



Model of Determining Criteria for Community Pharmacy Practice in Indonesia

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Abstract: The purpose of mapping community pharmacy practice in the territory of Indonesia in the framework of guidance and supervision, it requires instruments of determining practice criteria which can be used online, fast and accurate. To design a model of determining criteria for community pharmacy practice in Indonesia. Data includes respondent's selection from 2 to 3 descriptions of 40 three-point-scale standard elements: 0, 2, and 4. To anticipate errors in assessment of respondent's selection which do not match the level of presence, some assessment formulas are made by using pharmacist's level of presence and level of remuneration (monthly salary) as variables. Online questionnaire instrument is made by using Google Docs tool and sent to Facebook address of 800 community pharmacists as respondents. Model of determining criteria for practice, which requires 6 assessment formulas to ascertain variables of level of presence and level of remuneration, determines criteria for practice proportionally. Criteria determination results towards 104 community pharmacy practices in Indonesia are: 19.23% fair, 46.15% less, 20.19% substandard, 12.5% not feasible, 1.93% extremely not feasible, and no results for good and very good criteria. Model designs of determining criteria for practice can be used to determine the online, fast, and accurate criteria for community pharmacy practice.

Key Words: Model of determining criteria for practice, Community pharmacy, Standard practice, Level of presence, level of remuneration.

1. Introduction

Attention of government of the Republic of Indonesia to problems of community pharmacy practice has been given since the issuance of Government Regulation No. 25 Year 1980 on Changes of Government Regulation No. 26 Year 1965 on Pharmacy up to Government Regulation No. 51 Year 2009 on Pharmaceutical Jobs which is current today^{[1],[2]}. To protect people from unprofessional care, Decree of Minister of Health No. 1027/ MENKES/SK/IX/2004 on Standard of Pharmaceutical Care in Pharmacies was issued, followed by its technical guidance^[3]. As a preliminary step of implementation, a pilot project for applying standard of pharmaceutical care in pharmacies has been done at pharmacies in 3 provinces: North Sumatra, Bali and Special Region of Yogyakarta^[4]. Results of a survey research 5 years after standard of pharmaceutical care was issued showed that the implementation of the standard has not been performed well. In the municipality of Medan, the implementation of standard of pharmaceutical care in pharmacies fell into the category of "less"^[5].

Results of various survey researches showed that level of presence and level of remuneration of a pharmacist were the fundamental problems, which were estimated to be the obstacle in the implementation of standard of the pharmaceutical care. In Jakarta, 100%^[6] and in Bali, 78.4%^[7] of pharmacists were not present at pharmacies when the survey was performed, in the municipality of Medan, 69.2%^[8] and in the Regency of

Deli Serdang, 57.2% of pharmacists were not present every day^[9]. According to Hermansyah, et al. (2012), community pharmacists in Indonesia only used up less than 20 hour per week for both professional jobs or non-professional jobs in daily activities at pharmacies, and in fact the management of pharmacies was done more by non-professional forces having no certain qualifications and very limited knowledge about drugs^[10]. According to Anderson (1977), much of the time of community pharmacists was used up for jobs not in accordance with their capacity, and for unproductive duties which only required a low level of technical skill, which were supposed to be done by other pharmaceutical technical forces with more economical costs^[11]. In addition to level of presence, level of pharmacist's remuneration was another fundamental problem needed to be solved. A survey research in the municipality of Medan showed that 69.23% of pharmacists in charge of pharmacy received a remuneration of 2 million Rupiah or less^[8].

In the framework of guidance and supervision of community pharmacy practice in Indonesia, it requires data on criteria for practice. Determination of criteria for practice was based upon acquisition of cumulative points for fulfilling 40 standard elements^[12]. It was known that to perform 24 standard elements or 60% of total standard elements, it required the presence of pharmacist on every opening hour of pharmacy. The existence of tendency of respondents providing data based on a supposed-to-be situation instead of an actual situation had the potential of causing assessment errors. The purpose of this research was to design a model of determining criteria for practice which can be used online, fast and accurate, including anticipations against the possibilities of occurrence of the assessment errors.

2. Methods

2.1 Study Design

Model of determining criteria for community pharmacy practice comprised questionnaire instrument and assessment instrument or data processing instrument, which resulted in outcome of criteria determination sheet filled with acquisition of cumulative points stated in criteria for practice of: very good, good, fair, less, substandard, not feasible, and extremely not feasible; accreditation criteria of: A, B, C, and not accredited; standard activity aspect criteria; spider web diagram; and follow-up. Data in the form of respondent choice towards 2 to 3 descriptions of 40 three-point-scale standard elements: 0, 2, and 4. To anticipate assessment error due to respondent's choice not in accordance with level of presence, assessment formulas were made by using level of presence and level of remuneration of pharmacist as variables. Online questionnaire instrument was made by using Google Docs tool and was sent to Facebook address of 800 community pharmacists as respondents.

