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SMART ABDOMEN MODEL AS CLINICAL LEARNING MEDIA IN IMPROVING MIDWIFERY STUDENT COMPETENCE IN POSTPARTUM CARE

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A B S T R A C T

This study aims to determine the effectiveness of the "SMART" abdominal model as a clinical learning media in increasing student competence for assessing uterine fundal height in postpartum mothers. This research is a quasi-experimental research with The Posttest-only Control Group Design. The study was conducted in two groups, namely the treatment group and the control group. The population of this study was all students of the third semester of midwifery D III study program in two health polytechnic in Indonesia. The intervention group consisted of some students who were given assistance in using the "SMART" abdominal model to assess the height of the uterine fundus in postpartum mothers in simulated patients, while the control group consisted of some students without assistance in using the "SMART" abdominal model to assess height uterine fundus in postpartum women on a conventional abdominal model (Zoe's abdominal model). The total sample was 120 people, which were divided into 60 people from one Poltekkes as the control group and 60 people from another Poltekkes as the intervention group. The sampling technique was purposive sampling. Data was collected through questionnaires, and observation. The type of data in this study is primary data. Data analysis uses Kai Square. The SMART abdominal model supports the achievement of learning competencies by 81.4%. There was no significant difference in competence when students used the SMART abdominal model on simulated patients or paired them with Zoe's abdominal model. For this reason, innovation and creativity of lecturers are needed in supporting the achievement of subject learning through the development of learning models and technology. In supporting the wider use of the model as a form of downstreaming research products that are integrated into the dharma of education, it is necessary to socialize and disseminate the SMART abdominal model and promote efforts through collaboration with industry and MSMEs.

INTRODUCTION

Outcome-Based Education (OBE) systems emphasize what students should do to achieve learning outcomes or learning outcomes (CPL) (Hejazi, 2011). The OBE principle emphasizes what students should master, how students can achieve CPL and how to assess what they have mastered. CPL study program has a formulation that refers to SN-Dikti and IQF descriptors according to the level of education.

CPL can also add capabilities that reflect the uniqueness of each tertiary institution in accordance with the vision and mission, the uniqueness of the region where the tertiary institution is located (Junaidi, 2020). Learning clinical skills for health students is mandatory. The theory obtained in the classroom will not be useful at all if the implementation of learning clinical skills in terms of demonstrating these clinical skills is not carried out. Therefore, the integration between the theories obtained in the classroom must be implemented in clinical practice. Therefore, the preparation of lecturers and clinical supervisors in the field must be done as well as possible. This integration process is heavily influenced by the availability of simulators or

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adequate clinical skills teaching aids(Goolsby, C. A., Goodwin, T. L., & Vest, R. M. 2014; Grantcharov, T. P., & Reznick, R. K. 2008).

The Health Polytechnic has made various efforts to support learning achievements, one of which is the provision of clinical learning media in the laboratory. At present the mannequins or simulators used for the high assessment skills of the uterine fundus are considered inadequate for achieving good competence, considering that the available Zoe abdominal model (Zoe simulator) is a model with an empty abdomen. So, in their study, students can only estimate the height of the uterine fundus and cannot be sure what the actual fundal height is according to the condition of the postpartum mother. Plus the number of mannequins available is also limited. This is because the cost is quite expensive to procure the Zoe abdominal model.

In line with the vision and roadmap of the Poltekkes Kemenkes Jakarta III and the problems above, the authors have designed and developed an appropriate technology that is simple and inexpensive but very useful, namely in the form of a "SMART" abdominal model to assess the height of the uterine fundus during the puerperium. The “SMART” abdominal model is one of the innovations in midwifery education. This “SMART” abdominal model has specific characteristics, low cost, accurate, realistic and measurable. In addition, this model can be used on simulated patients as well as on the Zoe abdominal model. The development of this model is one of the efforts to improve the learning outcomes of health students, especially in providing care during the postpartum period.

METHOD

This type of research is quasi-experimental research with quantitative methods, in which researchers conduct quasi-experimental tests on respondents and the results of calculating the data analysis are numerical or using numbers (Sugiyono, 2007). The research design used in this study was a quasi-experimental with The Posttest-only Control Group Design. In this design, the subjects were not chosen randomly and were grouped into 2 groups (control and experimental), and only the experimental group was given treatment. After in-depth observation, both groups were given a post-test, and a conclusion taken from the differences that occurred between the two groups (Sugiyono, 2011).

