

Original Article

The Effect of the Education Model on the Levels of State/Continuous Anxiety and Self-Efficacy of Midwifery Students

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ABSTRACT

Background: In midwifery practice, the education model used for skill acquisition is extremely important for the management of students' stress, anxiety and self-efficacy. Innovative practices aim to improve the students' cognitive, emotional and psychomotor skills, and new research needs to be performed to evaluate the results of such practices. **Aims:** The present study aimed to evaluate the effects of the education model and clinical practice features, such as practice time, laboratory practice and exam evaluation, on the students' state and continuous anxiety and self-efficacy status. **Methods:** This was a semi-experimental non-randomised study, including three steps. Research was conducted in two institutions. Sample selection was not made in the research. The sample consisted of two groups. Group 1 included students ($n = 39$), who get educated in 1st institution. Group 2 included students ($n = 40$), who get educated in 2nd institution. In the collection of research data; Introductory Information Form, Self-Efficacy Scale, Spielberger's State/Continuous Anxiety Inventory was used. Data were analysed by Shapiro Wilk Tests, numbers, percentages, Chi-square test, analysis of single factor variance in repeated measurements, repeated measures analysis of variance, t test in independent samples. **Results:** A significant difference was found between the three data collection steps, regarding self-efficacy as well as state and continuous anxiety scores ($P < 0.001$). A significant correlation was found between the mean self-efficacy scores of each group ($P < 0.001$). **Conclusions:** The results indicate that students have a high level of self-efficacy using the daily life activities model, engaging in 8 hours of clinical practice, performing clinical practice under the supervision of a midwife or a nurse.

KEYWORDS: Anxiety, education, internship, midwife

INTRODUCTION

Midwifery education aims to prepare individuals with the qualifications required to obtain a midwifery licence. Midwifery programmes educate midwives with the desired qualifications.^[1] Within the scope of midwifery's basic principles and practices, students are expected to learn the basic concepts and practices required to meet the needs of the individual by using the education model and being able to apply it effectively, evaluating patients and planning care. Both theoretical education and clinical practice are crucial for the acquisition of midwifery qualifications. Although clinical learning allows students to acquire professional


knowledge and develop skills, it is also among the most stressful situations faced by the students.^[2-5] Stress has been reported in the literature as continuously present through the students' clinical education, and the causative factors include the unknown environment, the fear of making mistakes or harming the patients and the concern that the acquired knowledge and skills are insufficient. Experienced communication with the

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patients and clinical staff can help to rule out factors such as the fear of evaluation.^[6-8] Stress negatively affects the success of applying the knowledge acquired during midwifery education to the clinical setting. Moreover, both anxiety and stress affect the students' self-efficacy, contributing to the development of low-level skills, decreased attention and the deterioration of human relations. In midwifery practice, the education model used for skill acquisition is extremely important for the management of students' stress, anxiety and self-efficacy.^[9] Innovative practices aim to improve the students' cognitive, emotional and psychomotor skills, and new research needs to be performed to evaluate the results of such practices.

The present study aimed to evaluate the effects of the education model and clinical application features such as time, laboratory practice and exam evaluation on the students' state and continuous anxiety and self-efficacy level.

METHODS

Design

This was a semi-experimental non-randomised study, including a pre- and post-test control group.

Place and time of research

The study was performed over the spring term of the 2017-2018 academic year (i.e. February to June 2018), at the Bozok University and the KTO Karatay University in the midwifery departments.

Research universe and sample

Research was conducted in two institutions where researchers were employed to eliminate research bias and create groups trained under the same conditions (curriculum, educational content, training material). The number to be included in the sample of the study was calculated using G-power 3.1.3 software. The sample size of the research was carried out by considering the pre-acceptance of the effect which will increase the students' self-efficacy perceptions by 0.5 points after the application. Power analysis is calculated with 5% alpha margin and 80% research power. It was calculated that there should be at least 34 people in each group. A total of 79 students from group-1 that contains 30 students and group-2 with 40 students were included in case the possibility of loss during data collection. Post-hoc power analysis was calculated at the end of the research with 5% alpha error margin and 80% research power. At the end of the research, it was determined that the sample to be carried out with 77 people has 93,9% power.

