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Analysis on The Influence of Early Pharmaceutical Exposure in Primary Health Care on Student's Knowledge Levels in School of Pharmacy Universitas Muhammadiyah Yogayakarta

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Abstract

Early Pharmaceutical Exposure (EPhE) program is a practicum activity for undergraduate pharmacy students of School of Pharmacy Universitas Muhammadiyah Yogyakarta (UMY) in the pharmaceutical fields. One of those pharmaceutical fields is primary health care. UMY is the only school of pharmacy in Indonesia that applies this program. It will be a consideration that can be applied in the other universities in Indonesia. The main objective of this research is to determine the influence of EphE program on student's knowledge levels after conducting the EPhE program.

This research study was conducted by an observational descriptive analytic method with cross sectional approaches. The sampling technique used was a non-probability sampling through purposive sampling. The samples in this study were undergraduate pharmacy students of the School of Pharmacy UMY year 2015. The samples of this study were 30 respondents. They were given questionnaires to evaluate student's knowledge level pre and post the program. The data obtained were tested using the Wilcoxon test.

The result of this research showed that the student's knowledge levels for pre implementation of EPhE were Good (50%), Sufficient (46,67%), and Less (3,34%). In post implementation of EPhE program, the student's knowledge levels increased showing Good (90%) and Sufficient (10%). The Wilcoxon test indicated that p value = 0.000, which means that the result was significantly different in the scores of student's knowledge levels for both pre and post EPhE implementations. The research concludes that the EPhE program influenced the student's knowledge levels.

Keywords

Early Pharmaceutical Exposure; primary health care; knowledge levels

Introduction

Good pharmaceutical practice should be carried out by a competent pharmacist. Competent pharmacists who are qualified in accordance with Indonesian Pharmacist Competence Standard can be produced through appropriate curriculum and learning processes. A Competency Based Curriculum (CBC) has been implemented in Indonesia. It is expected that School of Pharmacy graduates have met the competence required to become a pharmacist through the Competency Based Curriculum. The Competency Based Curriculum can be implemented in various learning

processes. School of Pharmacy in the Muhammadiyah University Yogyakarta (UMY) uses a Problem Based Learning (PBL) learning process. PBL applies student centered learning methods (Indonesian Pharmacist Association, 2011; Ministry of Health Republic of Indonesia, 2009; Nursalam, 2008).

PBL is a learning method that gives the ability to learners through problem solving. PBL main objective is to provide skills and information to students regarding problems that may be encountered when carrying out their profession later (Nursalam, 2008). This PBL methods are implemented on expert lectures, tutorials, lab, skill lab, plenary discussions, Interprofessional Education (IPE), and the Pharmaceutical Early Exposure (EPhE) activities in the School of Pharmacy UMY. School of Pharmacy UMY becomes the only School of Pharmacy in Indonesia to implement the EPhE learning method (School of Pharmacy UMY, 2015).

EPhE is a form of clinical practice for the students in School of Pharmacy undergraduate degree program in a real pharmaceutical occupation setting. EPhE is delivered to prepare the students to be able to know the works of a pharmacist in the field of pharmacy as early as possible. EPhE activities are expected to stimulate curiosity and enhance students' learning spirit in a variety of pharmaceutical sciences to be applied in pharmaceutical profession (School of Pharmacy UMY, 2016). The researchers sought to know the effect of EPhE implementation towards the knowledge level of students in School of Pharmacy UMY. Researchers focused the study on the implementation of EPhE on primary health care.

Research Method and Material

This research is a descriptive analytic observational research using cross sectional approach. It used a questionnaire to determine the effect of EPhE implementation in primary health care on students' knowledge level in the School of Pharmacy UMY. This research was conducted in the School of Pharmacy UMY from April to May 2016.

The sampling technique used in this research was a non-probability sample using purposive sampling. The samples in this research were students of the School of Pharmacy UMY class of 2015 who had taken EPhE class in primary health care and they were amounted to 30 people. The samples represent each primary health care and its session implementation.

This research used a questionnaire as its instrument. The questionnaire was designed by the researchers to refer to the EPhE manual in primary health care. Knowledge level questionnaire consists of 31 questions which then measured by Guttman scale, a scale that is both firm and consistent by giving a straight answer to the question. The form of the questions from the questionnaire are in the form of yes or no question. Each correct answer was given a value of 1 and each wrong answer was given a value of 0 (Hidayat, 2007).

The study was initiated with reliability and validity tests to the research instruments. The valid and reliable questionnaire were distributed to the respondents who previously given the information on the purpose and objective of the study by researchers in advance. After being given an explanation, respondents signed an agreement letter confirming to be the respondent. Respondents filled out a questionnaire by giving a check on the appropriate answer.

