

The Effectiveness of Peer Learning Method in Developing Logical Clinical Skills on Medical Students

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Abstract

Introduction: The Logical clinical skills is an absolute requirements of doctors professionalism. Unfortunately, in Indonesia that skills is lower compared the others countries. Muhammadiyah universities which have medical faculty is not yet all implemented learning methods in accordance with standards of Indonesian and Muhammadiyah doctor's competency. The aim of study was analyzing the effectiveness of peer learning method in developing logical clinical skills on medical students.

Research Method: This quasi-experimental study was conducted among the sophomore students of medical study program in Muhammadiyah University of Jakarta in 2013-2014. The students were randomly selected, divided into seventeen groups in neuropsychiatrics' block. Nine groups (83 students) using peer learning method and the others was control groups with lecture-practices methods. At the end of block, the students were examined and that score was analyzed using Independent t-test through SPSS 16 software.

Results and Analysis: The mean scores of peer learning groups was higher than control groups (91.45 ± 5.07 and 89.91 ± 5.02 respectively). There was statistically significant differences mean scores in both groups ($p=0.048$).

Conclusion: Peer learning is an effective method in developing logical clinical skills. This method needs to be applied in learning method. Students' confidence and satisfaction need to be assessed in future studies.

Keywords: peer, learning, logical clinical skills, medical students

1. INTRODUCTION

Logical clinical skills is the main requirement in building a clinical diagnosis of health professionals. The proper diagnosis can help patient's optimally recovery [1]. This skills is one of the competencies of health professional that required since learning process in college [2]. Student Centred Learning (SCL) method in learning process is the active learning method that can develop logical clinical skills. The Curriculum in the SCL method refers to Standards of Indonesian Doctor Competency. Especially for medical students of Muhammadiyah Universities, must be in accordance with Standards of Muhammadiyah Doctor's Character and Competency [3].

SCL method focuses on the use of Problem Based Learning [4]. This method prioritize of student's active role in critical thinking. It also combines between education and curriculum philosophy, known as 'conceptual fog' [5]. This method consists of evaluation, research and comparison programs. During the learning process, the students not only develop the learning personal skills, but also social competency such as team working in group [6]. The collaboration in teams and assessment of the group are significantly associated with sustainability of studies, empathy, personality, and student's interest in subject of study [7,8].

Peer learning is one of the Student Centred Learning (SCL) method. It is an innovative method that increasing logical clinical skills [9,10]. Learning process in this method comes from peers. Students more flexibility in developing a logical clinical skills based on learning experiences with a group. They also can perform simulations in the group similarly with the real Indonesian Doctor Competency Examination. Students were able to practice how to interview the patients and using their logical clinical skills to diagnose the diseases. Peer learning can intensify the science and knowledge of students [11]. Moreover, it can develop personal and social capabilities such as communication skills, team working, problem solving, learning ability of individuals, information sharing, appreciates an ideas of others, identify weaknesses and strengths someone in the study [12].

The application of peer learning method is still uncommon in learning method in Indonesian universities, particularly in medical faculty [13]. Therefore, the logical clinical skill need to be developed, so that this skills in accordance with standards of Indonesian doctor competency. In fact, the results of examination of Indonesian doctor competency that assessing knowledge, skills and attitude has not reached the target of 100%. Moreover, there are still many medical study programs of universities awarding had an average of graduation less than 80%, including Muhammadiyah University of Jakarta in 2013 [14]. It caused by the failure of students to diagnose patients disease in Indonesian doctor competency examination. Peer learning with role play simulations can develop logical clinical skills of students. They have a more learning experiences and more applicable during real exams [15,16]. The aim of study was analyzing the effectiveness of peer learning method in developing logical clinical skills on medical students.