2.2 Sample Size

Calculation of number of respondents was done by using Raosoft18 sample size calculator. With 5% margin of error, 95% confidence the minimum sample size was 380. Since a 50% response rate may level, population size of 30,000, and response distribution of 50%, be expected from online questionnaire, the minimum number of brequired responses was doubled to determine the number of pharmacists to be invited to participate. Finally, 800 questionnaires were distributed.

2.3 Questionnaire Development

Online questionnaire instrument was designed by using Google Docs tool, comprised questionnaire about characteristics of respondent and questionnaire about descriptions of standard elements designed from standard of community pharmacy practice (Wiryanto et al., 2014), equipped with 2 to 3 descriptions of three-point-scale standard level of : 0, 2, and 4 on each of the elements.

2.4 Data Collection

Data collection was done from 21 June up to 10 August 2012 by sending questionnaire instrument via Facebook directly to 800 community pharmacists in Indonesia to be filled online.

3. Results

3.1 Characteristics of Respondents

Out of 800 questionnaires sent, 104 questionnaires were filled (13 % response rate). Respondents originated from 23 of 33 provinces in Indonesia, alumni of 15 of 28 universities having programs of professional pharmaceutical education in Indonesia. Overall results of characteristics of respondents can be seen on Table 1.

Table 1. Characteristics of Respondents

Characteristics	N	(%)
Gender		
Male	50	48.08
Female	53	50.96
No data	1	0.96
Other Job		
Yes	14	13.46
No	55	52.89
No data	35	34.65
Type of other job		
National Agency of Drug and Food Control	3	2.88
Ministry of Health	9	8.65
Hospital/Community Health Center	11	10.58
Docent	22	21.15
Others	10	9.62
None	14	13.46
No data	35	33.65
Level of presence		
Everyday	62	59.62
Not everyday	38	36.54
No data	4	3.85
Experience		
≤ 5 year	58	55.77
≥ 5 year	39	37.50
No data	7	6.73
Level of remuneration		
≤ 2 million Rupiah	50	48.08
>2-3 million Rupiah	25	24.04
>3-5 million Rupiah	12	11.54
>5 million Rupiah	1	0.96
No data	16	15.38
Ownership		
Owner	21	20.19
State-owned enterprise	9	8.65
Private	13	12.50
Personal	55	52.88
No data	6	5.77

Characteristics	N	(%)
Daily turnover		
≤2 million Rupiah	40	38.46
>2-3 million Rupiah	12	11.54
>3-5 million Rupiah	20	19.23
>5 million Rupiah	28	26.92
No data	4	3.85
University status		
Government	76	73.08
Private	13	12.50
No data	15	14.42
Location of pharmacy		
Java island	49	47.11
Outside Java island	54	51.92
No data	1	0.96

3.2 Model of Determining Criteria for Practice

Assesment formula was designed by using level of presence and level of remuneration of pharmacist as variables. Presence of pharmacist was distinguished into 5 levels of presence (lp) as follows: lp0≈maximum presence once in a month; lp1≈maximum presence once in a week; lp2≈presence 2-4 times in a week; lp3≈presence every day on certain hours; and lp4≈presence throughout opening hours of pharmacy with at least one pharmacist companion. Pharmacist's level of remuneration was distinguished into 5 levels of remuneration (lr) as follows: lr1≈maximum 2 million Rupiah; lr2 ≈above 2 million Rupiah up to 3 million Rupiah; lr3≈above 3 million Rupiah up to 5 million Rupiah; and lr4≈above 5 million Rupiah. Table 2 is the description of stages and targets of guidance and supervision.

Table 2. Description of Stages and Targets of Guidance and Supervision

Stage	Target of Guidance and Supervision	Level of Presence
Early	Improving pharmacist's level of presence	level 2 or below
Middle	Improving intensity of pharmacist's involvement in pharmaceutical practice	level 3 or above
Advanced	Fulfillment of pharmacist's role according to standard	level 3 or above

Table 3 contains 6 assessment formulas based on stages of guidance and supervision for every standard element using pharmacist's level of presence (lp) and level of remuneration (lr) as variables for 25 standard elements.

