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The Application of the Peer Assisted Learning Method in Laboratory Skills of Newborn Physical Examination Learning in DIII Midwifery Students

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Abstract---Introduction: Learning methods are used to realize the applied learning strategies. Each learning method has its most prominent learning domain, such as cognitive (change of knowledge), affective (change of behavior), and psychomotor (change or improvement of skill). Midwifery is a profession that requires specific knowledge, attitudes, and skills that must be possessed and mastered. The process of achieving good competence of midwives starts with midwifery education. In achieving competence, midwifery students need theoretical and practical learning experiences in

laboratory clinical skills. The Learning Pyramid developed by the National Training Laboratory shows that most students remember 90% of what they learn by teaching others. Objective: Determining the effect of the peer-assisted learning method application in laboratory skills for the physical examination of newborns learning. Method: This research used a Quasi-Experimental design with a pretest-posttest design. The sample was 30 students taken through the quota sampling technique, and the analysis used was the Wilcoxon Test. Result: The Peer-Assisted Learning method affected the learning outcome of skills in the physical examination of newborns with a significance level of $P = 0.000 < 0.05$. Conclusion: The Peer-Assisted Learning method improves the physical examination skills of newborns of DIII midwifery students.

Keywords---peer tutor, skill, newborn.

Introduction

The success of a learning process is strongly influenced by the learning methods applied ¹. The use of learning methods has a goal to create and shape professional human beings ². Each learning method has its most prominent learning domain, such as cognitive (change of knowledge), affective (change of behavior), and psychomotor (change or increase of skill) ³. Midwifery is one of the professions that requires knowledge, attitudes, and specific skills that must be possessed and mastered ⁴. In midwifery education, students need to improve clinical skills and practice with simulation before conducting direct practice to patients to minimize errors in providing midwifery care ⁵. In addition, practical learning is an activity to provide opportunities for students to apply knowledge, skills, and attitudes ⁶. There are 12 scopes of midwifery care according to the Decree of Minister of Health No. 320 of 2020 that includes newborn care.

In carrying out care for newborns, the first step that needs to be concerned is a history of the family prior to carrying out physical examination after the baby is born. It is vital as a basis for further care for the baby to help midwives to provide care to keep the newborn healthy ⁷. The newborn physical examination is an examination that starts from the head to the legs that must be conducted by a midwife in carrying out newborn care ⁸. The examiner can observe the baby through visual and auditory senses and make assessments and decisions regarding what is seen and heard ⁹. Physical examination is an objective sign that needs to be completed to confirm various functional or structural changes in establishing a diagnosis ¹⁰. The goal of the practitioner regarding the physical examination of the newborn is to assess for any abnormalities that require a referral ¹¹. However, the fact is that the competence of midwives is still not in accordance with the standard in the health care facility which is inseparable from the factors of providing midwifery education since this stage is significant in shaping the competency of a midwife ¹².

Data on the number of competent graduates per first taker examination period in Indonesia shows 2019 period XV: 85.69%, 2020 period XVI: 66.64%, 2020 period

XVII: 86%, and 2021 period XVIII: 90.14%¹³. Data concludes that the pass rate in the competency test for participants who took the exam for the first time from the XV-XVII period did not reach 100%. In achieving competence, midwifery students need theoretical and practical learning experiences in laboratory clinical skills⁶. The advantage of laboratory learning is that students can master various competencies that must be achieved by a midwife since laboratory learning can train students' skills, knowledge, and attitudes^{14,15}. The Learning Pyramid developed by the National Training Laboratory shows that most students remember 10% of what they read from textbooks and 90% of what they learn by teaching others¹⁶.

The method of teaching others is also called PAL (peer-assisted learning) where knowledge and skills can be achieved through active help and support from peers of the same status such as classmates or seniors and not from professional teachers^{17,18}. PAL is a learning method that can overcome the causes of low OSCA graduation rates such as anxiety, lack of confidence and skills as well as in increasing cognitive achievement^{19,20}.

