

PROVISION OF PATIENT MEDICATION COUNSELING SERVICE IN A TERTIARY-CARE EYE HOSPITAL IN BANDUNG: A GAP ANALYSIS OF PATIENT'S NEED, STANDARD AND SERVICE PROVIDER RESOURCES

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ABSTRACT

Previous studies showed that counseling is able to improve patient adherence and reduce medication-related problems, leading to reach an optimal outcome therapy. The aims of this study were to identify patient's need, healthcare professional's support, pharmacist's readiness and step to be taken to meet standard for implementing patient medication counseling service. This cross-sectional questionnaire-based study was conducted in a tertiary-care eye hospital in Bandung. Questionnaires has been given to hospitalized-patient to identify the patient's need and to healthcare professionals in recognizing their supports, followed by survey of pharmacist's readiness. Gap analysis was then carried out to identify the additional resources to be provided for conducting the service. As many as 103 patients were enrolled and eager for drug counseling to be implemented with pharmacist as healthcare counselor. All nurses (n=54) and resident physician (n=25) who returned the questionnaire gave their support for pharmacist to provide the service; and all pharmacists (n=4) are ready to conduct patient medication counseling with minor adjustment. Gap analysis concluded that additional resources should be furnished, e.g. information module consist of standard information needed by the patient, standard operational procedure, and updated literatures. Due to lack of pharmacist, counseling service only be delivered to patient who has a complex antibiotic regimen therapy. Our data showed that patient medication counseling service in this center could be quickly implemented.

Keywords: Provision, medication counseling, gap analysis, health care provider perception, pharmaceutical care, patient perception

INTRODUCTION

Lack of sufficient knowledge about their health problems and medications are believed to constitute a major problem of patient nonadherence with prescribed medical regimens and leading to non-optimal outcome therapy (Sontakke *et al.*, 2015, Timmerman *et al.*, 2014). Drug related problems such as untreated indication, medication without indication, improper drug selection, subtherapeutic dosage, overdosage, failure to receive medication, adverse drug reaction and drug interaction were reported in previous publications (da Costa *et al.*, 2016, Kanagala *et al.*, 2016, Manley *et al.*, 2005).

A systematic review reported that patient education and counseling provided by pharmacist is able to overcome this problem (Okumura *et al.*, 2014). Patient education and counseling is an activity the provision of advice or recommendations regarding the drug therapy from pharmacist to patient and/or their family (Depkes-RI, 2006). However, little is known from the perspective of patients, other healthcare providers, and pharmacists themselves regarding pharmacist involvement on patient medication counseling, particularly in specialized setting.

Eye-specialist hospital is a hospital dedicated to provide medical care for eye-

related diseases. Most of ophthalmic preparations to treat eye-related diseases should be used according to specific instructions to optimize its clinical benefits such as eye drops and eye ointment. In addition, poor medication adherence also becomes serious problem in treating eye diseases such as glaucoma (Newman-Casey *et al.*, 2015, Sleath *et al.*, 2011). The presence of pharmacist is important to educate patient regarding the medication instructions and the importance of medication adherence to therapy outcome.

Currently, the main problem is that no regular counseling provided in the tertiary-care eye hospital. However, we expected to propose counseling by pharmacist as a formal and regular activity. The aims of this study were to identify patient's need, healthcare professionals support, pharmacist's readiness and step to be taken to meet the standard for performing patient medication counseling service.

MATERIAL AND METHODS

Study design, setting, and questionnaire

We conducted a cross-sectional observational study using a self-designed questionnaire. The questionnaire was already reviewed by three experts with clinical pharmacy background including the head of Pharmacy Department of the hospital. Respondent were recruited at an eye-specialist teaching hospital in Bandung from March to April 2016.

Respondents

We sent the questionnaires to all hospitalized patient who met the inclusion criteria during research period, to other healthcare professionals (nurse and physician), and to the pharmacists.

The inclusion criteria for the patient were as follows: 1) patient that stay at the hospital at least one night, 2) patients or patient relatives that are able to communicate verbally, and 3) patients that willing to complete and return the questionnaire. During the research period, there were 103 patients who met the inclusion criteria. We ask all of nurses (n=54) and resident physicians (n=60) in charge at inpatient wards and all pharmacist (n=4) to fill out the questionnaire. The response rate for hospitalized-patients, nurses, and pharmacists

were 100% (n=103, 54, and 4 respectively). However, only 41.7% (n=25) resident physicians who filled out and returned questionnaires.

Outcome

We sent the questionnaires to hospitalized-patient to identify the patient's need and support, to other healthcare professionals especially nurse and doctor to identify their supports on medication counseling activity, followed by survey of pharmacist's readiness to run the service.