Data collection tools

Introductory information form

students were asked about their age, high school education, preferred department, reasons for choosing the department, level of satisfaction, education, hospital experience, readiness to practice, theoretical knowledge levels and feelings about clinical practice.^[6,10-12]

Self-efficacy scale

This tool was developed by Sherer and his colleagues^[13] and adapted to Turkish by Gözüm and Aksayan.^[14] The self-efficacy scale measures the level of general self-efficacy. The 5-point likert-type scale consists of 23 items, with the following options: "1 = Never defines me," "2 = A little defines me," "3 = Undecided," "4 = Well describes me," and "5 = Very well defined me." The scale consists of 4 sub-dimensions. "Starting behaviour", "sustaining behaviour", "completing behaviour", "fighting obstacles" are sub-dimensions of the scale. In the evaluation of the scale, items 2, 4, 5, 6, 7, 10, 11, 12, 14, 16, 17, 18, 20 and 22 are scored in the opposite direction. A minimum score of 23 and a maximum score of 115 can be obtained from the scale. High score indicates high level of competence and proficiency. The Cronbach Alpha coefficient of the scale was 0.81. In this study, Cronbach Alpha coefficient was found as 0.85.

Spielberger's state/Continuous anxiety inventory

the scale was developed Spielberg and colleagues and adapted to Turkish by Öner and Le Compte^[15] to measure the state and continuous anxiety levels of normal and non-normal individuals. The 4-point likert-type scale consist of 40 items. It is a self-assessment scale consisting of short expressions. The state anxiety form was only developed to measure what was felt at that time, while the continuous anxiety form was used to measure what was felt in the last 7 days.^[16] In this study, both the state and continuous anxiety subscales were used. The Cronbach Alpha coefficient of the scales ranges between 0.81-0.87. In this study, Cronbach Alpha coefficient was found as 0.77-0.73.

Data collection

Data were collected 3 times on the research sample.

1. Evaluation at the beginning of the academic year,
2. Pre-clinical practice evaluation and
3. Post-clinical practice evaluation.

Before applying the questionnaires, the students were informed about the purpose of the study and their verbal consents were obtained. In order to evaluate the comprehensibility of the questions in the questionnaire, preliminary application was conducted on 10 students before the study and it was seen that no modification

was necessary. The data of the preliminary application were not included in the study data. It took 20 minutes, including 5 minutes for personal information form and 15 minutes for the scales, to conduct the interviews for each student.

Initiatives

The course in basic principles of midwifery is held during the spring semester and includes the following topics: basic concepts of midwifery; daily life activities model; midwifery process; vital findings; drug management; blood collection; parenteral drug applications; intravenous treatment administration; drug errors; safe environment and activity maintenance; patient acceptance, transfer and discharge processes; patient safety; control of infection, provision of tissue integrity and wound care; respiration, nutrition and excretion; body temperature; movement, sleep and rest provision; personal cleaning and dressing; sexuality and sleep; fluid-electrolyte balance; pre-operative, intraoperative and post-operative care; loss and death. The education programme lasts for 14 weeks, of which the first 5 weeks included theoretical and laboratory training, and the following 9 weeks included theoretical, laboratory and clinical practice training. During the first 5 weeks, theoretical training is supported by laboratory practice and the students are provided with experience on pre-clinical practice models.

Group 1: At the Bozok University, the principles of midwifery are taught in the form of 4 theoretical and 12 clinical practice hours. Laboratory practices are performed in groups of 13 students, supervised by 3 experts. Clinical practice is performed with 20 students in each clinic, under the same supervision. During clinical practice, students do not perform invasive techniques, they simply observe and collect data. The Functional Life Patterns model, which is currently used to plan midwifery care, involves clinical practice tests that are evaluated through written and oral tests.

Group 2: At the KTO Karatay University, the basic principles and practices of midwifery are taught as an applied course comprising 4 theoretical and 8 clinical practice hours. Laboratory practices are individually performed by each student and is evaluated as either successful or unsuccessful. These practices are held in groups of 10 students and supervised by 6 experts. Students whose evaluations are classified as unsuccessful may repeat the training in the following week. Clinical practice is performed by 2 students in each clinic under the supervision of 2 faculty members. Due to the lack of teaching staff, students have performed midwifery practices under the supervision of clinical midwives and nurses. The daily life activities model is used to plan

midwifery care. The students are evaluated through maintenance plans and clinical practice tests, which consist of multiple-choice questions.

