The Effect of Peer Tutor Model on Antenatal Care Skill Competencies in Learning Laboratory Skills for Students of Langsa Midwifery Study Program

Meliani Sukmadewi Harahap 1*, Alchalidi Alchalidi 1, Baharuddin Baharuddin 2, Nurlaili Ramli 3

1Department of Midwifery, Ministry of Health Polytechnic of Langsa, Aceh, Indonesia; 2Department of Nursing, Polytechnic of Health, Ministry of Health, Aceh, Indonesia; 3Department of Midwifery, Polytechnic of Health, Ministry of Health, Aceh, Indonesia

Abstract

BACKGROUND: Peer-assisted learning is a student-centered learning method that involves discussions between friends or seniors as teachers and participants as being taught. Realize optimal education; it is necessary to choose the peer tutorial method to increase antenatal care (ANC) skills in laboratory skills.

AIM: This study aims to determine the effect of the learning peer tutor model for laboratory skills on the competence of ANC skills in the Langsa Midwifery Study Program’s first-level students.

METHODS: This study used a pre-experimental approach with a one-group pretest-posttest design without a control group. The population used in this study were all Level I Midwifery Students of Langsa City who occupied the 2nd semester. This study’s sample was taken by purposive sampling as many as 45 respondents – data analysis using bivariate analysis.

RESULTS: The results showed an effect of the peer tutor method on ANC skills’ competence before and after learning laboratory skills as evidenced by a statistical test with a value (p < 0.05), namely, 0.047 < 0.05. The results also showed differences in students’ competence before and after the peer tutoring method was carried out in laboratory skills learning, as evidenced by the results of statistical tests with p < 0.05, namely, 0.000 < 0.05. Peer tutor method learning effectively increases ANC skill competencies in laboratory skills for midwifery study students.

CONCLUSION: Peer tutor model effective in improving ANC skills competency in skill learning for midwifery study students.

Introduction

Mortality and morbidity in pregnant and childbirth women are a big problem in Indonesia. As much as, 25–50% of deaths of women of childbearing age are related to pregnancy. Data from the Ministry of Health of the Republic of Indonesia (Kemenkes) in 2015 show that out of 100,000 live births in Indonesia, 305 of them ended in the mother’s death [1]. The high maternal mortality rate (MMR) has prompted the government to carry out structural interventions. One of them is to include the target for MMR reduction in the 2014–2019 National Medium-Term Development Plan (RPJMN). In the 2014–2019 RPJMN, the government targets a reduction in MMR from 205/100,000 births to 276/100,000 live births. To reduce the MMR and infant mortality rate, the World Health Organization (WHO) launched the making pregnancy safer strategy and put safe mother hood (SMH) as the top priority.

One of the SMH programs is the antenatal care (ANC) service. ANC is a prenatal examination skill that begins with preventing pregnancy complications, and if complications occur, they must be detected early. Pregnancy examination skills are skills that a general practitioner must possess and are learned from when students are at the academic or preclinical level. The WHO has identified that effective collaboration between health professionals plays an essential role in preparing and providing health workers with the ability to respond to local health needs and provide a strengthened health system [2]. Realize optimal education and learning applied, it is necessary to choose a better learning method. The implementation of health education learning activities can improve patient safety through increased skills, collaboration, and communication between health teams [3], [4]. ANC skills are currently one of the laboratory skills in the midwifery care course, which is used to evaluate the professional competence of health workers such as knowledge evaluation, communication skills, physical examination, diagnostics, and behavioral assessment, and interpersonal skills. ANC skills are expected to be realized with peer tutor learning models. The peer tutor learning model is an alternative that can be applied in the teaching and learning process. In the past few
decades, various health learning programs have implemented various peer-assisted learning (PAL) programs. PAL has many benefits for students (both those who teach and those who are taught), teachers, and educational institutions [5]. PAL is a student-centered learning method that involves discussions between friends or seniors as teachers and participants as being taught. There has been much written about the use of PAL and the cognitive, pedagogical, attitudinal, social, and economic benefits associated with peer tutors’ use [6]. PAL has long been applied informally in medical education in the past 10 years [7], [8].

PAL can help position students as active learners by reducing reliance on educators, increasing roles in practice, and making evaluative judgments about the quality of practice [9]. The learning process with peers or what is known as PAL has been used for a long time in the learning process in health. This approach with the PAL technique allows friends or seniors to help friends or juniors in the learning process and improves clinical skills while studying in the medical world. For this, it is necessary to conduct a study related to peer tutoring model laboratory skills learning on the competence of ANC skills in first-level students of Langsa Midwifery Study Program.

Methods

This study used a pre-experimental design with a one-group pretest-posttest design without a control group. The research was conducted for 7 days, namely, 1 day in the classroom and 6 days in the Langsa Midwifery Study Program laboratory. The population used in this study were all students of Langsa City Midwifery Study Program Level I who occupied the second semester with 45 people. The sample in this study was taken by purposive sampling as many as 45 respondents. Data collection is carried out with a survey which begins with applying for a data collection permit. The implementation procedure is explaining to five prospective tutors to assess the ANC skill competency to 45 respondents. Day 1 in the classroom and 6 days in the Langsa Midwifery Study Program laboratory. They are provided tutorials on ANC laboratory skills in rotation for each competency using a checklist, and the 7th day, assessing respondents’ skills by peer tutors assisted by a team of researchers and laboratory staff. They are checking the completeness of the checklist, calculating the value, creating a code. Recap the value of skills and perform data analysis. Before the paired t-test, the normality test was conducted first. Data analysis using calculation and continued with bivariate analysis to determine the relationship between variables.

