

Application of Case-Based Method in Pre-Professional Family Planning Course to Improve the Critical Thinking of Students of Midwifery Study Program at Andalas University

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ABSTRACT

The dominant learning method applied so far in the Pre-Professional Family Planning Course has been the discussion and question and answer one. However, this method is deemed not able to hone students' analytical skills, sensitivity to problems, problem-solving skills, and the ability to evaluate problems. This is a problem since the course requires high analysis and critical thinking. Case-based learning is one of the case-based student-centered learning methods designed to improve higher-order thinking in solving a case. By using this method, students are expected to be able to hone critical thinking to solve problems holistically. This study uses a quasi-experimental method or Quasi-Experimental Design with the experimental design called One Group Pre-test - Post-test Design. Respondents in this study were students of the seventh semester of the Midwifery Study Program, Faculty of Medicine, Andalas University, totaling 46 people. Paired T-Test test results show the value of sig. <0.05, which means that there is a significant difference between students' critical thinking skills before and after the Case-Based Learning (CBL) intervention. In conclusion, the critical thinking ability of students of the Midwifery Study Program, Faculty of Medicine, Universitas Andalas, increased after the learning strategy change to case-based learning.

Keywords: Case-Based Learning, Critical Thinking

1. INTRODUCTION

Midwifery education uses a new paradigm, namely the PBL (Problem Based Learning) method, in which at the basic level, students must master learning techniques. It is hoped that later they will be able to learn continuously throughout their lives and are also required to master communication techniques, ranging from interpersonal communication to communication with various parties (doctors, other health workers, and other non-health workers) either verbally or nonverbally or using information technology. Mastery of basic education is absolute because it is a prerequisite for a student to be able to continue learning at the next stage.

Pre-Professional Family Planning (KB) is a pre-professional course taken before undergraduate students of the Midwifery Study Program, Faculty of Medicine, Universitas Andalas, enter the professional stage. This course gives students the opportunity to understand the

concept of population in Indonesia, family planning developments, family planning method 1, family planning method 2, KIE family planning services, documentation, reporting, and family planning referrals. By understanding this concept, it is expected that students will be able to carry out care management in midwifery regarding family planning to the maximum. Thus mastery of the material in this course is important because it will provide provisions for students in providing midwifery care in the community later.

The learning method applied so far has been in the form of discussion and question and answer. In this activity, students are divided into several groups. After that, students are given assignments according to the topics that have been given. At the next meeting, the task is presented and there is a question and answer session. In this method, students' thinking skills are less honed. The majority of students in the Pre-Professional Family Planning course scores in the previous semester were in

the 75-80 range. Three most common grades were B+ (70-75), A- (75-80) and C+ (60-65).

Problems may occur due to multiple factors, one of which is that students are accustomed to the given task so that when given a complicated case, students are confused. One of the planned solutions is the Case-Based Method (CBM) learning method. The reason for choosing case-based learning is because by using this learning model, besides being required to be active in making cases, students are also required to be active in finding solutions to problems so that it is hoped that their critical thinking can be improved.

Learning is prepared in the form of face-to-face learning with the question and answer discussion method, clinical skills, and independent study. Following the decision of the Minister of Education and Culture Number 754/P/2020 of 2020 about Main Performance Indicators (IKU), attention should be given to new learning methods. One of the methods is the Case-Based Method (CBM). With the active learning method called Case-Based Method with Outcome-Based Assessment (OBA), students will be trained to have high-order thinking skills. The authors are interested in developing this learning method in the class.

2. METHOD

This study uses a quasi-experimental method or design in which research is carried out without a comparison class or control class (Arikunto, 2002). The experimental design used is one group pretest-posttest. It is measured by using a pretest which was carried out before being given treatment and a posttest which was carried out after being given treatment. This research was conducted at the Undergraduate Midwifery Study Program, Faculty of Medicine, Andalas University, with the seventh-semester students. It was done by comparing students' critical thinking before and after being given a case. The implementation of data collection is carried out by researchers.

Processing and analyzing data using a computer goes through the following stages: Univariable analysis and Bivariable analysis. This research was carried out for two cycles (rounds). Observations were divided into 2 rounds, namely rounds 1 and 2, and were subjected to different treatments. In the first cycle, there was case planning with a team of lecturers. In the second cycle, students were asked to read and then carry out the learning process with Case-Based Learning. This study used a research instrument, namely, California Critical Thinking Disposition Inventory (CCTDI)

3. RESULT

1. Students' Critical Thinking Ability Before the Implementation of CBL

Table 1
Students' Critical Thinking Ability Before the Implementation of CBL

Descriptive Statistics

	N	Minimum	Maximum	mean	Std. Deviation
Pretest	46	29.00	55.00	40.8478	6.41515
Valid N (listwise)	46				

Based on table 1 above, it can be seen that the average pretest score on the respondents' critical thinking skills is 40.87, with the lowest score 29 and the highest 55.

2. Students' Critical Thinking Ability After Implementation of CBL

Table 2
Students' Critical Thinking Ability After Implementation of CBL

Descriptive Statistics

	N	Minimum	Maximum	mean	Std. Deviation
Posttest	46	40.00	66.00	52.4783	7.67315
Valid N (listwise)	46				

Based on table 2 above, it can be seen that the average posttest score on the critical thinking ability of respondents is 52.47, with the lowest value of 40 and the highest of 66.