The treatment group consisted of some students who were given assistance in using the "SMART" abdominal model to assess the height of the uterine fundus in postpartum mothers in simulated patients, while the control group consisted of some students without assistance in using the "SMART" abdominal model to assess the height of the uterine fundus in mothers. puerperium in a conventional abdominal model (Zoe abdomen model). Then the two groups were given a case of care for postpartum mothers to determine student competence in assessing the height of the uterine fundus and contractions in postpartum mothers.

The variables of this study were the competency variables of D III Midwifery students in assessing the height of the uterine fundus in postpartum women as the dependent variable and the variable using the "SMART" abdominal model for assessing uterine fundal height in postpartum women as the independent variable and the respondent's characteristic variable (self-confidence and

personality) as a confounding variable. The population of this study was all third semester students of D III midwifery study program at one Poltekkes in Jakarta and Malang. The sample was part of students study program D III midwifery. The intervention group is part of the students who are given assistance in using the "SMART" abdominal model to assess the height of the uterine fundus in postpartum mothers in simulated patients, while the control group is part of the students who do not receive assistance in using the "SMART" abdominal model to assess height uterine fundus in puerperal women in conventional abdominal model (Zoe abdomen model). The total sample size was 120 people, which were divided into 60 people from the Poltekkes in Jakarta (control group) and 60 people from Poltekkes in Malang (intervention group). The sampling technique was purposive sampling. The analysis was carried out using univariate and bivariate methods with Kai Square.

RESULT AND DISCUSSION

Table 1. Characteristics of respondents in the control and intervention groups

Variable	Group							
	Control				Intervention			
	Mean	SD	Median	95% CI	Mean	SD	Median	95%CI
Self confidence	12.48	2.966	13	1.413-12.48	12.82	1.712	13	12.37-13.26
Personality	12.49	3.500	12	11.56-13.37	12.47	1.873	13	11.98-12.95

Based on table 1, it is known that the use of the model, self-confidence and personality in the intervention group and the control group are homogeneous.

Tabel 2. Frequency distribution of student competency in assessing uterine fundal height in postpartum mothers

Variable	f	%
Not yet competence	22	18.3
Competence	98	81.7
Total	**120**	**100**

Based on table 2, it is known that 98 students (81.7%) are competent to assess fundal height and uterine contractions.

One of the competencies that must be achieved by graduates of the D III Midwifery Study Program is being able to provide midwifery care for postpartum mothers. To support the achievement of these competencies, students must be able to carry out physical examinations on postpartum mothers, including being able to assess fundus height and contractions in postpartum mothers (Ministry of Health No. 320/2020).

The results showed that the competence of D III midwifery students at both student group (intervention and control) in assessing the height of the uterine fundus and uterine contractions was 98 student (81.4%). The results of this study are higher than those of Ulya and Maya (2020) which state that the majority of the achievement of KDPK practice competence in students of the D III Midwifery Study Program, in West Sumatra, is mostly 36.7% good) and for most of the practice of Antenatal Care, namely 37.1% (good). This is probably caused by differences in research respondents and the competencies of the subjects studied.

Two polytechnics were the research locations are midwifery education institutions under the supervision of the Ministry of Health, specifically the Directorate for Provision of Health Workers, Director General of Health Workers of the Republic of Indonesia, which

have their respective accreditation status with an A grade (very good) downloaded on October 28, 2022. This is evidenced by the results of the study which showed that there was no difference in the competence of students at the group intervention and group control in assessing uterine fundal height and contractions in postpartum women with a P Value of 0.351 with an OR of 1.519 (CI: 0.729-3.169). This means that both students at the group intervention and group control have equally good competence in assessing TFU and contractions in postpartum mothers. Health education institutions that have an accreditation score of A (very good) can be ascertained that these institutions have carried out the learning process very well.

Table 3. Student Characteristic

Student characteristic	Sub Variable	f	%
Self Confidence	Lack	53	44.2
	enough	67	55.8
Personality	Negatif	59	49.2
	Positif	61	50.8

Based on table 3 it is known that 67 people (55.8%) have self-confidence, and 110 people (50.8%) have a positive personality.