Learning with the PAL method allows students with better knowledge and understanding to help other peers in the learning process. Thus, it is necessary to conduct research related to the peer-assisted learning method application in laboratory skills of newborn physical examination learning in DIII Midwifery students.

Method

This research used a quasi-experimental design with a pretest-posttest design with no control group. The population was all 3rd-semester students of DIII Midwifery at Health Polytechnic of the Ministry of Health, Gorontalo totaling 97 students with non-probability sampling acquisition and quota sampling technique to obtain 30 respondents as samples. The analysis used was the Wilcoxon test because the data in the research are categorical data which aims to see the effect of the application of learning methods on skill outcomes. This research was conducted in 5 meetings, namely 1 day of initial assessment (Pre-test), 2 days of intervention, and 2 days of final assessment (Post-test). Students who were selected to be tutors were students with knowledge above the average of their classmates and were selected jointly according to the agreement of the students.

Students are divided into 5 small groups consisting of 5 people plus 1 tutor for each group. During the learning process, the tutor explained and demonstrated the steps involved in carrying out a physical examination of a newborn in accordance with the guidelines in the checklist using a baby phantom in the Obstetrics Laboratory, Health Polytechnic of the Ministry of Health, Gorontalo. Learning lasted for 120 minutes in each meeting. After two meetings with the tutor, a final assessment will be carried out by the clinical instructor. The assessment was carried out based on the newborn physical examination checklist used by the institution.

Result

The range of age of the respondents in this research was 18-21 years. Most respondents, or 73.3% of students, were 19 years of age, 6.7% of students at 18 years of age, and 20% of students were 20 years of age.

Table 1
Characteristics of respondents by age

Characteristics	Peer-Assisted Learning Method	
	n (30)	%
Age 18	2	6.7
19	22	73.3
20	6	20.0
Total	30	100

Table 2
The effect of the PAL method on learning outcomes of newborn physical examination laboratory skill

Type of Data	n	%	Negative Rank	Positive Rank	Ties	Value P
PAL Method Pre test	30	100.0	0	22	8	0.000
PostTest						

**Wilcoxon Test*

The results showed that of the 30 respondents, 22 respondents (73.3%) experienced an increase in grades, 8 students (26.7%) obtained a grade in the fixed category, and no student experienced a decline in grade in practicing physical examination skills for newborns as shown in (table 2.). The analysis using the Wilcoxon test with categorical data obtained a P-value of 0.000 <0.05. Thus, there is an effect of the peer-assisted learning method on the learning outcomes of the laboratory skill of physical examination for newborns.

This research showed that the intervention of the peer-assisted learning method obtained different value categories. In the initial assessment (Pre-Test), students who obtained "unskilled" results were 21 (70.0%), "moderately skilled" were 9 (30.0%), and "skilled" was 0 (0%). After receiving the intervention, there was a change in the grade where the "unskilled" students decreased to 2 (6.7%), "moderately skilled" increased to 24 (80.0%), and "skilled" increased to 4 (13.3%) as shown in (figure 1.1).

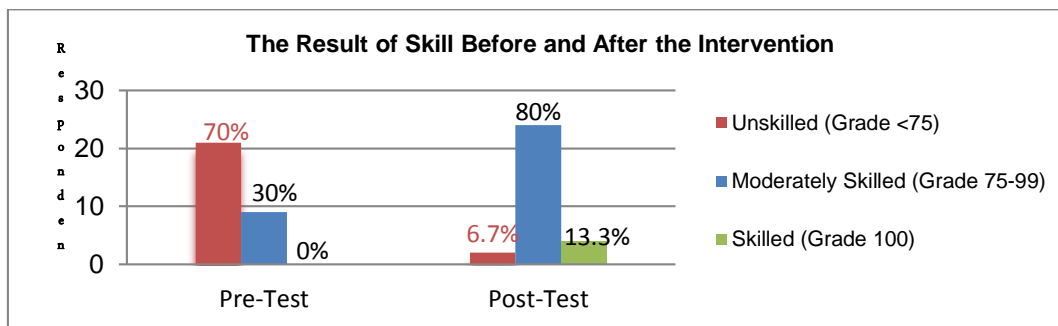


Figure 1. The result of skill before and after the intervention

In general, the application of the PAL method can assist students in obtaining better skill scores.