Table 3. Assessment Formulas based on stages of guidance and supervision

Assessment Formula	Stage			Standard Element
	Early	Middle	Advanced	
A	lp>2≈4; lp=2≈2; lp<2≈0	lp>2≈4; lp=2≈2; lp<2≈0	lp>2≈4; lp=2≈2; lp<2≈0	1.1;1.2;1.3 ; 1.4;
B	lp>2≈4; lp=2≈2; lp<2≈0	lp>2≈4; lp=2≈2; lp<2≈0	Observation	1.5
C	lp>2≈2; lp≤2≈0	lp =4≈4; lp =3≈2; lp<2≈0	Observation	1.6
D	lp>2≈4; lp≤2≈0	lp>2≈4; lp≤2≈0	Observation	1.7; 1.8; 1.9
E	lp>1≈2; lp≤1≈0	lp =4≈4; lp>1≈2; lp≤1≈0	Observation	3.1; 3.2; 3.3; 3.4; 3.5; 3.6; 4.1; 4.2; 4.3; 4.4; 4.5; 4.6; 4.7; 4.8; 5.1
F	lr>2≈4; ; lr =2≈2; lr =1≈0	lr>2≈4; lr =2≈2; lr =1≈0	lr>2≈4; lr =2≈2; lr =1≈0	2.12
No assessment formula	Observation	Observation	Observation	1.10; 1.11; 1.12; 2.1; 2.2; 2.3; 2.4; 2.5; 2.6; 2.7; 2.8; 2.9; 2.10; 2.11; 5.2

Explanation:

lp>2≈4 means level of presence is more than 2 or presence more than 2 times in a week and given 4 points.

li >2≈4 means level of remuneration is more than 2 or remuneration of more than Rp. 2.000.000,- and given 4 points.

3.3 Simulation of Model of Determining

Criteria for Practice

To make sure that level of presence in the model of determining criteria for practice can determine criteria for practice proportionally, a simulation using 4 levels of presence as variables is done. Table 4 is the example of sheet for determination of criteria for practice, and Table 5 is the results of simulation of model using 4 levels of presence as variables. Fifteen standard elements which is not related to level of presence variable is given by 4 points in this case.

Table 4. Example of Sheet of Determination of Criteria for Community Pharmacy Practice with Level of Presence of 1

Sheet of Determination of Criteria for Community Pharmacy Practice																		
Pharmacy's Name:		Regency/Municipality:					Result No.:...			Cumulative Points:		64						
Address:		Province:					Stage: . .			Accreditation:		Not Accredited						
Standard 1: Professionalism	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.10	1.11	1.12	Total	Average				
	0	0	0	0	0	0	0	0	0	4	4	4	12	1.00				
Standard 2: Managerial	2.1	2.1	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	2.11	2.12	Total	Average				
	4	4	4	4	4	4	4	4	4	4	4	4	48	4.00				
Standard 3: Dispensing	3.1	3.2	3.3	3.4	3.5	3.6	Total	Average			Assessor's Recommendation:							
	0	0	0	0	0	0	0	0										
Standard 4: Pharmaceutical Care	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	Total	Average								
	0	0	0	0	0	0	0	0	0	0								
Standard 5: Community Health Care	5.1	5.2	Total	Average														
	0	4	4	2														
Standard Aspect	Ideal	Grade	Criteria									Criteria: Substandard						
Standard 1	4	1.00	Not feasible									FOLLOW-UP:						
Standard 2	4	4.00	Very good									Warning						
Standard 3	4	0.00	Extremely not feasible									FINAL DECISION:						

Stand ar d 4	4	0.00	Extremely not feasible			Temporary revocation of licence
Stand ar d 5	4	2.00	Less			Permanent revocation of licence

Table 5. Simulation Results of Model of Determining Criteria for Community Pharmacy Practice with Level of Presence as Variable

Level of Presence	Cumulative Points	Criteria and Accreditation	Spider Web Diagram
1	64	<ul style="list-style-type: none"> Substandard Accreditation: Not accredited 	
2	104	<ul style="list-style-type: none"> Less Accreditation: C 	
3	128	<ul style="list-style-type: none"> Fair Accreditation: B 	
4	160	<ul style="list-style-type: none"> Very good Accreditation: A 	

3.4 Criteria for Community Pharmacy

Results of determination of criteria for practice showed some differences in average cumulative points between assessment results using and without using model of determining criteria for practice, which indicated discrepancy of data given by respondents in regards to level of presence. Table 6 is the average results of determination of criteria for practice between assessment results using and without using model of determining criteria for practice.

Table 6. Average cumulative points and criteria for practice between assessment results using and without using model of determining criteria for practice

Standard Aspect	Average Cumulative Points and Criteria for Practice					
	Without using model of criteria for practice			Using model of criteria for practice		
Professionalism	40.6			31.5		
Managerial	34.2			33.4		
Dispensing	15.5	117.1	Fair	8.0	87.3	Less
Pharmaceutical Care	21.9			11.0		
Community Health Care	4.8			3.4		

In details, % distribution of criteria for community pharmacy practice between assessment results using and without using model of determining criteria for practice can be seen on Figure 1.