The researcher conducted a univariate analysis to the data obtained in order to describe the frequency distribution of the researched variables descriptively. Univariate analysis aims to explain or describe the characteristics of each study variable (Sumantri, 2011). The data is presented in the form of percentage. The evaluation of EPhE effects on the level of students' knowledge in primary health care were categorized in three categories, namely:

- Good, when the subject was able to answer correctly 76% -100% of the whole question.
- Sufficient, when the subject was able to answer correctly 56% -75% of the whole question.
- Less, when the subject was able to answer correctly ≤ 55% of the whole question.

The data which had been through univariate analysis required to be evaluated further using bivariate analysis. This analysis was used to determine the correlation between the condition before the implementation of EPhE and after EPhE implementation on student's knowledge level in primary health care. A Wilcoxon test was conducted during the data testing process to compare between the two groups of interrelated data. The statistical tests results interpretation was as follows, if the P value> α (0.05), then there is no significant difference in scores on the level of students' knowledge before and after the implementation of EPE. Whereas when P value ≤ α (0.05), then there is a significant difference in scores towards the level of students' knowledge before and after taking EPhE class.

Research Results and Discussion

A. Validity dan Reliability Tests

Validity test is a test that has a sense on the extent of provision and accuracy of an instrument (questionnaire) in doing its measuring function (Azwar, 2009). An item analysis is used to test each item's validity, which is done by correlating the scores of each item with the total score as the sum of each score point. The correlation used in this research was Pearson correlation. In giving the interpretation of the correlation coefficient, an item that had a value of r count > r table was declared as valid and if the value of r arithmetic < r table, it was declared as invalid. The minimum requirement to be considered as valid was when it showed the correlation coefficient of 0.361 with a standard error of 5%. Thus, if the correlation coefficient <0.361, it was declared as invalid.

There were 31 questions on the questionnaire on the level of students' knowledge tested on a number of 30 respondents in accordance with the inclusion criteria. The selection of respondents was done by observing the groupings of students in each primary health care and session and then each representative was selected based on the 1st serial no on the presence list. From the validity results obtained, 4 problems were considered as invalid for the questionnaire on the students' level of knowledge, so the questions on the students' level of knowledge were reduced in to 27 questions.

Reliability test is an index indicating the extent to which a measuring instrument is reliable or unreliable. It shows the extent to which the measurement results remain consistent when measurements were taken twice or more on the same symptoms

(Notoatmodjo, 2012). A group of question items are declared as reliable if the numbers of Cronbach alpha coefficient (α) ≥ 0.6 (Arikunto, 2010).

Reliability test was conducted to 30 respondents with the number of questions in total of 31 questions on student knowledge's level questionnaire. The results of Cronbach alpha analysis amounted to the value of 0.909 for the questionnaire regarding the level of students' knowledge, thus it was stated as highly reliable.

Based on the validity and reliability tests of the questionnaire, it could be concluded that of the 31 questions, 27 questions were declared as valid and reliable for the questionnaire on the student's knowledge level (Table 1).

Table 1. Questionnaire on the Students' Level of Knowledge

No.	Question	Yes	No
Administrative requirements regarding pharmacy services at primary health care			
1	Primary health care obtain drugs from PBF.		
2	Pharmacists make the planning demand for drugs in primary health care.		
3	LPPO (Sheets on the Usage and Demand of Drugs) is a sheet that is used to request for medicines to District Health Organization's Pharmacy's storehouse.		
4	Plan the demand for drugs in primary health care based on the type of disease observed in the previous year.		
5	Primary health care request a special medicine outside the regular schedule when a vacancy of drug occurs because of outbreaks.		
6	The report on the use of drugs in primary health care is conducted by Pharmacists.		
7	Primary health care submit a request to the Pharmacy's warehouse every 2 months.		
8	Stocks for hospitalization is held at the end of the month to determine the suitability of the stock on the stock card with the real condition.		
9	A regular report was conducted every 1 month for narcotic drugs and psychotropic.		
10	At the end of the year, primary health care makes a planning on drug demand.		
Drug management is based on regulation			
11	Rack / cabinet arrangement for drugs is based on FIFO (First In First Out).		
12	Primary helath care implements alphabetical system in the arrangement of drug storage.		
13	Antibiotic drugs are stored in a tightly sealed chamber, dry and protected from light.		
14	Narcotic and psychotropic drugs are stored in closed and locked cabinets made of wood.		
15	Storage cabinets for narcotic and psychotropic use 2 double lock.		
Prescription services			
16	Prescription Service flow is as follows: prescription received by pharmacists → the pharmacists checked the validity or its completeness → drugs are taken and matched with prescription → drugs are labeled → drugs submitted by pharmacists to the patients.		
17	The prescriptions in primary health care include the name of the doctor and doctor's practice licence.		
18	Pharmacists provide Information, Education, and Conselling in primary health care.		
Archiving the prescriptions			
19	Prescription's storage uses special storage cabinets.		
20	Prescription archiving is performed every 1 month.		
21	All prescriptions are stored for 3 years before they are destroyed.		
Good dispensing practices			
22	Assistant pharmacists perform retrieval, medication compounding and labelling in primary health care.		
23	If drugs are found to be not in accordance with the prescription, pharmacists discuss it with the doctor.		