Data analysis

Descriptive statistics were used for data analysis. Data obtained from the questionnaires were analyzed including gap analysis which is widely used in marketing research. Gap analysis is a straightforward and appropriate way to identify inconsistencies between provider and client perceptions of service performance (Brown and Swartz, 1989). Addressing this gap between reality and standard could provide strategic steps to solve unmet requirements of conducting medication counseling service. Existing resources at present time were compared to standard to performing counseling, then identify the additional resources to be provided for conducting the service.

RESULTS AND DISCUSSION

Identification of patient's needs for patient medication counseling service

In order to collect information regarding the patient's need, a questionnaire-based survey were collected from the patient. As many as 103 patients from hospitalized patient at class 2 and class 3 wards were included in this survey.

Table I showed that most hospitalized-patient expected a patient medication counseling in quite private setting such as in counseling room (46.60%) with duration of counseling about 10-15 minutes (37.86%). Most of hospitalized-patient wished to be counseled during the first experience of using medications (34.95%), or if any additional/new information related to their regimen. Interestingly, more hospitalized patients preferred to have counseling in a counseling room than in inpatients ward (46.60 vs 29.13% respectively).

Table Ia. Patient's need against patient medication counseling

Parameter	Total (n=103)	
	Σ	%
Medication counseling setting		
Counseling room	48	46.60
Inpatients ward	30	2.13
Physician's office	18	1.48
Public area (canteen, waiting room, other)	6	5.83
Did not answered	2	1.94
Duration of drug counseling		
10-15 minutes	39	37.86
5-10 minutes	25	24.27
1-5 minutes	14	13.59
>15 minutes	16	15.53
Did not answered	7	6.80
Frequency of drug counseling*		
If only counseled once:		
during the first experience of using medications	36	34.95
When will return from hospital	9	8.74
Next follow up schedule	6	5.83
Once-a-day counseling during hospitalization:		
Morning	39	37.86
Daylight	7	6.80
Afternoon	2	1.94
Two times per week	2	1.94
Every time when new information related to medication is needed	45	43.69
No answer	5	4.85

This suggests that most patients were willing to move from their bed to get more privacy during the counseling session. The majority of patients (43.69%) wanted to receive new information related to drug use immediately rather than have regular counseling schedule.

Majority patients stated they need all basic information of their medication except in this following aspects where the results was below 50%: 1) how to refill the medication, 2) drug interaction, 3) solution when drug is not effective, 4) solution when forget taking the drug, 5) therapy duration, and 6) mechanism of action. Previous Dutch study also reported variability in patient preference, particularly during discharge from a hospital (Borgsteede *et al.*, 2011). This means that information should be tailored to the individual needs of the

patient. We recommend that all drug-related information delivered systematically according *Guidelines on Pharmacist-Conducted Patient Education and Counseling* (ASHP, 1997) by considering availability of time and patient's condition. If all the information were unlikely to be delivered, it is necessary to prioritize the information submitted (Al-Hajje *et al.*, 2012).

In addition, the majority of hospitalized-patients require written information available on brochure/ leaflet (54.37%), patient medical chart (45.63%), poster (44.66 %), and drug card (44.66%) to facilitate and assist the patient's understanding. Result from previous research also support our findings where majority of the patients preferred to receive both pharmacist counseling and leaflets (Harvey and Plumridge, 1991, Taylor *et al.*, 2005).

Table Ib. Patient's need against patient medication counseling

Parameter	Total (n=103)	
	Σ	%
Type of information*		
Indication	92	89.32
How to use	83	80.58
Dose	81	78.64
Composition	77	74.76
Side effect	75	72.82
Contraindication	72	69.90
Disease	72	69.90
Expired date	70	67.96
Strength	69	66.99
Storage	69	66.99
Warning and caution	69	66.99
Non drug therapy	66	64.08
Brand	65	63.11
Price	62	60.19
How to refill the medication	21	20.39
Drug interaction	20	19.42
Solution if drug is not effective	19	18.45
Solution if forget taking the drug	19	18.45
Therapy duration	18	17.48
Mechanism of action	16	15.53
Additional information media to drug counseling*		
Brochure/ leaflet	56	54.37
Patient medical chart	47	45.63
Poster	46	44.66
Drug card	46	44.66
Picture	29	28.16
Audio visual	22	21.36
Prop	22	21.36
No answer	5	4.85

*Respondent answer more than one option

In addition, a survey based on questionnaire to gain the patient's support

From the table II, we knew that 94.17% hospitalized-patients approve the pharmacist to provide patient medication counseling, willing to get patient medication counseling service by pharmacist (88.35%), and will utilize the service actively (98.06%). Furthermore, respondents agree if the pharmacist who has provided counseling given more incentive (77.67%) and they were willing to pay for this service (57.28%). We found that this patient supportive behavior was similar with the report from previous study in Pakistan (Khan *et al.*, 2013)

Identification of other healthcare professional's support for patient medication counseling service

Support from other healthcare professional was needed and was important in the implementation of new service in a hospital. Based on survey result to other healthcare professional's support pharmacist to counseling, all respondents from nurses and doctors (100%) support the pharmacist at eye hospital to provide patient medication counseling in the hospital.

