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Original Article

The Effect of Baby Massage Stimulation Learning E-Module on The Skills of Students in D-III Midwifery

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ABSTRACT

Baby massage offers many benefits, especially for the growth and development of babies. Baby massage skills are very important in supporting the success of stimulating the baby's growth and development. Therefore, it is very important to improve the skills of midwifery students. One of the efforts to improve the skills is providing web-based e-modules on infant massage stimulation learning. This research aims to determine the effect of infant massage stimulation learning e-module on the skills of DIII midwifery students. The research employed the quasi-experiment. The sampling technique was total sampling. The sample included 76 midwifery students in semester 4. The study was conducted in two locations. The intervention group comprised 36 students and the control group consisted of 40 students. Using McNemar and Mann Whitney, the research found that there was a significant effect baby massage stimulation pre test and posttest skills (p-values 0.00<0.05) and ther is also a significant effect on the comparison of baby massage stimulation skills between the intervention and control groups (p-values 0.00<0.05). The conclusion is there is an effect of the use of e-modules on increasing the skills of DIII midwifery student.

Keywords: Baby Massage Stimulation, E-module, Midwifery

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INTRODUCTION

Midwives have an important responsibility in providing individual, group, and community health services. They must have the knowledge, skills and attitudes required for providing services. Midwives are authorized to provide services to newborns/neonates, infants, toddlers and preschool children, as well as to mothers during pregnancy, during childbirth, and family planning servis. In terms of midwifery care for neonates, infants and toddlers, KEPMENKES is stated that midwifery experts and midwives must have various skills, one of which is infant massage[1]. Law no 4, 2019 states that midwives also play an important role in monitoring the growth and development of infants and toddlers[1].

Every child goes through various phases of continious growath and development. The periode of infant growath and development Every child goes through various phases of

continuous growth and development. The period of infant growth and development is considered a golden age and a critical period, specifically for babies aged 0- 12 months. This age range is relatively short and cannot be repeated, hence it is referred to as a golden age[2]. It is also considered a critical period because infants are particularly vulnerable to their environment during this time and require adequate nutrition and stimulation for optimal growth and development [3]. This phase is crucial for the development of language comprehension, creativity, intelligence, and emotional capacity, serving as the foundation for subsequent stages of development. Proper stimulation and care during this critical period are essential to ensure the physical, mental, and social development of children [4].

According to the World Health Organization (WHO) report in 2018, the prevalence of children with impaired growth and development was 28.7%. Notably, Indonesia ranked third in the Southeast Asia/South-East Asia Regional (SEAR) in terms of prevalence [5]. A study conducted by Merida and Hanifa (2022) demonstrated that babies who receive regular and appropriate stimulation experience significant improvements in growth and development. Adequate fulfillment of infants' basic needs, such as a nurturing family environment, emotional affection, sound physical and mental health, balanced nutrition, and opportunities for stimulation, contributes to their optimal growth and development[5]. Providing early and suitable stimulation has been shown to foster the development of ethical values, positive personality traits, intelligence, independence, skills, and productivity [6]. Previous research has also highlighted the significant impact of regular touch, particularly through massage, on the growth and development of infants [7].

Efforts to enhance development include engaging in stimulus activities such as baby massage[8]. Baby massage offers numerous benefits, such as promoting weight gain and growth, boosting immunity, improving baby's focus and sleep quality, reducing stress hormone levels, fostering parent-infant bonding, and enhancing milk production [9,10,11]. Proficiency in baby massage skills is vital to effectively support the stimulation of a baby's growth and development. Hence, it is essential for midwives, who are professionals in the field, to possess expertise in its application. Errors in performing massages can have adverse effects, including swelling, bruising, pain, irritability, vein displacement, and injury in infants. These complications arise from a lack of knowledge regarding proper infant massage techniques [12].

Considering the significance of infant massage and the responsibility of midwifery students to monitor infant growth and development, stimulating baby massage becomes an essential aspect. Web-based modules serve as a type of printed material designed in a systematic, appealing, and comprehensible manner to cater to specific needs. These modules can be utilized autonomously or with guidance from educators.