24	The tools used for compounding the drugs are *pulveres* types mortar and stamper.
25	Mortars and stamper are cleaned by means of moistened with alcohol after use.
26	Oral type of drug is using white label.
27	Drugs provided from outside of the primary health care is using blue label.

B. The Research on the Influence of EPhE towards Students' Knowledge Level

The respondents in this study are students of School of Pharmacy UMY class of 2015 who had followed EPhE in primary health care. This research used a questionnaire with 27 items of questions to determine the level of student knowledge. The questionnaire was given to 30 respondents, by looking at the grouping of students in each primary health care and each session and then one representative was taken, based on the serial number shown in the presence list 2.

Knowledge is the result of "Knowing" and it occurs after people perform sensing on a specific object. Sensing occurs through human senses, namely: the sense of sight, hearing, smell, taste and touch. Most human knowledge is gained through education, other people's experience, the mass media and the environment (Notoatmodjo, 2003). The level of students' knowledge before and after implementing EPhE in primary health care can be seen in Table 2.

Table 2. The Level of Students' Knowledge

Knowledge	Pre Test		Post Test	
	N	%	N	%
Good	15	50	27	90
Sufficient	14	46.67	3	10
Less	1	3.34	0	0
Total	30	100	30	100
p value	0,000			

Table 2 shows that before implementing EPhE in primary health care, as many as 15 respondents (50%) had a good knowledge, as many as 14 respondents (46.67%) have sufficient knowledge, and 1 respondent (3.34%), have lack of knowledge. After doing EPhE in primary health care, respondents still have enough knowledge as much as three respondents (10%) and as many as 27 respondents (90%) have a good knowledge. After calculation using the Wilcoxon test, the result showed p value = 0.000 (<0.005), which means that there are significant differences in scores on the level of students' knowledge before and after the implementation EPhE in primary health care.

Student knowledge of Pharmacy in UMY before and after following EPhE in primary health care was measured by 5 grid of questions, namely: completeness of administration in relation with pharmaceutical services at the health center, medicine management based on regulation, prescription services, archiving recipes, and good dispensing practice. Distribution of student's knowledge level by 5 grid questions can be seen in Figure 1 and Figure 2.

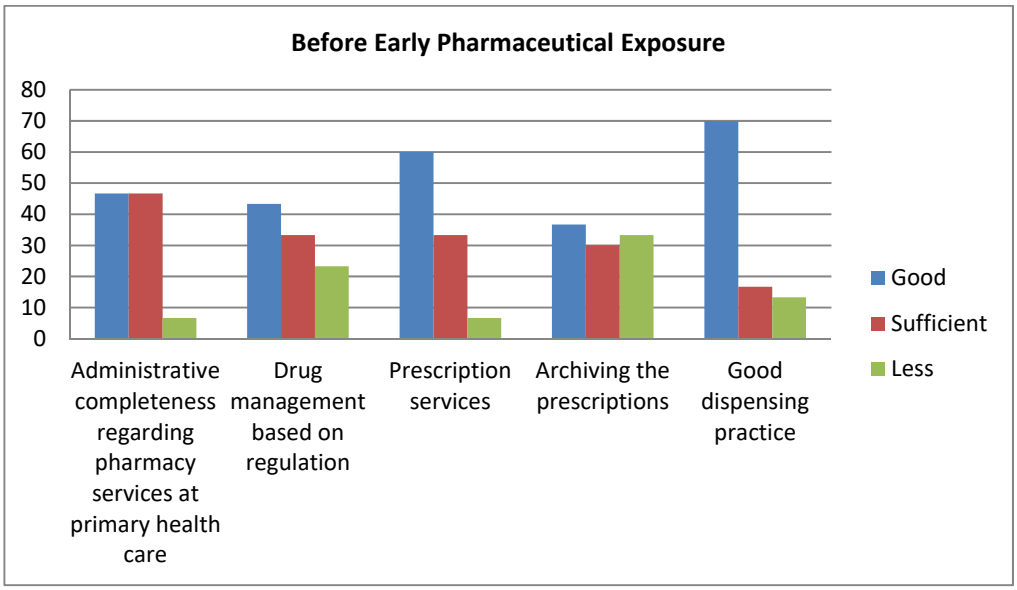

Figure 1. Diagram of Distribution on the Level of Students' Knowledge before EPhE towards 5 Grids of Questions