2. RESEARCH AND METHOD

Setting and Sample

A quasi-experimental study was conducted among the sophomore students of medical study program in Muhammadiyah University of Jakarta in 2013-2014. Permission to conduct this study was obtained from the institutional reviews boards. The total number of students were 165 person, consists of two campus location were 48 students at Cempaka Putih and 117 students at Cirendeui . Only 163 students fulfill the inclusion criteria as sample, that subject was an active student and registered in neuropsychiatric block. They follow all stages of the block and are willing to engage in research. Totally the number of subjects as many as 163 students who had signed informed consent to participate in this study. They were randomly selected, divided into seventeen groups in neuropsychiatric's block, particularly in interviewing technique session. Each group consists of 10-11 students. Nine groups (83 students) using peer learning method, that three groups at Cempaka Putih and five groups at Cirendeui. In groups, they made a case that be simulated. After the case examined by facilitator, the case that made by those given to the other group and received all cases that made by the other groups. The students who plays a doctor, choosing cases randomly and friend of their roles as simulated patient. They simulated in interviewing technique by doing a role plays both as a doctor and a simulated patient alternately. So that, every students in group have played both roles. The entire simulation process was recorded by a digital camera. They watched the recording of video and assess whether the clinical diagnose done appropriately or not. They also evaluate whether the learning objectives achieved or not. Furthermore, they made a review in the report form and given to the group that made the case. Next, it was discussed with all of groups with facilitator and other experts lecturer in pleno.

The other group was control groups with lecture-practices methods. Eight groups (80 students) learning the interviewing technique by lecturer guidance. The lecturer explained how to diagnose a disease or other patient's health problem with learn the signs and symptoms of patient. The lecturer also exemplified the interviewing techniques to students. He as a doctor and someone who has been employed by faculty as a simulated patient. Furthermore, students demonstrate in accordance with lecturer's direction and examples.

Data Collection and Statistical Analysis

The entire process of the study recorded by digital camera, which including preparation stage, comports perception among tutors, explaining the procedure of study, and peer learning method practices. The general characteristics of subjects also collected when they signed an informed consent after explanation of study has been given. There are sex, campus location, group number, and date of data collecting. Supporting data also collected using secondary data from academic of faculty, after getting legal approval from faculty. At the end of block, the students were examined and that score was analyzed using univariate analysis and Independent t-test through SPSS 16 software.

Study Outcomes

The outcomes of this study was examination score of interviewing technique in neuropsychiatric block both of peer learning method groups as treatment groups and lecturer-practices method groups as control group. The mean scores both of groups compared and analyzed using independent t-test analysis. So that, it was known the differences mean scores between peer learning method groups and lecture-practise method. Furthermore, the effectiveness of peer learning method obtained from that analysis.

3. RESULTS AND ANALYSIS

General Characteristics of Students

The total number of samples were 163 students in this study that more than half of number were female students (66.7%). Although the number female students was higher than male students, but the proportion both of peer learning groups and control groups were equal (36.4% and 33.3% respectively) for male students. It also equivalent with female students proportion were 63.6% for peer learning groups and as many as 66.7% for control groups. Most of the students study at Cirendeui (70.6% from 163 students) campus. Both of groups shows that the number of students who study at Cirendeui was higher proportion than students who study at Cempaka Putih. Both of two campus has similar characteristics in demographic and academic setting. The descriptive of sex and campus location showed in Table 1.

Table 1. Student's Distribution of Sex and Campus Location

Variable	Peer Learning Groups (n=83)		Control Groups (n=80)	
	N	%	n	%
Sex				
Male	32	36.4	25	33.3
Female	56	63.6	50	66.7
Campus Location				
Cempaka Putih	30	34.1	18	24.0
Cirendeuy	58	65.9	57	76.0

Interviewing Techniques Examination Scores

In Table 2, shows that minimum-maximum score in both of groups were equal, that 81.58 and 100.00 respectively. But, the median and mean±standard deviation scores of students in peers learning group were higher (91.055 and 91.49±5.07 SD) than control groups. This results similar with several previous study, particularly in foreign universities [17]. The most of study have proved that were significant relationship between peer learning with intrapersonal dan interpersonal students in learning process. The students who study using peer learning method shows higher examination scores. In interviewing techniques, the students can dehelp their logical clinical skills. This integrated skill that use communication, knowledge, and using clinical diagnose with signs and symptoms identification [5].

