

# PHARMACEUTICAL CARE SERVICE IN INDONESIA: AN ASTHMA CARE

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## ABSTRACT

**Objective:** This research aims to self-assess pharmaceutical care service in asthma disease among the Indonesia pharmacists.

**Methods:** An invitation letter was sent to 103 targeted pharmacists who work at hospitals, primary health center, and community pharmacy in Yogyakarta Province Indonesia. Data were gathered using a self-assessment questionnaire. The questionnaire was structured based on the national guideline of asthma from the Indonesia Ministry of Health. It contained 27 questions. Participants were asked to self-assess their activities on asthma services using scores: 0 for no activity, 2 for seldom, 4 for often, 6 for always. Data were analyzed descriptively.

**Key findings:** Response rate was 92.2% (95 participants of 103 invitations). Five data were excluded; thus, 90 data sets were analyzed. There were 64% community pharmacists, 19% hospital pharmacists, and 17% primary health care pharmacists. The highest to the lowest scores of the services are as follows: prescription assessment (score mean: 3.3); providing information on asthma medicines (3.0); equipping with adequate communication skill and asthma knowledge (2.7); therapy monitoring (2.3); delivering education on asthma disease (2.2); self-quality assurance (1.7). “The top five of activities” among 27 self-assessed items are: giving advice for patient’s complaint, providing information on the use of asthma medicines, checking legality and legibility of prescriptions, practicing good communication skill, and considering patients’ socio-economic background to communicate with patients.

**Conclusions:** Performance of pharmaceutical care service to asthma patients in this study is still limited. Self-assessment could be developed as a platform of quality assurance activity of pharmaceutical care practice.

**Keywords:** self-assessment, pharmaceutical care, asthma, Indonesia

## INTRODUCTION

Pharmaceutical care paradigm underlines pharmacist’s responsibility towards patient’s safety through the provision of drug and therapy outcome monitoring (1). It expands pharmacist’s roles from “drug retailers” to “drug advisors”. This paradigm has been adopted, not only in developed countries (2–4), but also in many developing countries (5–8). Each nation translates the paradigm into their own operational definition, scenario, context, and standard of practice.

In Indonesia, pharmaceutical care paradigm has been translated into practice for almost two decades. The Indonesia Ministry of Health has introduced pharmaceutical care practice standard (in Bahasa Indonesia: Standar Pelayanan Kefarmasian) in 1997. This standard involves areas of pharmaceutical management and pharmaceutical care services (9). In the year of 2000s Indonesia pharmacists collaborated with clinical pharmacists from UK (7), Australia (10), and USA (11) to initiate and introduce clinical pharmacy skills through training, workshop, and cooperative

mentoring programs among hospital pharmacists. Since then, the pharmacy higher degree institutions initiated pharmaceutical care concept in their curriculum (7). The concept also facilitates an inter-professional education to engage the graduates for inter professional collaboration in their future global workforce development (12,13). Likewise, the Indonesia Pharmacist Association (in Bahasa Indonesia, IAI: Ikatan Apoteker Indonesia) has formulated the Indonesia pharmacist competency standard (14). In addition, the Indonesia Government Regulation No. 5 issued in 2009 creates opportunity to locate pharmacists in PHCs (15).

Although regulation frameworks and pharmacy higher education curricula have been invested in supporting the new roles of the Indonesia pharmacists in pharmaceutical care practice, implementation of such practice remains a challenge. The practice mostly focused on pharmaceutical incompatibility problems and legality of the prescriptions rather than clinical assessments of the medicines prescribed (16,17). Acceptance from physicians remains low (18); for examples, lack of support from physicians, lack of accessibility to communicate to physicians, and physician's perception that pharmacist is a drug retailer (17,19–21). Pharmacists' need in improving clinical skills had been revealed (17,19).

Some international studies had set up models on pharmaceutical care services in non-communicable diseases (NCDs); for examples, pharmacists intervention on hypertensive patients in Ghana (22) and pharmacists' role on weight control in Malaysia (23). In Indonesia there are studies on the role of pharmacists in chronic diseases, such as cardiovascular disease (20), diabetes mellitus (21), and asthma (19). These previous studies focused on investigation of barriers and facilitators in conducting pharmaceutical care practice through in-depth interviews and focused-group discussions. None of them assessed the practices through self-assessment method.