Data analysis

Data were analysed using the SPSS (Statistical Package for Social Sciences) software. Table 1 presents the normality test to determine the distribution according to the experiment-control and 1-2-3. test measurements of the self-efficacy scale, Spielberger's state and continuous anxiety tool. Shapiro Wilk and Skewness tests results were taken into account because the group numbers were 50 and below. As a result of the analysis, it is seen that the scale scores provide the assumption of normality.

In the analysis of data, the number and percentage distribution were used to analyze the characteristics. The comparison of the clinical features of the students between the groups was evaluated by Chi-square test. In health surveys, single factor analysis of variance was performed as repeated measures, to analyse more than two observations or evaluations in the same group. Self-efficacy and state/continuous anxiety were compared between the groups using single factor, repeated measures analysis of variance. Comparisons among the 3 steps of data collection were performed as independent samples.

Ethical considerations

This study was performed according to the Helsinki Declaration. Prior to the beginning of study, written permission was obtained from the chairman of the Ethics Committee (05.06.2018 dated, 2018-018 number of decisions). The healthcare workers involved in the study participated voluntarily. Written informed consent was obtained from all participants, prior to the beginning of the study. According to the 'principle of autonomy' healthcare workers were allowed to withdraw from the research at any time. Individual information shared with the researcher was protected under the 'principle of privacy protection'. The participants' identities and information was kept confidential under the 'principle of identity and security'.

RESULTS

Among the surveyed students 36.7% were 19 years old, while 46.8% had graduated from Anadolu Lisesi. Regarding the reasons for choosing the midwifery department, 34.2% indicated the job opportunities, whereas 89.9% indicated that they felt the department was a good fit for them. For group 1, no significant differences were observed among the three steps of data collection regarding the self-efficacy ($P = 0.183$) and state anxiety ($P = 0.992$) scores. A significant difference was found among the pre-test, follow-up test

and final test scores regarding continuous anxiety, in that the mean continuous anxiety score was higher at the beginning of the training period than the score of either test at the end of the training period ($P < 0.001$) and after clinical practice completion ($P < 0.001$). For group 2, no significant differences were observed between the pre-test, follow-up test and final test in terms of self-efficacy ($P = 0.323$) and state anxiety ($P = 0.244$) scores. A significant difference was found among the three steps of data collection terms of continuous anxiety score, wherein the mean continuous anxiety score was higher at the beginning of the training period than before and after clinical practice ($P < 0.001$) [Table 2].

Table 1: Shapiro wilk test results of group 1-2-3. data collection steps

Scales	Test Time	Test of Normality		
		Shapiro-Wilk	P	Skewness
Self-Efficacy Scale	1. Tested	0.944	0.002	-0.616
	2. Tested	0.951	0.005	-0.544
	3. Tested	0.952	0.005	-0.308
State Anxiety Scale	1. Tested	0.931	0.000	0.970
	2. Tested	0.984	0.405	0.063
	3. Tested	0.911	0.000	0.390
Continuous Anxiety Scale	1. Tested	0.950	0.004	0.846
	2. Tested	0.971	0.072	0.238
	3. Tested	0.976	0.148	0.458

A significant correlation was found between the pre- and post-test ($P = 0.01$) self-efficacy score ($P = 0.01$). According to this result, students using the daily life activities model to plan midwifery care, performing clinical practice for 8 hours, performing clinical practice under the supervision of a midwife or nurse, evaluating laboratory practices as successful/unsuccessful and performing clinical practice tests exhibited a high level of self-efficacy. No significant correlation was found between the pre-test ($P = 0.601$), post-test (0.177) and post-test ($P = 0.689$) state anxiety scores. The difference between the 2 groups was found to be significant ($P = 0.597$) as was the comparison between the groups ($P = 0.787$) in terms of continuous anxiety scores. Additionally, the difference between the groups was found to be significant ($P = 0.015$) in terms of pre-test ($P = 0.597$) and follow-up test ($P = 0.787$) [Table 3].