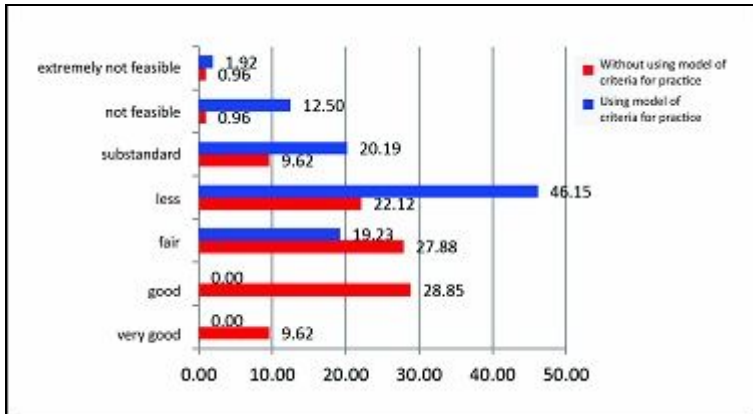


Figure 1. Distribution (%) of Criteria for Community Pharmacy Practice Between Assessment Results Using and Without Using Model of Determining Criteria for Practice.

Table 7 is the average criteria for practice based on standard activity aspect between assessment results using and without using model of determining criteria for practice.

Table 7. Average Point and Criteria for Practice Based on Standard Activity Aspect Between Assessment Results Using and Without Using Model of Determining Criteria for Practice.

Standard Aspect	Average Point and Criteria for Practice			
	Without using model of criteria for practice		Using model of criteria for practice	
Professionalism	3.18	Fair	2.53	Less
Managerial	2.89	Fair	2.83	Fair
Dispensing	3.06	Fair	1.58	Substandard
Pharmaceutical Care	2.75	Fair	1.38	Not feasible
Community Health Care	2.42	Less	1.71	Substandard

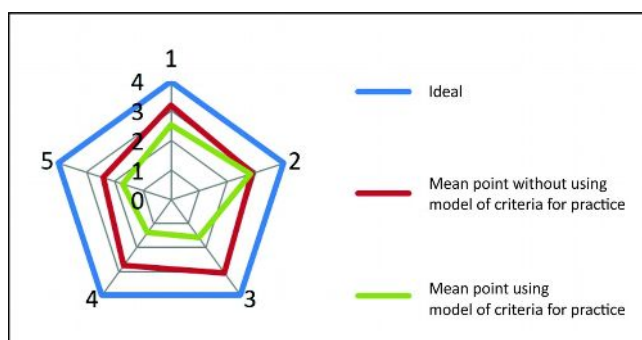


Figure 2. Spider Web Diagram of Criteria for Practice Based on Standard Activity Aspect Between Assessment Results Using and Without Using Model of Determining Criteria for Practice.

4. Discussion

Assessment formula used variables of pharmacist's level presence for 24 standard elements and level of remuneration for 1 standard element. Assessment of level of standard fulfillment for other 15 standard elements entirely used data filled by respondents since it was related to pharmacist' lp and lr. Presence of pharmacist was distinguished into 5 lp, and remuneration of pharmacist was distinguished into 5 lr. Formulation of assessment was further distinguished based on stages and targets of guidance and supervision. Simulation of model of determining criteria for practice needed to be performed to make sure that assessment on each level of presence

has used assessment formula accurately. Referring to Table 5, it was seen that every increase in 1 level of presence resulted in the increase of 1 level of criteria for practice. Referring to Table 6, it was seen that average cumulative points of determination of criteria for practice without using model of determining criteria for practice was 117.1 or on criteria of fair, and determination of criteria for practice using model of determining criteria for practice was 87.3 or on criteria of less. Therefore, assessment of level of standard fulfillment without model of determining criteria for practice contained assessment errors exceeding actual values, especially for standard elements related to pharmacist's level of presence. Furthermore, referring to Figure 2, spider web diagram presented was the display of data from Table 7, with the green line as average point of level of practice standard fulfillment of assessment results using model of determining criteria for practice, the red line as average point of level of practice standard fulfillment of assessment results without using model of determining criteria for practice, and the blue line as ideal level of standard fulfillment. And the conclusions from this research is design of model of determining criteria for practice can be used to determine criteria for practice which can be used online, fast, and accurate.

Conflict of Interest

We declare that we have no conflict of interest

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