Bose, et al (24) defined self-assessment as follows: "*Self-assessment is the ability of a health worker to reflect on his or her own performance strengths and weaknesses in order to identify learning needs, conduct a review of his or her performance, and reinforce new skills or behaviors in order to improve performance*". Self-assessment method allows to recognize their enablers and disablers factors through reflections of their strengths and weaknesses. Results of self-assessment could be used as valuable materials to formulate their strategic and planning in improving quality of their works. A study in Indonesia found that self-assessment method was effective in maintaining and improving quality of service of health provider's performance in communicating with clients (25). Self-assessment could help pharmacists in gaining a better understanding of their profession, roles, and responsibilities. It also can be developed and applied in daily activities as part of quality assurance system of the practice (24). This study aimed to trial self-assessment of Indonesia pharmacists in delivering pharmaceutical care. Given the magnitude of asthma disease in Indonesia context, asthma care was chosen as a model for this trial. The prevalence of asthma in this country was 4.5% in 2013. It is notably since Indonesia is a home for more than 250 million inhabitants (26) and will potentially burden the universal health coverage budget (27). The prevalence will continue a magnitude since there are factors triggering asthma disease, such as

high prevalence of smoking and respiratory infections (28,29). Therefore, pharmaceutical care practice self-assessed in this study applied asthma care as a model.

## METHOD

### Research design and sampling method

This descriptive study is part of an umbrella project developing a model of asthma care service in Yogyakarta Indonesia. The other part has been published elsewhere (19).

Participants were recruited purposively. An invitation letter accompanied by a brief information of the study was sent to 103 targeted pharmacists who work in community pharmacy either individual or chain pharmacy, primary health center, and hospital within Yogyakarta Province. The inclusion criteria was a registered pharmacist who practice in serving patients; while, those who do not provide direct services to patients were excluded.

### Structure of questionnaire

The questionnaire contained 27 questions. It was structured using a formative approach. This approach is interpreted as an internal assessment to improve the quality of a model being developed (24). In this study asthma care was selected as a model. Hence, development of the questionnaire was based on the Standard of Pharmaceutical Care for Asthma (in Bahasa Indonesia: Pharmaceutical Care untuk Asma) issued by the Indonesia Ministry of Health in 2007 (30). The questionnaire was validated using professional judgements done by two pharmacists. Table 1 provides details of the questionnaire structure.

Table 1. Structure of questionnaire: Scopes and Items of self-assessment of pharmaceutical care practice for asthma

Scopes of self-assessment	Items of self-assessment
Scope 1: Prescription assessments	Item 1: Checking legality and legibility of prescriptions
	Item 2: Checking pharmaceuticals compatibility of medicines prescribed
	Item 3: Assessing drug-related problems of medicines prescribed
Scope 2: Therapy monitoring	Item 4: Giving advice for patient's complaint
	Item 5: Monitoring effectivity and safety aspects
	Item 6: Reporting side effects incidents
Scope 3: Providing information on asthma medicines	Item 7: The use of medicines
	Item 8: Storage of medicines
	Item 9: Adherence
	Item 10: Potential side effects
	Item 11: Wash the mouth after using corticosteroid
	Item 12: Preventing and minimizing side effects
	Item 13: Types of asthma medicines
Scope 4: Delivering education on asthma disease	Item 14: The use of asthma medical devices
	Item 15: Smoking and asthma relationship
	Item 16: Preventing asthma attacks
	Item 17: Responding of asthma attacks
	Item 18: Symptoms and triggers of asthma
	Item 19: Severity of asthma
	Item 20: The use of spirometry
Scope 5: Developing skills and knowledge	Item 21: Practicing good communication skill
	Item 22: Considering patients' socio-economic background
	Item 23: Improving knowledge on asthma
	Item 24: Using dummy asthma medical devices for education to patients
	Item 25: Gathering patient's history on disease and medication
Scope 6: Self-quality assurance	Item 26: Performing documentation of the process
	Item 27: Conducting self-assessment regularly

### Scopes of the self-assessment

The pharmaceutical care practice were self-assessed using seven scopes as follows: Scope 1: prescription assessment (3 items); Scope 2: therapy monitoring (3 items), Scope 3: providing education on asthma medicines (8 items), Scope 4: delivering education on asthma disease (6 items), Scope 5: equipping themselves with adequate skills and knowledge (5 items), Scope 6: self-quality assurance (2 items). Each question was scored from 0 to 6. Score 0 was for no activity, 2 was for seldom, 4 was for often, and 6 was for always.