Results

Characteristics of student

The results showed that the respondents before the peer tutorial were conducted; based on pre-test, it was found that the ANC competency score was 33 (73.3%) did not pass, while only 12 (26.7%) passed the test. The results after peer-to-peer tutorials (post-test) found that only 1 (2.2%) of the respondents did not pass the ANC competency score, while 44 (97.8%) respondents passed the test. These results indicate that the peer tutor method on ANC competence in laboratory skills developed, then the paired t-test difference test is carried out (Table 1).

Bivariate analysis

Bivariate analysis aims to determine the relationship between the peer tutor method competences in laboratory skills learning. The following are the results of the bivariate analysis.

Based on Table 2, it shows that there is an influence of the peer tutor method on the competence of ANC skills before and after learning laboratory skills with a value ($p < 0.05$), which is 0.047 < 0.05.

Table 1: The frequency distribution of student skills and competencies before and after the peer tutor learning method

| Variable                    | Pre Percentage (%) | Post Percentage (%) |
|-----------------------------|--------------------|---------------------|
| Skill 1 (pre)               | 33                 | 12                  |
| Competency 1 (pre)          | 33                 | 12                  |
| Skill 2 (post)              | 1                  | 22                  |
| Competency 2 (post)         | 1                  | 22                  |

Table 2: The effect of peer tutor methods on and competency of student laboratory skills learning in midwifery study program

| Variable                      | n  | Correlation | Sig.  |
|-------------------------------|----|-------------|-------|
| Skill and competency 1 - Skill and competency 2 | 45 | 0.298       | 0.047 |

Based on Table 3, it is known that there are differences in student competence before and after the

Table 3: Differences in peer tutor methods against and competency of student laboratory skill learning in midwifery study program

| Variable                      | t  | Sig. ($p < 0.05$) |
|-------------------------------|----|------------------|
| Skill and competency 1 - skill and competency 2 | 14.278 | 0.000 |

https://oamjms.eu/index.php/mjms/index
peer tutoring method is carried out in learning laboratory skills with \( p < 0.05 \), namely, \( 0.000 < 0.05 \).

### Discussion

The results of the study show that there the effect of peer tutor methods on the competency of ANC skills on learning laboratory skills. The analysis of the different peer tutoring learning methods on the pretest-posttest measurement has a significance level of 0.047 \( (p < 0.05) \), which indicates a significant effect before and after the peer tutor method on ANC skills competency in the laboratory skills learning. Respondents who received peer tutoring method learning experienced an increase in ANC competency skills in laboratory skills marked by an increase in the number of graduations or the number of scores above 70, which amounted to 44 (97.8%) respondents out of 12 (26.7%) respondents. The peer tutor learning method's provision has a very positive effect in increasing the competence of ANC skills on the respondent's laboratory skills. Several studies have shown that PAL can solve this dilemma if used in curricula [10]. Students and educators view that PAL can help position them as active learners through reducing dependence on clinical educators, increasing roles in observing practice, and making and communicating evaluative judgments about the quality of practice [9].

The results of the respondents’ competency difference test analysis showed that there was a significant level of 0.000 \( (p < 0.05) \), which indicated that there was a significant difference between the respondents' competencies before and after learning the peer tutor method. Learning the peer tutor method can improve students' skills because peers can influence a positive attitude toward self-control to lead to calm in following the ANC skills learning. PAL benefits have a positive effect on test scores, student satisfaction, personal development, and professionalism in their field [11]. Besides, PAL can be a more interactive and informal way of teaching and professional development [12].

PAL can help institutions meet external expectations for graduates to achieve competency and experience in teaching, assessment, and instill a lifelong teaching culture [13]. PAL can also address specific gaps in the curriculum, providing additional student support in preparation for assessments [14].

Most of the students believe that PAL is useful for them [15]. Peer tutoring in its implementation can create an exciting and fun learning atmosphere when students learn skills because this model can dialogue, demonstrate repeatedly, and interact with fellow participants openly and interactively under the guidance and monitoring of lecturers. So that students are motivated to mastering and more skilled in demonstrating the skills given, which consequently lead to good abilities, competencies, and achievements.

Many evaluations of PAL programs are based on student satisfaction ratings and examining assessment results for evidence of learning [16], [17]. Similar approaches have been applied to PALs evaluation in clinical settings [18],[19]. These findings suggest that acting as a peer tutor can be an attractive and constructive educational opportunity to advance academic development [20], [21]. PAL is proven to improve clinical skills, where students who take PAL have higher scores than students who follow the learning process with conventional methods. The peer tutor model in its application is expected to increase learning achievement for the Langsa Midwifery Study Program students.