In contrast, a study in America showed that patients, pharmacists, and physicians have different beliefs about who should provide

Table II. Patient support against patient medication counseling by pharmacist

Parameter	Total (n=103)	
	Σ	%
Patient agreement to pharmacist to provide drug counseling		
Yes	97	94.17
No	3	2.91
No answer	3	2.91
Patient willingness to receive drug counseling from pharmacist		
Yes	91	88.35
No	7	6.80
No answer	5	4.85
Patient will utilize drug counseling service actively		
Yes	101	98.06
No	0	0
No answer	2	1.94
Patient agreement to give more incentive to the pharmacist providing counseling		
Yes	80	77.67
No	19	18.45
No answer	4	3.88
Patient willingness to pay counseling service		
Yes	59	57.28
No	38	36.89
No answer	6	5.83

essential medication-related information (Tarn *et al.*, 2009). A qualitative interviews study in Switzerland also showed that the presence, visibility and implication of hospital pharmacists need to be improved (Bechet *et al.*, 2016). This medication counseling activity is an approach for pharmacist to show their positive impact in patient therapy. A collaborative patient-centered effort, however, should be employed by all healthcare provider, particularly physician, pharmacist, and nurse to ensure the patient effectively received essential medication information.

Identification of pharmacist's readiness for patient medication counseling service

Besides two aforementioned aspects, information about pharmacist's readiness also needed. The survey is important to gain pharmacist's readiness because pharmacist is main actor to provide counseling.

The readiness of pharmacist (Table III) indicating that experience of pharmacist in eye hospital to provide patient medication

counseling is lacking. Only one out of four pharmacists who have provided counseling. However, all pharmacists are willing and ready to provide patient medication counseling.

Based on sufficiency of human resources available at hospital, all pharmacists stating the number of pharmacists available at this time is not sufficient to carry out counseling, because there were only 4 pharmacists. The government standard stated a provision that pharmacist's need based workload on pharmaceutical services include managerial pharmacy services and clinical pharmacy services (Menkes-RI, 2014). In inpatient, pharmacists are ideally a ratio of 1 pharmacist for 30 patients, while in outpatient pharmacists are ideally required a ratio of 1 pharmacist for 50 patients (Depkes-RI, 2006).

This hospital equipped with 104 beds. Order prescriptions per day in outpatient are 350-400 prescriptions. From these data, the ideal number of pharmacists in eye hospital is 10 to 15 people. Therefore, it is recommended to increase the number of pharmacist (75%), divide drug counseling to each pharmacist to

Table III. Human Resources readiness for patient medication counseling service

Parameter	Pharmacist (n=4)	
	Σ	%
Pharmacist willingness to provide drug counseling		
Yes	4	100
No	0	0
Pharmacist perception about sufficiency of human resources to provide drug counseling		
Yes	0	0
No	4	100
Solution of insufficient number of pharmacist to provide drug counseling		
Increase number of pharmacist	3	75
Divide drug counseling to each pharmacist to carry out drug counseling alternately on schedule	2	50
Decrease administrative workload of pharmacist	2	50
Appointing pharmacist who only focus on the drug counseling	1	25

carry out drug counseling alternately on schedule (50%), and reducing the workload of pharmacist who are administrative (50%). However, the increase in the number of pharmacist requires the approval of hospital management and not a solution that can be done in a short period of time. One way to do so that patient medication counseling services can still be held and executed later that makes the priority criteria for patient and disease that need to be given counseling. Pharmacist prioritize patient by the use of special drugs and or difficult, specific storage or significant side effect (1); patient with complex drug regimens (2); and patient with multidrug or polypharmacy (3); patient with a history of non-compliance medication use (4); patient with chronic disease (5); patient has vision, hearing disorder or illiterate or has difficulty reading (6); pediatric and elderly patient (7); new patient or patient who receive another new drug for the first time (8); patients who will return from hospital (9) who has an infection (75%), cardiovascular (75%), vision and hearing disorders (50%) as a criteria to be given counseling.

Based on readiness of facilities for patient medication counseling service amounts 50% of pharmacists in eye hospital found the hospital already has counseling room. However, they are not specific room reserved only for patient medication counseling alone but can also be used by other healthcare professionals.

Amounts 50% of pharmacists believe in hospital pharmacy already provided some literature that can be used to support patient medication counseling. However, literature may only owned personally (e-book). After further review in pharmacy already there is some literature such as MIMS, ISO, Clinical Ocular Pharmacology, Lectures Notes Ophthalmology, Hospital Pharmacy, Ministry of Health Guidelines, E-book (AHFS, Drug Facts, and others).

