the questionnaire with a score of 33 (75%). The complete results obtained are shown in Table 5.

Community Health Centers	Table 5 THE OBSERVATION RESULT OF THE COUNSELING ASPECT					
	The Results of Observation					
	Counselling Review			Questionnaires		
	Score	%	Assessment	Score	%	Assessment
Sambas	7	88	High	32	73	Average
Terigas	4	50	Low	29	66	Average
Semberang	5	62	Low	33	75	Average
Average	5.3±1.5	66.6±10	Average	33.1±2	71±5	Average

Patient Visits (Inpatients Only)

All the public health centers in this study were non-inpatient. Unfortunately, this is why the aspect of patient visits in this study was not explored, as this only applies to public health centers with inpatient visits.

Drug Side-Effect Monitoring

The aspect of drug side-effect monitoring was observed by using a questionnaire instrument, which contained six question items. The results of the observation reported that Semberang achieved first place, with a score of 15 (62%). The complete results of the observation are shown in Table 6.

Table 6 OBSERVATION RESULTS OF THE DRUG SIDE-EFFECT MONITORING ASPECT			
Community Health Centers	Score	%	Assessment
Sambas	13	54	Low
Terigas	8	33	Very Low
Semberang	15	62	Low
Average	12±3.6	50±15	Very Low

Drug Therapy Monitoring

The aspect of drug therapy monitoring was observed by using a questionnaire instrument which contained two main points and 12 question items. The results of the observation confirmed that Semberang ranked the first with a score of 31 (65%). The complete results are shown in Table 7.

Table 7 THE OBSERVATION RESULTS OF THE DRUG THERAPY MONITORING ASPECT			
Community Health Centers	Score	%	Assessment
Sambas	25	52	Low
Terigas	30	62	Low
Semberang	31	65	Low
Average	28.6±3.2	60±7	Low

Drug Use Evaluation

In the aspect of drug use evaluation, the observation was conducted by using a questionnaire instrument consisting of one question item. The results of the observation reported that Terigas has the highest points with a score of 4 (100%). The complete results can be seen in Table 8.

Table 8
OBSERVATION RESULTS OF THE DRUG USE EVALUATION ASPECT

CommunityHealth Centers	Score	%	Assessment
Sambas	1	25	Very Low
Terigas	4	100	Very High
Semberang	2	50	Very Low
Average	2.33±1.5	58±38	Low

In the aspect of evaluating drug use, in addition to a questionnaire instrument, the evaluation also utilized several other indicators such as, the percentage of generic and rational drug use. The percentage of rational drug use included the percentage of antibiotics for non-pneumonia ARI and non-specific diarrhea, the percentage of injections used in myalgia, and the average of the drug type prescribed for non-pneumonia ARI, non-specific diarrhea, and myalgia.

Table 9
THE RESULTS OF THE ASPECT OF DRUG USE EVALUATION

Parameters		Community Health Centers			Average Assessment
		Sambas	Terigas	Semberang	
Generic Drug Use	Realization (%)	99.5	97.5	95	97.4±2
	Achievement (%)	100	100	100	100
	Assessment	Very High	Very High	Very High	Very High
Use of Antibiotics for Non-Pneumonia ARI	Realization (%)	10.9	8.7	41.4	20.3±18.2
	Achievement (%)	100	100	73.1	91.5±15.5
	Assessment	Very High	Very High	Average	Very High
Use of Antibiotics for Non-Specific Diarrhea	Realization (%)	25.9	13.9	40.6	26.7±13.3
	Achievement (%)	80.8	93.5	64.5	79.6±14.5
	Assessment	High	Very High	Low	High
Use of Injection for Myalgia	Realization (%)	0	0	0	0
	Achievement (%)	100	100	100	100
	Assessment	Very High	Very High	Very High	Very High
Average of Drug Items Prescribed for the Three Diseases Above	Realization (%)	3	3	2.4	2.8±0.3
	Achievement (%)	67.1	70	100	79.05±18.2
	Assessment	Average	Average	Very High	High

Realization and Performance Appraisal on Clinical Pharmacy Service in the Public Health Centers of Sambas Sub-District, West Kalimantan

All aspects of the performance indicators in this study were calculated based on Table 1. The results of all aspects of the performance indicators are shown in Table 10.
The recapitulations of the assessment results were then averagely divided for each aspect as regulated in the Indonesian Minister of Health Regulation No. 74 of 2016 concerning the

standardized pharmaceutical services in community health centers. **Error! Reference source not found.** shows the recapitulation of the assessment results obtained in this study.