Discussion

The age of 18-25 years is a period of entering adulthood. This period is a period of search, discovery, consolidation, and a productive period. The age of 18-25 years is a period marked by experimental and exploratory activities²¹. In its development, students have certain stages, and each stage of development has developmental tasks that must be fulfilled by individuals/students, such as developing intellectual skills²². The process of intellectual development by students is obtained in the learning process that applies various learning methods.

The peer-assisted learning method is a learning method in which students can be active and cooperative, whether the tutor is a classmate or a senior²³. The results indicated that the peer-assisted learning method had a significant effect on the newborn physical examination skill learning by comparing the grades before and after treatment, with a significance value of P-value $0.000 < 0.05$.

The result is in line with the results of research by Anggraini and Rahayu in 2016, which showed that after being given the treatment of peer tutor learning method in both class 2A and 2B using the pretest-posttest design, there was an increase in the post-test results compared to the pretest result with a significance value of $p = 0.05$ ²⁴. Similarly, research conducted in Pakistan stated that peer tutoring in learning could help develop high-level cognitive thinking, study skills, and time management²⁵.

The peer tutoring method is expected to improve student competence, where students with a high level of skills can guide students with a moderate and low level of skills²⁴. Students will become skilled if they often practice these skills and are accompanied by other students who have a better understanding²⁶.

This fact is also supported by the results of the research that showed the effect of the peer tutoring method on the competency of ANC skills before and after the laboratory skills learning with statistical test results $P = 0.047 > 0.05$, and there were differences in student competencies before and after the peer tutoring

method in laboratory skills learning with $P = 0.000 < 0.05$. Thus, the peer tutoring method is effective in improving ANC skill competence in laboratory skills learning for midwifery students ²⁷.

The increase of grades in 73.3% (n=22) students was due to the influence of peer-assisted learning methods that helped students understand the material for the physical examination of newborns performed on a phantom baby in the laboratory. Students can see and listen to the tutor demonstrating and explaining the steps in the examination and they are also allowed to try to practice it directly. The peer-assisted learning method is an active learning process which encourages critical thinking, analysis, and application of learning so that students are not just being a passive listener. The application of the peer-assisted learning method has an effect on improving student skill outcomes. In addition, the peer-assisted learning method makes it easier to understand the material because the use of language used by the tutors makes the learning process more optimal since students can ask questions without fear of being embarrassed ²⁸.

Although there was a significant increase in grades, there were still many n=2 (6.7%) students whose grades were in the unskilled category and n=8 (26.7%) whose grades were the fixed category, and most of the increase in skill outcome only reached the moderately skilled category with a grade of 75-99. This probably happened because the tutor was not optimal in delivering the material. The weakness of this peer tutoring method is that students who are chosen to be tutors do not have good relations with the students being assisted even though they have excellent skills and the tutors are also not necessarily able to convey the material well ²⁹. The result is in line with the research conducted by Zulvia *et al.* (2020), showing that peer tutors were very helpful in learning because students are easier at communicating during anatomy practice. However, 51.72% of students agree that lecturers have a more significant role in improving their knowledge ³⁰.

Based on the results of this research, we assume that the application of the peer-assisted learning method can be used in practical learning in the Obstetrics Laboratory to help improve the learning outcomes of newborn physical examination skills. However, the frequency of learning must be increased so that students continue to learn and practice to improve the results up to the skilled category.

Conclusion

The peer-assisted learning method affects the newborn physical examination skills learning outcomes. There is a change in the grade obtained by students before and after the application of the peer-assisted learning method.

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