3. Differences in Critical Thinking Ability of Pretest and Posttest Respondents

Table 3
Differences in Critical Thinking Ability: Pretest and Post-test

Descriptive Statistics

	N	Minimum	Maximum	mean	Std. Deviation
Posttest	46	40.00	66.00	52.4783	7.67315
Pretest	46	29.00	55.00	40.8478	6.41515
Valid N (listwise)	46				

The number of samples in Before and After each is 46 samples. Table 3 shows the mean (mean) before and

after. Where the posttest average is 52.4783 > the pretest average is 40.8478, so there is an increase. To see whether the difference is significant or not, Paired T Test is conducted. Paired T Test is used as a parametric test that requires assumptions, namely normality in the difference between pre or before and post or after. The difference is the post value minus pre.

Below is a normality test on the difference before and after using the Lilliefors test.

Table 4
Normality Test on Difference (Assumption Paired T Test)

Tests of Normality

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
Differenc e	.122	46	.083	.972	46	.333

a. Lilliefors Significance Correction

Based on the Lilliefors test above, the p value (Asymp sig 2 tailed) of the Lilliefors test > 0.05, the p value of the Lilliefors test with a difference of 0.083 > 0.05. Because the p value of the Lilliefors test > 0.05, the difference between the variables is normally distributed. If the assumption of normality is met in all Paired T Tests, then the results of the Paired T Test are feasible and valid.

Paired T Test: Test the difference of 2 samples in parametric pairs.

Below are the results of the descriptive test per variable, both pre and post.

Posttest mean: 52.4783 where > the average Pretest is 40.8478. To see the significance of this difference, it will be answered with a Paired T Test (if the assumption of normality is met) or a Wilcoxon signed rank test (if the assumption of normality is not met) or continue using the Paired T Test, but bootstrapping is performed.

Table 5
T-Test

Paired Sample Statistics

		mean	N	Std. Deviation	Std. Error Mean
Pairs 1	Pretest	40.8478	46	6.41515	.94586
	Posttest	52.4783	46	7.67315	1.13134

Below are the results of the paired t test:

Paired Samples Test									
Paired Differences									
	mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)	
				Lower	Upper				
Pairs 1	Pretest - Posttest	11.63043	6.42688	.94759	-13.53898	-9.72189	-12.274	45	.000

The difference between the pretest and posttest is - 11.63043, with a standard deviation of 6.42688 and a standard error of 0.94759. The difference in the 95% confidence interval is between -13,53898 to -9,72189. Then the t-count value is -12,274 at the 45 degrees of freedom so that the p value is 0.000 < 0.05, which means the hypothesis is accepted which can be concluded that there is a significant difference between the Pretest and Posttest.

4. DISCUSSION

Based on the identification of the problem, it shows that there is a change in the learning strategy is due. This change is in line with the recommendation of the Directorate General of Higher Education to encourage the Student-Centered Learning (SCL) method. Student Centered-Learning (SCL) method is a learning method that involves students in problem-solving and trains students to think critically, such as analysis, synthesis, and evaluation, both individually and in groups. Wu et al. (2013) stated that midwifery education in higher education must continuously implement new teaching strategies to improve students' critical thinking in overcoming changing health problems. Problem-solving is expected to be able to train students to think critically. Kaddoura (2011) explains that CBL is a strategy that promotes active student learning. Case-based learning is a learning method designed to improve higher-order thinking skills in solving a case.

According to Robbins (2006), a person's performance is the culmination of three important interrelated elements, namely skills, efforts, and the nature of external circumstances. If one element is not sufficient or supportive, one's performance will be impaired. The competence of lecturers is part of the elements of lecturers' skills in their performance. So that lecturers in managing learning activities can succeed optimally, it is necessary to have competence or ability in self-regulation and self-management by finding certain tactics and techniques in the learning process so as to facilitate students in the teaching and learning process. With the competencies possessed, the lecturer will be able to regulate, manage, and move towards independence.

Based on the research, it was found that students' critical thinking skills increased by about 10 percent. Before

being exposed to CBL, the respondents' critical thinking ability was only about 40 percent. After being exposed to CBL, the respondents' critical thinking skills increased by about 52 percent. The increase was statistically significant ($p < 0.05$). The advantages of implementing CBL include increasing student understanding with the opportunity to see theory in practice, and case-based learning can develop student skills in group learning, speaking, and critical thinking (Gade & Chari, 2014). The results of this study are in accordance with the results of the study.

The improvement of critical thinking skills is not solely due to CBL. Sobur 2003 states that one's critical thinking ability is influenced by one's perspective in understanding and assessing something, one's level of intelligence/intelligence, motivation, experiences that have been obtained, one's background and cultural factors, emotional state/anxiety, and physical condition.

One of the advantages of implementing CBL is that students look more involved, interested, and involved in learning. Budiati (2014) stated that CBL gives students the opportunity to be more responsible for the learning process they are going through and discuss the material or knowledge they are studying. Kireeti and Reddy (2015) proved that the CBL method creates student interest in learning new things and makes it easier for students to relate it to patient cases in real life so that students feel like clinical practice. The results of Gade and Chari's (2014) research also found that CBL was able to motivate medical students to study independently and develop analytical and problem-solving skills. Thistlethwaite et al. (2012) state that students and lecturers enjoy the learning process using the CBL method. This study indicates that case-based learning can improve the critical thinking skills of students of the Midwifery Study Program, Faculty of Medicine, Andalas University.

AUTHORS' CONTRIBUTIONS

Uliy Iffah - concept and design of the study, data collection, analysis and interpretation, and the first draft of the paper and further manuscript

Hindun Mila Hudzaifah - concept and design of the study, the data analysis and interpretation, contributing to the writing of the paper

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