Wiriyanti et al. (2020) conducted research demonstrating an improvement in students' skills in second-generation care through the use of web-based e-modules[13]. These modules offer enhanced clarity, making them more accessible to students, thus increasing their motivation to actively engage in studying. Additionally, the inclusion of video displays in the e-modules supports laboratory practicum activities. Web-based e-modules cater to students with alternative learning resources, enabling independent study and facilitating a more thorough grasp of the provided material. The integration of various applications, such as text, images, audio, and video, in the presentation of web-based e-modules makes learning topics more captivating and less monotonous. Interactive tests and quizzes are also incorporated to provide feedback and enhance the learning process [14,15].

To adequately equip midwifery students with the necessary understanding and skills, it is crucial for them to receive this material during their college education. The aim is to prepare them for applying baby massage skills in the community, thereby contributing to optimal intellectual development in infants as part of stimulation efforts.

METHOD

This study employs a quasi-experimental design to investigate the impact of a specific treatment. The influence of massage stimulation e-module intervention was examined over a one-week period at STIK Makassar and Megarezky University Makassar in April-May 2023 [16]. The sample consisted of all fourthsemester midwifery DIII students,

employing a total sampling technique with a sample size of 76 respondents. The research focused on assessing the effect of using baby massage stimulation e-modules on enhancing student skills. The respondents were divided into two groups: the intervention group comprising 36 students and the control group comprising 40 students. The intervention group received a baby massage stimulation emodule, while the control group received a baby massage stimulation module. Descriptive analysis was conducted to examine the differences in pretest and posttest skills between the intervention and control groups. McNemar's alternative test was employed to determine any significant changes within each group, and the Mann Whitney test was used to assess the impact of the wedge massage stimulation e-module. Ethical approval for this study was obtained from the ethical committee of the Faculty of Public Health, Hasanuddin University, under number 15349/UN4.14.1/TP.01.02/202.

RESULTS

Table 1 Characteristics of Respondents Based on Age, Grade-point Average (GPA) and Origin

Characteristic of Respondents		Intervention		Control		p value
		n	%	n	%	
Age	<20 years	12	33.3	16	40.0	0.000
	>19 years	24	66.7	24	60.0	
GPA	Satisfying	5	13.9	6	15.0	0.000
	Very satisfactory	31	86.1	34	85.0	
Origin	Sul-Sel	19	52.8	22	55.0	
	Sul-Tra	7	19.4	5	12.5	0.000
	Maluku	6	16.7	8	20.0	
	Papua	4	11.1	5	12.5	

Table 1 presents the distribution of respondent characteristics based on age groups. The control group had a higher percentage (40.0%) of respondents below 20 years compared to the intervention group (33.3%). Conversely, the intervention group had a higher percentage (66.7%) of respondents above 19 years compared to the control group (60.0%). Regarding GPA satisfaction, the control group had a slightly higher percentage (15.0%) of respondents who were satisfied, while the intervention group had a slightly lower percentage (13.9%). In terms of very satisfying GPA, the intervention group had a higher percentage (86.1%) compared to the control group (85.0%). Considering the origin of the respondents, the control group had a higher percentage (55.0%) of respondents from South Sulawesi compared to the intervention group (52.8%). The intervention group had a higher percentage (19.4%) of respondents from Southeast Sulawesi compared to the control group (12.5%). Moreover, the control group had a significantly higher percentage (20.0%) of respondents from Maluku compared to the intervention group (16.7%). Finally, the control group had a considerably higher percentage (12.5%) of respondents from Papua compared to the intervention group (1.1%).

Table 2. Pretest and Posttest Differences in the Intervention Group and the Control Group on Infant Massage Skills

Group	Intervention				Control Intervention				p-value
	No skilled		Skilled		No skilled		Skilled		
	n	%	n	%	n	%	n	%	
Pretest	36	100	0	0	40	100	0	0	0.000
Posttest	3	8.3	33	91.7	24	60	16	40	0.000

Table 2 presents the skills of respondents in the intervention and control groups during the pretest and posttest phases. None of the respondents were skilled during the pretest in either group. However, in the posttest, the intervention group had 8.3% unskilled respondents and 91.7% skilled respondents. In contrast, the control group had 60% unskilled

respondents and 40% skilled respondents. The statistical analysis revealed a p-value of 4.67, while in the control group, the average posttest score was 77.30 with an SD of 5.35.