Table 4. Distribution of respondent characteristics, based on control and intervention groups

Variable	Group Control		Intervention		Total		OR (95% CI)	P value
	n	%	n	%	N	%		
Competence							1.519	
Not yet competence	27	56.3	21	43.8	48	100	(0.729-3.169)	0.351
	33	45.8	39	54.2	72	100		
Self Confidence								
Lack of confidence	29	54.7	24	45.3	53	100	1.403 (0.681-2.892)	0.462
enough	31	46.3	36	53.7	67	100		
Personality								
Negative	32	54.2	27	45.8	59	100	1.397 (0.681-2.865)	0.465
positive	28	45.9	33	54.1	61	100		

Table 4 shows that there is no significant difference between the competency, self-confidence, and personality variables of the respondents in the control and intervention groups.

Table 5. Distribution of Respondents According to the characteristics of respondents and student competence

Variable	Student competence				Total		OR 95% CI)	P value
	Not yet competence		Competence					
	n	%	n	%	N	%		
Self Confidence								
Lack of confidence	20	37.7	33	62.3	53	100	0.844 (0.404-1.765)	0.793
enough	28	41.8	39	58.2	67	100		
Personality							0.604	
Negative	20	33.9	39	66.1	59	100	(0.289-1.264)	0.248
positive	28	45.9	33	54.1	61	100		

Table 5 shows that there is no significant difference in the statistical test results between all the variables of the respondents' self-confidence and personality and student competence in assessing the height of the uterine fundus. The results showed that 67 respondents (55.8%) had self-confidence, but there was no significant relationship between self-confidence and high assessment competence of the uterine fundus in postpartum mothers.

This result is not in accordance with Zwel and Wibowo (2012) who explain that a person's behavior is strongly influenced by his beliefs about himself and others. If people believe in their ability to do something, then it will be done more easily. Students who have high self-confidence will encourage them to continue learning and try many times the skills to be achieved. She will not give up before she feels skilled in carrying out certain competencies, including competence for high assessment of the uterine fundus in certain postpartum mothers. As supervisors, lecturers should have the ability to increase student confidence in performing a skill (Cholifah, Rusnoto and Dewi, 2015), explaining that the application of the bedside method can increase

the achievement of clinical competence, self-confidence, self-esteem and student self-awareness.

The results of the study stated that 61 people (50.8%) had positive personalities. In this study, it was not explained further what types of student personality were meant, whether phlegmatic, sanguinis, choleric and melancholy personality types. Hasmila and Shabri (2016) explained that people with a melancholic personality type are very detailed, look neat, speak politely, are sensitive to people's feelings and care about people who are experiencing distress. A nursing student with the melancholic type will later be able to show caring behavior towards his patients with a sense of care and willing to listen to his patients' complaints. As is the case with nursing students, midwifery students who have a melancholic personality will also have caring behavior towards their patients. Hasmila and Shabri (2016) also explained that there is no relationship between student personality and student learning motivation.

The SMART abdominal model is one of the simulators that has been developed to evaluate the height of the uterine fundus in postpartum women. This prototype has the characteristics of a SMART simulator, namely Specific (> mean 56.7%), Cheap (> mean 56.7%), Accurate (> mean 63.3%), Realistic (> mean 56.7%), and Measurable (> mean 60%) (Herlyssa et al, 2021). This too in accordance with the results of a survey by Herlyssa et al (2022) which showed almost 60% strongly agreed and 40% agreed that this SMART abdominal model depicts the abdomen of postpartum mothers in a real way.

Besides being able to be used by patients simulating postpartum mothers, the SMART abdominal model can also be used on Zoe's abdominal model by tying the two cloths on the left and right sides of Zoe's abdomen. The results showed that there was no significant difference in competence between the use of the SMART abdominal model with the guidance of a lecturer on simulated patients or without the guidance of a lecturer on the Zoe abdominal model with a P value of 0.351 with an OR of 1.519 (CI = (0.729-3.169). The use of the SMART abdominal model in simulated patients is very beneficial because students can directly learn appropriate communication techniques, and can generate empathy towards real patients.The use of the SMART abdominal model in the Zoe abdominal model is an alternative when simulated patients are not available.