### Data collection process and analysis

The self-assessment questionnaire were self-administered to the participants. Participants were asked to self-report their activities on asthma services using the scores from 0 to 6. Time spent by participants to answer the questionnaire completely ranged from 20 to 30 minutes.

Scores were entered in SPSS software version 21. Data were analyzed descriptively involving frequency and mean of the scores.

### Ethical approval

A letter of ethical clearance was obtained from the Ethic Committee of Faculty of Medicine UKDW Indonesia, No.:405/C.16/FK/2017. All the participants had signed an informed consent for their voluntary participation in this study. A brief information of the study was provided to the potential participants before signing the informed consent.

## RESULTS

### Characteristics of participants

Ninety five participants participated in this study. The response rate was 92.2% (95 participants of 103 invitations). Five of the 95 participants did not answers the self-assessment questions completely. Thus, 90 eligible data sets were analyzed. There were 64% community pharmacists practicing in both chain pharmacies and independent pharmacies, 19% hospital pharmacists in public and private hospitals, 17% pharmacists in primary health center. Female dominated gender proportion (92%). The age of respondents varied between 22 years and 65 years. It is in line with their experience (2 months to 35 years). Table 2 shows details of the respondents' demographic characteristics.

Table 2 Characteristics of the respondents of self-assessment study of pharmaceutical care services on asthma

Characteristics of respondents	Frequency / Range (N = 90)
Gender	
Female	83
Male	7
Age	Ranging from 22 years to 65 years
The place of practice	
Public hospital	10
Private hospital	7
Primary Health Centre (PHC)	15
Chain Pharmacy	48
Independent Pharmacy	10
Years of practice	Ranging from two months until 35 years
Numbers of asthma patients per-day	
In chain and independent pharmacy	Ranging from 1 to 10
In PHC	Ranging from 3 to 10
In hospital	Ranging from 10 to 20

### Scopes of the self-assessment

Figure 1 describes the scopes of self-assessment. The highest to the lowest scores of the asthma care services are as follows: prescription assessment (mean of score: 3.3); providing information on asthma medicines (mean of score 3.0); equipping with adequate communication skill and asthma knowledge (mean of score 2.7); therapy monitoring (mean of score 2.3); delivering education on asthma disease (mean of score 2.2); self-quality assurance (mean of score 1.7). There is no activities that are stated as “often” or “always to do”.

### Items of the self-assessment

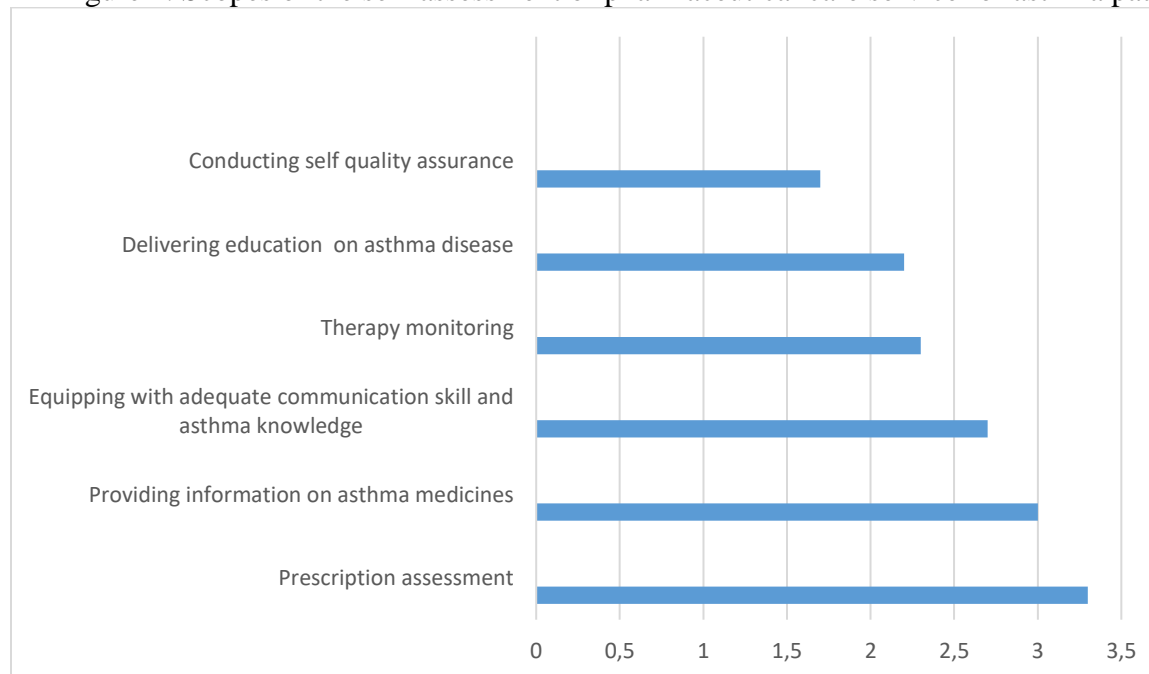
Table 3 describes details of self-assessment items scores in each scope. There are “the top five of activities” among 27 self-assessed items, as follows: giving advice for patient’s complaint (mean of score: 3.9), providing information on the use of asthma medicines (mean of score: 3.8), checking legality and legibility of prescriptions (mean of score: 3.5), practicing good communication skill (mean of score: 3.4), and considering patients’ socio-economic background to communicate with patients (mean of score: 3.4). The overall mean of scores vary between 0.6 and 3.9. The lowest score is activity of reporting side effects incidents (mean of score: 0.6). About 77.7% of the self-assessed activities have scores within 2.0 to 4.0 (in between seldom to often).