In fact, peer learning method as a one method in Student Centerd Learning (SCL) is still limited applied at Indonesian universities. In 2004, The Directorate General of Higher Education, Ministry of Education announced to applied the curriculum of competency based. It was a new paradigm for the Medical Sudy Program. The differencies characteristics in new method compared the Teacher Centred Learning (TCL) as old system arethe students should be lifelong learner, learning process focussed on students, and implementation of SPIC models (*Student Centerd, problem based, Integrated, CommunityOriented, Elective, andSistematic*)[3].

Table 2. Descriptive Analysis of Interviewing Techniques Examination Scores

Variable	Min	Max	Median	Mean	SD
Peer Learning Groups (n=83)	81.58	100.00	91.05	91.49	5.07
Control Groups (n=80)	81.58	100.00	89.47	89.91	5.02

Main Findings

The effectiveness of peer learning method shown in Table 3. Statistical analysis using independent t-test shows that mean scores of students in peer learning method groups and students in control groups significantly different (p-value=0.0480). But, sex is not statistically significant with examination scores (p-value=0.345). However, the results shows that the score male students (91.22±4.64 SD) higher than scores of female students (90.43±5.31). It is similar with another stduy [18]. This statistically results is similar with campus location, that association between campus location is not significant different with scores examination (p-value=0.342). Table 3 also shows that students sho study at Cempaka Putih have a highermean scores than students who study at Cirendeuy are 91.29±5.65 SD and 90.46±4.84 SD.

Peer learning is learning metods in the StudentsCentred Learning (SCL). Peer are resourcesof students to teach ecah other in small group that focus on problem based learning [18]. In this method, students suggested that scenarios problems made by students in students and they are required to be active in the learning process, both individually and in teams. The small group will explore their logical clinical skills including problems identifying, problems analyzing, and problem solving. Peer learning can be applied using a variety of techniques not only in the process of tutorial but also it can simulatedin group. Thus not only increasing critical thinking and analysis, but easier to understand and rememberthe concepts of learning material [13].Previous study explained that the retention of students to a science substance is affected by the integration between the processes of thinking and understanding. Peer learning will have a positive impact to determine learning outcomes and clinical practice in the short-term and long-term memories on medical students[19].The other studies observed that active tutorial groups using peer learning shows better understanding development than the group who did not thismethod [20]. The students can increase the learning experiencesandimproving their skills in clinical applications as well as learning the social environment [21]. This skills in accordance with the Standards of Indonesian Doctor Competency [22].

Table 3. Bivariate Analysis for Learning Methods, Sex, and Campus Location with Interviewing Techniques Examination Scores

Variable	Mean Scores of Interviewing Technique Examination (\pm SD)	<i>p</i> -value	95 % CI
Learning Methods			
Peer Learning Groups	91.49 \pm 5.07	0.048	0.02 - 3.13
Control Groups (lecture-practices)	89.91 \pm 5.02		
Sex			
Male	91.22 \pm 4.64	0.345	-0.86 – 2.44
Female	90.43 \pm 5.31		
Campus Location			
Cempaka Putih	91.29 \pm 5.65	0.342	-0.89- 2.56
Cirendeu	90.46 \pm 4.84		

Logical clinical skills or clinical reasoning is the ability of students in clinical diagnosis. This ability is related to the accuracy of doctors in providing treatment or therapy to the patient. Logic skills in clinic can not easily be obtained in a short time. Peer learning in the learning process can develop logical clinical skills. It is very different with the other methods. It forming dynamics group and good intrapersonal and interpersonal characteristics [5].

4. CONCLUSION

Peer learning is an effective method in developing logical clinical skills compared the lecture-practices method. This method needs to be applied in learning method gradually, start from the other blocks. Peer learning method also has a weakness, especially takes longer times and needs more supervision from tutor in accuracy of learning procedures. It also needs to be improved continuously. So that would be obtained the most appropriate model to enhance the logical clinical skills on medical students, particularly and for all students in many universities. In further studies, Students' confidence and satisfaction need to be assessed in future studies, the effectiveness of peer learning method should be an assessment of students' confidence and satisfaction using quantitative-qualitative design study.

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