For midwifery students, a simulation of the obstetric fundus height assessment procedure can be carried out in a clinical skills laboratory or skills-lab for both simulated patients and Zoe's abdomen. The midwifery skills laboratory plays an important role in increasing the competence and confidence of lecturers and students through clinical skills training without risk for patients (Utz, , Kana, & van den Broek, 2015; Strand, Nåden, & Slettebø, 2009). The clinical skills laboratory provides a safe and secure environment in which students can practice clinical skills before using them in real clinical settings. This skills lab helps ensure that all students acquire the necessary techniques and are properly assessed before practicing on real patients (Bradley, & Postlethwaite, 2003).

The SMART abdominal model can also perform simulations with a combination of high and low fidelity (Kjellin, et al, 2014; Goolsby, Goodwin, & Vest, 2014). Fidelity, (Dow, & Histon, 2014) which refers to how closely a simulation imitates or reinforces reality, is divided into three levels when referring to the Miller Pyramid, (Miller, 1990). namely 1) low fidelity, which is used to build

knowledge (know); 2) medium fidelity (a combination of knows-how and shows-how), which is used to build competence; and 3) high fidelity (a combination of shows-how and does), used to build performance and action. Fidelity can also be divided into three types, (Dow, & Histon, 2014), namely 1) physical fidelity which indicates the extent to which the simulator duplicates the appearance and feel of the actual system; and 3) emotional or psychological fidelity which shows the extent to which the simulation can duplicate or capture real tasks using simulated tasks and make students feel as if they were real.

The use of the SMART abdominal model is proven to be able to increase student competence both in simulated patients and in the Zoe abdominal model. This is in accordance with Weller, et al (2012) which states that learning clinical skills in the skills-lab can be done using several learning media such as manikins or simulators, trainers, simulated patients or standard patients. Simulations for the implementation of clinical skills that use a combination of standard patients and simulators can help students demonstrate the achievement of a clinical skill procedure competency which is expected to be much better (Sendir & Coşkun, 2017).

A student can use this model repeatedly until declared competent by the lecturer or practicum supervisor in the classroom laboratory. So that the prototype of the SMART abdominal model really maintains patient safety when students take care of patients directly. Patient safety is one that must be given to patients as a form of quality and best care for these patients (Ziv, & Paul, 2000). Midwifery students who are inexperienced in patient safety may present clearly unacceptable dangers later (Aggarwal, et al 2010). This is in accordance with Herlyssa (2022) who explains that the SMART abdominal model can be used many times by simulated patients where 56% of respondents strongly agree and 44% agree. Using the model repeatedly by students will increase student competence in assessing the height of the uterine fundus in postpartum mothers. In addition, this model is also not easily damaged even though it is used many times because it is made of cloth which is not easily torn. A student can use this model repeatedly until declared competent by the lecturer or practicum supervisor in the classroom laboratory. When students feel competent in this model, then do it on actual patients, so that the model SMART abdomen really cares about patient safety when students take care of patients directly. Patient safety is one that must be given to patients as a form of quality and best care for these patients (Ziv, & Paul, 2000). Health students who are inexperienced in patient safety may be able to present clearly unacceptable harm later (Aggarwal, et al. 2010).

Simulation of clinical action procedures carried out in the laboratory plays an important role in increasing the competence and confidence of lecturers and students through clinical skills training without risk for patients (Utz, Kana & van den Broek, 2015; Strand, Nåden, & Slettebø, 2009). In addition, repeated exercises in the skills laboratory help ensure that all students acquire the necessary techniques and are properly assessed before practicing on real patients (Bradley, & Postlethwaite, 2003).

CONCLUSION

The SMART abdominal model can be used as a midwifery clinical learning medium in improving the competence of uterine fundal height assessment in postpartum women. The SMART abdominal model can be used on

simulated patients and paired with the Zoe abdominal model.

For this reason, innovation and creativity of lecturers are needed in supporting the achievement of learning subjects through the development of learning models and technologies. In order to support the use of the model more broadly as a form of downstream research product integrated into the education dharma, socialization and dissemination of the SMART abdominal model and promotional efforts are required through collaboration with industry and SMEs.