Table 10
THE RESULTS OF SEVEN ASPECTS OF THE PERFORMANCE APPRAISAL ON CLINICAL PHARMACY SERVICE IN SAMBAS SUB-DISTRICT COMMUNITY HEALTH CENTER

Aspects	Instrument	Target (%)	Realization (%)	Performance Achievement	Performance Assessment
Assessment and Service of Prescription	Checklist of Prescription Review	12 points	10.30%	86.10%	High
	Checklist of Drug Delivery and Drug Information Delivery	14 points	13%	92.80%	Very high
	Questionnaire	88 points	81.30%	92%	Very high
Drug Information Service	Questionnaire	32 points	17%	53%	Low
Counselling	Counselling Checklist	8 points	5.30%	66,60%	Average
	Questionnaire	44 points	31.30%	71%	Average
Patient Visit (Inpatient Only)	Questionnaire	64 points	0%	0%	None
Drug Side-Effect Monitoring	Questionnaire	24 points	12%	50%	Very low
Drug Therapy Monitoring	Questionnaire	48 points	28.60%	60%	Low
Drug Use Evaluation	Questionnaire	4 points	2.33%	58%	Low
	Generic Drug Use	90%	97.40%	100%	Very High
	Use of Antibiotics for Non-Pneumonia ARI	≤20%	20.30%	91.00%	Very High
	Use of Antibiotics for Non-Specific Diarrhea	≤8%	26.70%	79.60%	High
	Use of Injection for Myalgia	≤1%	0%	100%	Very High
	Average of Drug Items Prescribed for the Three Diseases Above	≤2.6 items	2.85%	79.00%	High

DISCUSSION

The clinical and community pharmacists in Indonesia have obligations to practice their own profession in accordance with the Ministerial Regulation of the Minister of Health of the Republic of Indonesia Number 74 of 2016, which includes seven main aspects of clinical pharmacy service. Unfortunately, the implementation of the Ministerial Regulation in the frontier, remote, and disadvantaged areas of Indonesia is not fully optimal. This study was mainly aimed at evaluating the performance appraisal of clinical pharmacy services in the public health centers of Sambas Sub-District, West Kalimantan, Indonesia.

The respondents of the study were two professional pharmacists from Sambas and Terigas, while one pharmacy technician came from Semberang public health centers. According to t **Error! Reference source not found.**, the majority of the study respondents were female, aged below 33.3 years old and with more than 5 years of work experience. In terms of salary, two of the three respondents receive an above average salary. **Error! Reference source not found.** provides the details of the demographic characteristics of the respondents involved this study.

Table 12 DEMOGRAPHIC CHARACTERISTICS OF STUDY RESPONDENTS		
Aspects	Categories	n (%)
Sex	Male	1 (33%)
	Female	2 (67%)
Age (33.3 years old on average)	Below average age	2 (67%)
	Above average age	1 (33%)
Education	Associate Degree	1 (33%)
	Certified Pharmacy Degree	2 (67%)
Length of Work Experience	Less than 5 years	1 (33%)
	More than 5 years	2 (67%)
Salary (IDR 3.333.333 on average)	Below average salary	2 (67%)
IDR=Indonesian Rupiah	Above average salary	1 (33%)

Activities of prescription assessment primarily start from the selection of administrative, pharmaceutical, and clinical requirements for both inpatients and outpatients. Administrative requirements include the name, age, gender, body weight of patients, name and initials of the doctor, date of the prescription, the room or unit of origin of the prescription. Meanwhile, pharmaceutical requirements include dosage form and strength, drug dosage and quantity, stability and availability of the drugs, rules and ways to take the drugs, and incompatibilities with the drugs. Clinical requirements include the accuracy of drug indication, the accuracy of drug dose, and the timeliness of drug use, duplication of medication, allergies, interactions, drug side effects, contraindications, and addictive effects. Activities on drug dispensing and information were a part of the services, starting from preparing or dispensing drugs, labeling, delivering drugs or pharmaceutical preparations with adequate information followed by documentation in order to help patients to obtain drugs according to their clinical needs, to understand the goals of treatment, and to improve adherence to the drug instructions. These activities were well carried out by certified pharmacists and technicians in all public health centers of the Sambas Sub-District.

The drug information service is an activity of professional pharmacists to provide accurate, clear and up-to-date information to their patients and healthcare professionals. The factors needed to be considered in this aspect vary but include: sources of drug information; staff; and materials. This activity, unfortunately, was rarely carried out in all public health centers of Sambas Sub-District. Probably, this was due to a lack of certified pharmacists in this area, with only two being professionals.