Pharmacists argued they needed another form of additional hardcopy literature such as AHFS (75%), DIH (75%), Handbook of Clinical Drug Data (50%) as well as other literature that should be adapted to hospital's need. Most pharmacists mention that the eye hospital did not provide standard operational procedure (SOP) patient medication counseling (75%) and 100% of pharmacists need SOP as a guide to provide counseling well.

Gap analysis

Based on the survey to patients, other healthcare professionals, and pharmacists, gap analysis was conducted to determine the deficiency and

Table IV showed that there were several aspects did not meet the literature-based-standard required to perform counseling. Survey showed that there were lack of pharmacist knowledge and skill in counseling, standard operation procedure for counseling, supporting literature, documents supporting

Table IV. Gap analysis to optimize counseling service

Strategic objective	Current standing	Deficiency	Action plan
<i>Resources : Human</i>			
All pharmacist ready to run counseling service	All pharmacist ready to run counseling service	N/A	N/A
Pharmacist personnel equipped with sufficient knowledge and skill in counseling	Only one personnel sufficient in knowledge and experience experienced in counseling services	Three personnels inexperienced in counseling services	Conducting internal workshop by inviting experienced pharmacist in patient counseling from other hospital.
Other healthcare provider supporting the services	Physicians and nurses supported pharmacist medication counseling activities	N/A	N/A
<i>Resources : Facilities</i>			
Appropriate counseling room available	There is one counseling room available	The counseling room also used by other healthcare provider to provide education	Synchronizing the schedule for pharmacist medication counseling with other healthcare provider
Up-to-date standard operational procedure in counseling	No appropriate standard operational procedure in providing counseling services	Appropriate standard operational procedure in providing counseling services	Creation of standard operational procedure, put it in a visible location, and inform it clearly to all pharmacist personnel.
Creation of documents supporting counseling documentation	No supporting documents for counseling documentation available	No supporting documents for counseling documentation available	Collaborate with university partner to create list of documents needed to support counseling activities
Up-to-date literatures supporting counseling services available	Up-to-date literatures supporting counseling services available although with limited variations	Need more vary literatures to support counseling.	Collaborate with university partner to create up-to-date and reliable medication use criteria
Creation of supporting educational tools for patient	Limited supporting educational tools for patient	Limited supporting educational tools for patient and not up-to-date	Collaborate with university partner to create educational tools needed to support counseling activities
Creation of priority criteria for patient counseling	No standard of priority criteria for patient counseling available	No standard of priority criteria for patient counseling available	Create a survey to get all pharmacist personnel regarding priority patient to be counseled.

counseling documentation, supporting educational tools for patient, priority criteria for patient and disease that need to be given counseling, whereas it should be available to support counseling services.

Gap analysis was made to determine correlation between patient's needs, other healthcare professional's support, and pharmacist's readiness against patient medication counseling service toward to standard to performing counseling. Result from identification of patient's need, other healthcare professional's support, and pharmacist's readiness has been described in result section. In general, patient need patient medication counseling, nurse and doctor support pharmacist to carry out patient medication counseling service, and all pharmacist willing to carry out patient medication counseling service. However, from gap analysis found the problems are insufficiency on pharmacist knowledge and skills and several supporting facilities for counseling such as patient medication counseling material, standard operational procedure (SOP) for patient medication counseling and literature.

To support this pharmaceutical care activity, we try to fill the gap by providing a medication use criteria, draft of standard operating procedure (SOP) of patient medication counseling equipped with Modified Morisky Scale assessment form attached and a simple archiving system to store important information and to evaluate the previous counseling activity. Meanwhile, to address a limited number of pharmacist, one relevant solution is to determine the priority criteria for patient and disease that need to be given a counseling. This is important since approval from the hospital management is needed to increase the number of pharmacist and other solutions related to sufficiency of the human resources. . Based on survey to the pharmacists, patient who received complex medication, especially antibiotics with special instructions and significant side effects will be on priority receiving medication counseling service.

CONCLUSION

Patient's need of patient medication counseling services described with approval for pharmacist to carry out counseling, willingness

to get counseling service by pharmacist and a willing to utilize counseling service actively if such service exist. Both nurses and doctors involved in this research expressed their support for pharmacist to carry out patient medication counseling service. All pharmacists were ready to conduct patient medication counseling service. Based on gap analysis, there are limitations to number of pharmacist and skills on performing medication counseling. It is necessary to determine the priority criteria for patient and disease that need to be given counseling. While their limitations at facility, then made medication use criteria, standard operational procedure (SOP) patient medication counseling, educational tools, and documents supporting counseling documentation. Patient medication counseling service can already be proposed to be held and carried out in this eye hospital.

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