Table 3. Comparison of Pretest and Posttest in the Intervention and Control Groups on Infant Massage Skills

Variable		Pretest		Posttest	p-value
	n	Mean±SD	p-value	Mean±SD	
Intervention	36	58.13±6.83	0.000	87.19±4.67	0.000
Control	40	49.87±6.89		77.30±5.35	

Table 3 presents the average pretest scores in the intervention group, which were 58.13 with a standard deviation (SD) of 6.83, while in the control group, the average pretest score was 49.87 with an SD of 6.89. On the other hand, the average posttest score in the intervention group was 87.19 with an SD of 4.67, while in the control group, the average posttest score was 77.30 with an SD of 5.35.

The results of the Mann Whitney test indicated a significant difference in the pretest scores between the intervention and control groups, with a p-value of <0.000. Additionally, in the posttest, the use of emodules and modules had a significant effect in both the intervention and control groups, as reflected by p-values of <0.000. Therefore, based on the data analysis results, a significant comparison can be observed between the intervention and control groups, both in the pretest and posttest phases.

DISCUSSION

The learning process is an essential activity within educational institutions aimed at encouraging students in achieving their predetermined goals. In the context of health education, the learning process necessitates the development of media and learning concepts that can enhance students' knowledge, skills, and interests. As stated by Aritonang and Safitri (2021), the growing emphasis on technological advancements has prompted an increasing focus on the development of teaching media to captivate student interest and motivation[17].

The use of e-modules is highly suitable for teaching baby massage and can serve as a reference for creating and developing teaching materials. Modules, as learning media, encompass materials, learning methods, limitations, instructions for activities, exercises, and evaluations designed in an engaging manner to attain desired competencies. They are systematically organized teaching materials that are easily comprehensible and can be used independently or with the guidance of educators.

To enhance the effectiveness of learning, one effective approach is to combine module teaching materials with interactive multimedia in the form of emodules. This approach is supported by Siregar and Safitri, (2020) and Dari, et al. (2020), who note that e-modules incorporate images, audio, video, animation, and formative assessments, thereby providing feedback to facilitate the learning process[18,15].

E-modules serve as independent teaching materials designed systematically and cohesively in specific learning units, presented in an electronic format. Each lesson within the e-module is interconnected through hyperlinks, enhancing interactivity and enriched learning experiences by incorporating videos and audio elements to enhance student engagement. To facilitate access to learning, platforms that are easily accessible to educators and students, such as website-based learning media, can be utilized [19].

E-modules, in the form of electronic modules, are anticipated to enhance student interest and motivation. Interactive emodules are teaching materials designed in an engaging and systematic manner, encompassing materials, methods, limitations, and evaluations. The aim is to achieve competencies and sub-competencies effectively. Therefore, e-modules hold significant value for teaching material developers, with the hope that they will be utilized and accessed by midwifery students according to their individual needs and interests, such as the infant massage learning e-module

Table 3 illustrates that both the intervention and control groups exhibited improved skills after utilizing modules and emodules, with a p-value of 0.000. This finding aligns with previous research indicating that the use of e-modules fosters student interest and motivation for independent learning, resulting

in a more effective and efficient learning process and subsequently leading to enhanced student learning [20]. Furthermore, research conducted by Rosta Alannawa and Lutfiyah Hidayati demonstrates that e-learning modules significantly enhance the psychomotor test results and overall achievement scores of students during practical training, ultimately improving student learning outcomes [21].

Table 4 shows a significant difference between the intervention and control groups in terms of pretest and posttest results, with a p-value of <0.000. this indicates that the intervension group, wich untilized the emodule medua, was more effective in enhancing baby massage stimulation skills compared to the group using the module media, this finding is consistent with the research conducted by Oktavia et al., whichsuggests that e-modules, equipped with appropriate teaching materials, maintain student interest and are considered interesting and affective for learning[22].

E-modules are independent digital learning resources designed to achieve learning competencies and promote student interactivity. Several experts agree that e-modules serve as comprehensive and efficient independent learning, providing students with guedelines for self-directed learning even without direct supervision from educators. Furthermore, electronic learning modules prossess certain characteristics such us user-friendliness, adaptability, and consistency, as highlighted by [23].

This prespective aligns with the research conducted Dari and Nasih, which indicates that the use of e-modules increases students' proficiency in practical activites and assists educators in fostering student skills during the learning process [15].

CONCLUSION

Based on the results of the study, it can be concluded that the use of e-module learning to stimulate baby massage for one week affects the skills of DIII midwifery students. The use of e-module media has a higher value than the use of the module after the intervention. Further research needs to be carried out and developed regarding monitoring the use of emodules so that research results are more effective.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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