Counseling defines a process to identify and resolve patient problems related to the use of drugs for outpatients and inpatients, as well as their family or caregivers. It aims to provide patients, their family or caregivers with a proper understanding of the drug, including the treatment goals, treatment schedule, how long and ways to take drugs, duration of drug use, side effects, signs of toxicity, storage and use of drugs. In counseling, there are two main criteria that need to be considered, namely patients and the facilities and infrastructure. Patient criteria vary but include: patients referred by doctors; patients with chronic diseases; patients with narrow therapeutic index drugs; geriatrics; pediatrics; and outpatients. Meanwhile, things needed to be considered in the facilities and infrastructure include a special room and patient cards or counseling notes. After counseling, patients who have a

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possible risk of drug-related problems, such as: comorbidities; being elderly; environments; drug characteristics; complexity of treatment; complexity of drug use; confusion or lack of knowledge and skills on how to use drugs or medical devices; the need to receive medication and pharmaceutical care at home (known as home pharmacy care), which aims to achieve drug therapy outcomes. This activity was quite often performed in all public health centers of Sambas Sub-District.

Patient visits, as the name implies, describes a visit to inpatients carried out independently by pharmacists or with other health professionals including doctors, nurses, nutritionists, and others. Its aim is to check the patient's medication, provide recommendations to doctors in drug selection by deciding the patient's diagnosis and clinical condition, monitor the clinical progress of patients related to drug use, and play an active role in the decision-making of the health professional team in patient therapy. Inpatients who have returned home may have interrupted continuation of therapy and lack of adherence to medication use. For this reason, it is also necessary to carry out pharmacy services at home (known as home pharmacy care), so the commitment, involvement, and independence of patients in drug use can be realized, thus achieving the therapy outcomes. As inpatient visits are only allowed for public health centers, there was no patient visit activity in the public health centers of the Sambas Sub-District.

Drug side effects' monitoring refers to the activity of monitoring any adverse or unexpected drug responses occurring at normal doses for prophylactic, diagnostic, and therapeutic purposes, or modifying physiological functions. Its main aim is to identify drug side effects as early as possible, especially those that are severe, unknown, and infrequent, and to determine the frequency and incidence of well-known or recently discovered drug side effects. Things to be considered in this aspect are the cooperation of the pharmacists with other health professionals and the availability of a form of drug side-effects' monitoring. Unfortunately, this activity was very rarely performed in all public health centers of Sambas Sub-District. This was probably due to the lack of certified pharmacists in the area.

Drug therapy monitoring is a process that ensures patients are receiving effective and affordable drug therapy by maximizing efficacy and minimizing side effects. It is aimed at detecting, and providing recommendations for resolving, drug-related problems. Similarly with the aspects of drug side-effects' monitoring, any activity related to drug therapy monitoring was rarely performed in any of the public health centers of Sambas Sub-District due to lack of pharmacists.

Evaluation of drug use describes an activity to evaluate the use of drugs in a structured and sustainable manner to ensure that drugs are used as indicated and are effective, safe and affordable or rational. The evaluation aims to obtain an overview of drug use patterns in certain cases and to periodically evaluate the use of certain drugs. Every clinical pharmacy service activity must be carried out in accordance with the Standard Operating Procedures. Any activities regarding the evaluation of drug use were rarely performed in the public health centers of the Sambas Sub-District, although it was foundto be very high in the Terigas.

Overall, the performance appraisal on the clinical pharmacy service, resulting from the calculation of all performance indicator aspects, in the public health centers of Sambas Sub-District, West Kalimantan was low with an average score of 58.11%.

CONCLUSION

The results of the performance appraisal on clinical pharmacy services in the public health centers of Sambas Sub-District, West Kalimantan, Indonesia based on the Ministerial Regulation of the Minister of Health of the Republic of Indonesia Number 74 of 2016 concluded that two aspects, *i.e.,* assessment and prescription services and drug use evaluation, were assessed as being high, while one aspect, *i.e.,* counseling, was moderate; two aspects, *i.e.,* drug information services and drug use evaluation, were low; and the last

two aspects, *i.e.,* patient visits and drug side-effect monitoring, were assessed as being very low. Regarding performance appraisal, this study found that the average score was 58.11%, which was considered low.

Declaration of Competing Interests

The authors declare no conflicts of interests relative to this study.

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