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REFERENCE

Falahudin, I. (2014). Pemanfaatan Media dalam Pembelajaran. *Jurnal Lingkar Widyaiswara*, 4 (1), 104-117

Gall, M.B., Gall, J.P. and Borg, W.R. (2003). *Educational Research: An Introduction.* New York: Pearson Education Inc.

Goolsby, C. A., Goodwin, T. L., & Vest, R. M. (2014). *Hybrid Simulation Improves Medical*

Grantcharov, T. P., & Reznick, R. K. (2008). Teaching procedural skills. *BMJ*, 336(7653), 1129–1131. doi:10.1136/bmj.39517.686956.47.

Hejazi, B. M. (2011). *Outcomes-Based Education (OBE): A Transformational Perspective on Quality and Mobility in Higher Education*. Outcomes-Based Education: A Transformational Perspective, 1-30

Herlyssa (2022). *Model Abdomen SMART sebagai Media Pembelajaran Klinis Dalam Upaya Peningkatan Capaian Pembelajaran Mahasiswa.* Karya Tulis Ilmiah Kinerja Prestatif. Jakarta: Poltekkes Kemenkes Jakarta III.

Hasmila Sari dan Shabri (2016). *Hubungan Tipe Kepribadian Dengan Motivasi Belajar Pada Mahasiswa Kurikulum Berbasis Kompetensi Fakultas Keperawatan Universitas Syiah Kuala*. Jurnal *Idea Nursing Journal* Vol. VII No. 2.

Jones, F., Passos-Neto, C,E.,& Braguiroli, O.F.M. (2015). *Simulation in Medical Education: Brief history and methodology*. PPCR;1(2):56-63.

Junaidi, dkk. (2020). *Panduan Penyusunan Kurikulum Pendidikan Tinggi, Di Era Industri 4.0 Untuk Mendukung Merdeka Belajar - Kampus Merdeka*. Jakarta: Dirjen Pendidikan Tinggi Kemdikbud.

Kepmendiknas 045 tahun 2001 tentang Kurikulum Inti Perguruan Tinggi.

Kepmenkes No. 320 tahun 2020. Standar profesi Bidan

Kemdikbud Ristek Dikti (2022). Hasil Uji Kompetensi Prodi D III Kebidanan. https://ukbidan.kemdikbud.go.id

Miller, G. E. (1990). The assessment of clinical skills/competence/performance. *Academic Medicine*, 65(9), S63–7. doi:10.1097/00001888-199009000-00045

Meller, Gary. (1997). A Typologi of Simulators For Medical Education. USA: W.B Saunders Company.

Mustaqim, I. (2020). Pengaruh Kompetensi Dosen, Kurikulum Dan Motivasi Terhadap Prestasi Belajar Mahasiswa. *Reslaj : Religion Education Social Laa Roiba Journal*, *1*(1), 63–75. https://doi.org/10.47467/reslaj.v1i1.67

Noviana, S. W., & Fuadi Rahman, A. (2013). Efektivitas Model Pembelajaran Word Square dengan Bantuan Alat Peraga pada Materi Geometri. *EDU-MAT: Jurnal Pendidikan Matematika*, *1*(1), 90–95. https://doi.org/10.20527/edumat.v1i1.578

Noor Cholifah, Rusnoto, Dewi hartinah (2015). *Bedside Sebagai Suatu Inovasi Metode Bimbingan Klinik Dalam kebidanan dan keperawatan* N. JIKK VolL. 6 No. 2 Juli 2015 39: 51

Profil Poltekkes Kemenkes Jakarta III. *https://poltekkesjakarta3.ac.id/*

Profil Poltekkes kemenkes Malang. https://www.poltekkes-malang.ac.id/

Raisler, J., Ogrady, M., & Lori, J. (2003). *Clinical teaching and learning in midwifery and women's health*. *Journal of Midwifery & Women's Health*, 48(6), 398–406. doi:10.1016/j.jmwh.2003.08.005.

Rahmatul ulya dan *Maya fernanda dielsa (2020). Hubungan manajemen laboratorium dengan pencapaian kompetensi KDPK dan antenatal care mahasiswa semester IV Prodi D III Kebidanan Stikes Sumatera Barat*. Jurnal Bidan Komunitas. Vol. III No. 2 Hal. 73-79

Undang-Undang No 12 tahun 2012 tentang Pendidikan Tinggi.