**Table 3. Items of pharmaceutical care services for asthma**

Items of self-assessment of pharmaceutical care practice for asthma	Mean of scores* from the highest to the lowest
Giving advice for patient’s complaint	3.9
The use of medicines	3.8
Checking legality and legibility of prescriptions	3.5
Practicing good communication skill	3.4
Considering patients’ socio-economic background	3.4
Checking pharmaceuticals compatibility of medicines prescribed	3.2
Storage of medicines	3.2
Assessing drug-related problems of medicines prescribed	3.1
Adherence	3.1
Potential side effects	3.0
Smoking and asthma relationship	3.0
Wash the mouth after using corticosteroid	2.9
Preventing asthma attacks	2.9
Preventing and minimizing side effects	2.8
Types of asthma medicines	2.8
Improving knowledge on asthma	2.8
Responding of asthma attacks	2.6
Using dummy asthma medical devices for education to patients	2.5
Monitoring effectivity and safety aspects	2.3
The use of asthma medical devices	2.3
Symptoms and triggers of asthma	2.3
Performing documentation of the process	1.7
Conducting self-assessment on pharmaceutical practice regularly	1.7
Gathering patient’s history on disease and medication	1.6
Severity of asthma	1.5
The use of spirometry	1.1
Reporting side effects incidents	0.6

*Notes: Score 0= no activity; 2= seldom; 4=often; 6= always.*

Figure 1. Scopes of the self-assessment of pharmaceutical care service for asthma patients



Notes: Score 0= no activity; 2= seldom; 4=often; 6= always.

## DISCUSSION

Ninety five pharmacists self-assessed themselves regarding their practice on delivering asthma care. The results underline that asthma care services provided by pharmacists in this study are still limited. None of the activities are categorized as “often” or “always”.

Results of this study summarized above convince that pharmaceutical care practice in Indonesia is somewhat stagnant during decades (16,17). Some studies in developing countries had identified external factors preventing pharmacists from performing the concept of extended roles related to patient’s safety; for examples, limited time, workloads, shortage of pharmacists, lack of organizational support, and lack of financial support (5,19–21,31,32).

Prescription assessments became the most frequent activity reported by pharmacists in this study, especially items of checking legality and legibility of prescriptions and assessing pharmaceutical compatibility issues. These items closely connect to the pharmacist’s role as a drug dispenser. The Indonesia pharmacists noted these activities as one of their professional works (33). Thus, such activities could facilitate the development of inter-professional collaboration (34). Nonetheless, prescription assessment regarding drug related problems remains a challenge.

Providing information on asthma medicines was in the second place among the six scopes of services self-assessed through this study. Information about the use of medicines, storage of medicines, adherence, and potential side effects are the core components of drug information that must be delivered to patients. Pharmacists in this study self-assessed themselves relatively high regarding drug information. It is in line with previous study among 30 pharmacists in East Java Province Indonesia. The previous study noted a significant willingness of pharmacists to get involved in professional works (33).