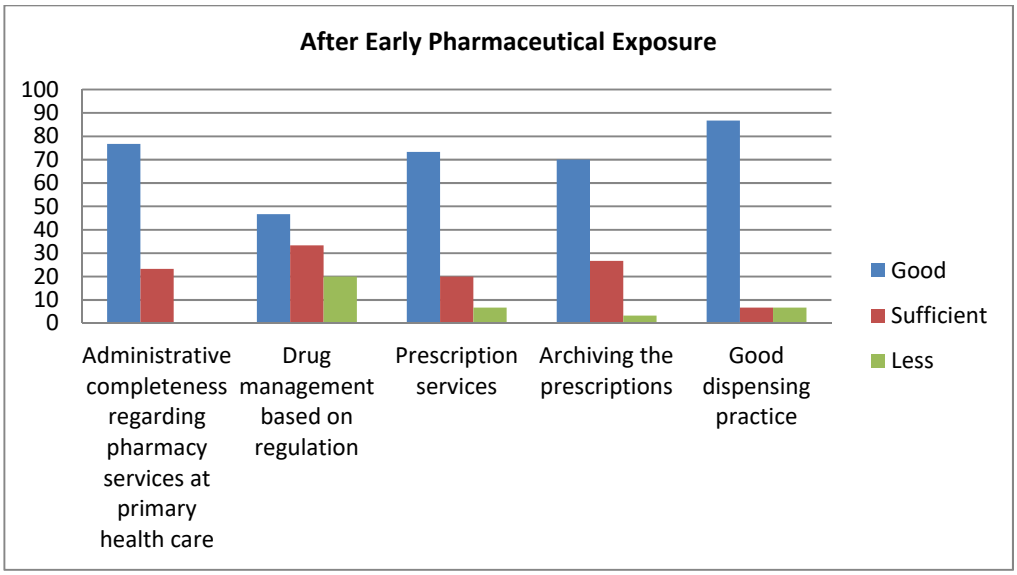

Figure 2. Diagram of Distribution on the Level of Students' Knowledge after EPhE towards 5 Grids of Questions

Conclusion

Based on the research that had been conducted, it can be concluded that EPhE in primary health care has a positive influence on students' level of knowledge in School of Pharmacy UMY.

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References

Arikunto, S. (2010). Research Procedure (*Prosedur Penelitian*), Rineka Cipta, Jakarta.

Azwar, Saifuddin. (2009). Reliability and Validity: Psychological Measurement Series (*Reliabilitas dan Validitas: Seri Pengukuran Psikologi*), Sigma Alpha, Yogyakarta.

Hidayat. A.A.A. (2007). Nursing Research Methods and Data Analysis Techniques (*Metode Penelitian Keperawatan dan Tekhnik Analisa Data*), Salemba Medika, Jakarta.

Indonesian Pharmacist Association. (2011). Decree of the Central Board Indonesian Pharmacist Association No: 058 / SK / PP.IAI / IV / 2011 on Indonesian Pharmacist Competence Standard (*Surat Keputusan Pengurus Pusat Ikatan Apoteker Indonesia No: 058/SK/PP.IAI/IV/2011 Tentang Standar Kompetensi Apoteker Indonesia*), Jakarta.

Ministry of Health Republic of Indonesia. (2009). Indonesian Government Regulation No. 51 Year 2009 on Pharmaceutical Works (*Peraturan Pemerintah Republik Indonesia Nomor 51 Tahun 2009 Tentang Pekerjaan Kefarmasian*), Jakarta.

Notoatmodjo, S. (2003). Education and Health Behavior (*Pendidikan dan Perilaku Kesehatan*), Rineka Cipta, Jakarta.

Notoatmodjo, S. (2012). Health Research Methods (*Metode Penelitian Kesehatan*), PT. Rineka Cipta, Jakarta.

Nursalam. (2008). Concept and Application of Nursing Research Methodology: Guidelines Final Year Project, Thesis and Research Instruments (*Konsep dan Penerapan Metodologi Penelitian Ilmu Keperawatan: Pedoman Skirpsi, Tesis, dan Instrumen Penelitian*), Salemba Medika, Jakarta.

School of Pharmacy UMY. (2015). Handbook of Academic Year 2015/2016 (*Buku Panduan Akademik Tahun Ajaran 2015/2016*), School of Pharmacy UMY, Yogyakarta.

School of Pharmacy UMY. (2016). Workbook of Early Pharmaceutical Exposure Block 5 (Basic of Pharmacy IV) *(Buku Kerja Early Pharmaceutical Exposure Blok 5 (Farmasi Dasar IV)),* School of Pharmacy UMY, Yogyakarta.

Sumantri, Arif. (2011). Health Research Methodology (*Metodologi Penelitian Kesehatan*), Kencana, Jakarta.