### Conclusion

Peer tutor model effective in improving ANC skills competency in skill learning for midwifery study students. The study results found that there were differences in the competence of students before and after the peer tutoring method was carried out in learning laboratory skills.

### References

1. World Bank Group. Maternal and Child Health Profile Statistics Indonesia. Washington, DC: World Bank Group; 2015.
2. Xyrichis A. Interprofessional science: An international field of study reaching maturity. J Interprof Care. 2020;34(1):1-3. PMid:31908186
3. Brook D, Abu-Rish E, Chiu CR, Hammer D, Wilson S, Vorvick L, et al. Interprofessional education in team communication: Working together to improve patient safety. Postgrad Med J. 2013;89(1057):642-51. https://doi.org/10.1136/postgradmedj-2012-000952rep PMid:24129031
4. Dalton L, Spencer J, Howarth H. Report of the Investigation of Undergraduate Health Science Student Attitudes Towards Interprofessional Education. Hobart: University of Tasmania; 2007.
5. Aburahma MH, Mohamed HM. Peer teaching as an educational tool in pharmacy schools: fruitful or futile. Curr Pharm Teach Learn. 2017;9(6):1170-9. https://doi.org/10.1016/j.cptl.2017.07.026 PMid:29233388.
6. Maheady L. In: Peer-assisted learning. In: Topping K, editor. Advantages and disadvantages of peer-assisted learning strategies. Mahwah, NJ: Lawrence Erlbaum Associates; 1998. p. 45-62.
7. Topping KJ. The effectiveness of peer tutoring in further and higher education: A typology and review of the literature. High Educ. 1996;32:321-45. https://doi.org/10.1007/bf00138870
8. Nestel D, Kidd J. Peer assisted learning in patient-centred interviewing: The impact on student tutors. Med Teach. 2005;27(5):439-44. https://doi.
Nine Sevenhuysen S, Farlie MK, Keating JL, Haines TP, Molloy E. Physiotherapy students and clinical educators perceive several ways in which incorporating peer-assisted learning could improve clinical placements: A qualitative study. J Physiother. 2015;61(2):87-92. https://doi.org/10.1016/j.jphys.2015.02.015 PMid:25801365

Shah I, Mahboob U, Shah S. Effectiveness of horizontal peer-assisted learning in physical examination performance. J Ayub Med Coll Abbottabad. 2017;29(4):559-65. PMid:29330977

Habib SH, Malik MO, Fatima S, Shah I. Evaluation of peer assisted learning in evidence based medicine course: A pilot study at university of glasgow. J Ayub Med Coll Abbottabad. 2017;29(4):662-6. PMid:29331000

Glynn LG, MacFarlane A, Kelly M, Cantillon P, Murphy AW. Helping each other to learn—a process evaluation of peer assisted learning. BMC Med Educ. 2006;6:18. https://doi.org/10.1186/1472-6920-6-18 PMid:16524464

Yu TC, Wilson NC, Singh PP, Lemanu DP, Hawken SJ, Hill AG. Medical students-as-teachers: A systematic review of peer-assisted teaching during medical school. Adv Med Educ Pract. 2011;2:157-72. https://doi.org/10.2147/amep.s14383 PMid:23745087

Ten Cate O, Durning S. Dimensions and psychology of peer teaching in medical education. Med Teach. 2007;29(6):546-52. https://doi.org/10.1080/01421590701583816 PMid:17978967

Sahoe S, Venkatases P, Myint KT, Moe S. Peer-assisted learning activities during undergraduate ophthalmology training: How the medical students of Asia Pacific Region perceive. Asia Pac J Ophthalmol (Phila). 2015;4(2):76-9. https://doi.org/10.1097/ apo.0000000000000094 PMid:26065348

Butte C, Betts A, Garner K, Durning S. Student teaching: Views of student near-peer teachers and learners. Med Teach. 2007;29(6):583-90. https://doi.org/10.1080/01421590701583824 PMid:17922356

Burke J, Fayaz S, Graham K, Matthew R, Field M. Peer-assisted learning in the acquisition of clinical skills: A supplementary approach to musculoskeletal system training. Med Teach. 2007;29(6):577-82. https://doi.org/10.1080/01421590701469867 PMid:17978969

Nikendei C, Andreessen S, Hoffmann K, Junger J. Cross-year peer tutoring on internal medicine wards: Effects on self-assessed clinical competencies—a group control design study. Med Teach. 2009;31(2):e32-5. https://doi.org/10.1080/01421590802464452 PMid:19330661

Schauseil-Zipf U, Karay Y, Ehrlich R, Knoop K, Michalk D. Peer teaching in paediatrics medical students as learners and teachers on a paediatric course. GMS Z Med Ausbild. 2010;27(5):Doc71. PMid:21818216

Secomb J. A systematic review of peer teaching and learning in clinical education. J Clin Nurs. 2008;17(6):703-16. PMid:18047577

Sobral DT. Cross-year peer tutoring experience in a medical school: Conditions and outcomes for student tutors. Med Educ. 2002;36(11):1064-70. https://doi.org/10.1046/j.1365-2923.2002.01308.x PMid:12406267