Therapy monitoring is a challenge for the Indonesia pharmacists to some extent as shown by this study. There are some barriers preventing them from conducting therapy monitoring, such as patients do not always visit the same pharmacy to obtain their medicines (20), and perceived insufficient competency in providing patient care (21). However, there are also some opportunities to do so, such as initiating good communication with physicians (19), and engaging patients through counseling of non-prescribed medicines (OTC/over the counter) for self-medication (33,35).

Pharmacists in this reported study self-assessed themselves rather low regarding their activity in providing education on asthma disease. They scored quite high only for education about relationship between smoking and asthma. Educating patients with chronic disease, especially regarding lifestyle modification to prevent development and recurrent of disease is part of pharmacist' roles (2). For example, a link between the use of tobacco and non-communicable diseases (NCDs), including asthma (28,36,37). Though, previous qualitative studies indicated concerns on overlapping roles and responsibility between pharmacist and physician in term of delivering information about disease (13,20,21).

Participants in this study self-assessed themselves very low regarding documenting the process of pharmaceutical care. Also, their activity of conducting self-assessment regularly is "seldom". This results contrast to previous study. Indonesia pharmacists in the previous study significantly proposed such activities as part of professional work (33). Documenting the process of practice is a pivotal point of the quality assurance principles in healthcare service provision. It allows to ensure verifiability, definability, measurability, consistency, and integrity of the practices delivered by health workers (38). Documentation of pharmacy practice can be used as a communication tool to health care team; thus, it should fulfill criteria of legibility, clarity in language and meaning, and completeness of relevant information (39). Moreover, self-assessment is an invaluable method to achieve the purposes of quality assurance, particularly in a situation of practice with no or limited direct supervision as like as pharmacist who works in the community pharmacy (24). Thus, activities of documenting and self-assessing of the practice are important parts of establishing quality assurance of such practice. Given the low ratings of these two activity, an action is required to improve performance of documenting pharmaceutical care practice and self-assessing the practice among the Indonesia pharmacists.

Communication skill is imperative to augment pharmaceutical care services (14). Based on the philosophy of pharmaceutical care, relationship between pharmacist and patient is very unique as similar as family bond; it is no longer as a costumer only (40). The Indonesia pharmacists have acknowledged their role in engaging patients and their families, especially in chronic disease care. They have strong willingness to perform such a role in their professional activity. On the other hand, establishing professional communication between pharmacists and physicians remains a challenge among the Indonesia pharmacists (17,18,20). Physicians prefer to have sparring partner on specific knowledge in the area of pharmacist competency and expertise, such as dosage management and drug interactions (19). Specifically, some of the Indonesia pharmacists indicated inadequate clinical knowledge on asthma therapy management. They expected training and workshop programs for asthma care. Such a training is not often available compare to other chronic disease training programs, such as hypertension and diabetes mellitus (19). Since engaging patients particularly in managing chronic disease should be done in collaboration between health professionals, issue on communication barriers among health workers should be further addressed. Self-assessment conducted through this reported study is not without matters to be considered. Firstly, self-assessment procedure is known as a good method to facilitate health workers to reflect

their practices that could lead to improving their performance. Self-assessment was also suggested as an alternative method that could identify weaknesses which would not be covered by the other methods (25). It is also recommended to use rating that asking frequency of task being performed, such as “always to never” as applied in the questionnaire used in this study rather than asking a level of competence, such as “very good to poor”, or asking a completion of performance using “yes or no” answer (25). However, in nature individuals may be underestimate or overestimate to rate their performance by themselves.

Secondly, participants involved in this study is dominated by female. However, the unequal gender proportion actually describes distribution of pharmacists who are practicing in Yogyakarta and even in Indonesia as general (43).

Thirdly, in this study participants were asked to self-assess themselves by recalling their past activities on asthma care. Since not all the participants had quite frequent numbers of asthma patients they served directly, recall bias might exist.

## CONCLUSIONS

Performance of pharmaceutical care delivered to asthma patients by pharmacists in Yogyakarta Indonesia reported in this study through self-assessment method is not yet optimal. Yet, self-assessment among pharmacists could be part of quality assurance program. Thus, it is required to develop self-assessment tools assessing pharmaceutical care services.

## COMPETING INTERESTS STATEMENT

The authors declare no competing interests.

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