A significant difference between the two groups was found regarding the students' preference for the department. 42.4% of the students in the group 2, it was determined that 57.6% of the students in the group preferred the part ($X^2 = 6.139$, $P = 0.013$). Received training satisfaction between the groups ($X^2 = 3.994$, $P = 0.136$) previously clinical practice experience ($X^2 = 1.756$, $P = 0.185$), don't feel yourself ready to the clinic ($X^2 = 2.927$, $P = 0.087$), the level of theoretical

Table 2: Comparison of test scores and self-efficacy, and state and continuous anxiety scores among data collection steps

Group	Scales	1. Tested Ort±SS	2. Tested Ort±SS	3. Tested Ort±SS	F	P
Group 1	Self-Efficacy Scale	81.84±11.43	84.89±13.81	80.24±12.64	1.736	0.183
	State Anxiety Scale	40.15±5.09	40.33±5.62	40.23±8.13	0.008	0.992
	Continuous Anxiety Scale	91.44±9.25	46.05±5.52	48.85±6.08	590.041	0.000
Group 2	Self-Efficacy Scale	89.31±12.36	90.17±12.78	87.97±13.67	1.140	0.323
	State Anxiety Scale	39.85±5.09	41.27±6.04	40.56±7.09	1.423	0.244
	Continuous Anxiety Scale	90.77±10.94	45.90±4.91	47.29±5.654	794.689	0.000

* Group 1 was taken into account Sphericity Assumed because of Machly's test of Sphericity for Self-Efficacy Scale ($P=0.963$), Mauchly's test of Sphericity for State Anxiety Scale ($P=0.768$), Mauchly's test of Sphericity for Continuous Anxiety Scale ($P=0.130$). ** Group 2 was taken into account Pillai's Trace because of Mauchly's test of Sphericity for Self-Efficacy Scale ($P=0.374$), Mauchly's test of Sphericity for State Anxiety Scale ($P=0.373$), Mauchly's test of Sphericity for Continuous Anxiety Scale ($P=0.000$).

Table 3: Comparihalsion of intergroup self-efficacy and state and continuous anxiety scores

Scales	Test Time	1. Group Ort±SS	2. Group Ort±SS	t	P
Self-Efficacy Scale	1. Test	81.72±11.31	96.40±8.48	-6.518	0.000
	2. Test	84.51±13.84	95.18±9.41	-3.996	0.000
	3. Test	80.24±12.64	95.33±10.17	-5.789	0.000
State Anxiety Scale	1. Test	40.15±5.09	39.55±5.13	0.525	0.601
	2. Test	40.33±5.62	42.18±6.37	-1.362	0.177
	3. Test	40.23±8.13	40.88±6.00	-0.401	0.689
Continuous Anxiety Scale	1. Test	91.44±9.25	90.13±12.45	0.530	0.597
	2. Test	46.05±5.52	45.75±4.28	0.271	0.787
	3. Test	48.85±6.08	45.78±4.80	2.496	0.015

Table 4: Comparison of clinical practice characteristics between groups

	Group 1 (n=39) n (%)	Group 2 (n=40) n (%)	X^2	<i>P</i>
Choosing the partition on purpose				
Yes	28 (71.8)	38 (95.0)	6.139	0.013
No	11 (28.2)	2 (5.0)		
Satisfaction from education				
So glad.	4 (10.3)	9 (22.5)		
Glad	23 (59.0)	25 (62.5)	3.994	0.136
Indecisive	12 (30.7)	6 (15.0)		
Previous clinical experience application				
Yes	14 (35.9)	8 (20.0)	1.756	0.185
No	25 (64.1)	32 (80.0)		
Feeling ready for the clinic				
Feel	20 (51.3)	29 (72.5)	2.927	0.087
Don't feel it	19 (48.7)	11 (27.5)		
Theoretical knowledge level for clinical practice				
Enough	15 (38.5)	20 (50.0)	0.649	0.420
Not enough	24 (61.5)	20 (50.0)		
Excitement on clinical practice				
Yes	30 (76.9)	32 (80.0)	0.003	0.953
No	9 (23.1)	8 (20.0)		
Concern about clinical practice				
Yes	22 (56.4)	18 (45.0)	0.623	0.430
No	17 (43.6)	22 (55.0)		
Interest in clinical practice				
Yes	24 (61.5)	23 (57.5)	0.019	0.892
No	15 (38.5)	17 (42.5)		
Fear of a false application				
Yes	25 (64.1)	27 (67.5)	0.007	0.935
No	14 (35.9)	13 (32.5)		
Fear of not providing the necessary care and service to the patient				
Yes	22 (56.4)	20 (50.0)	0.119	0.730
No	17 (43.6)	20 (50.0)		

knowledge to clinical practice ($X^2 = 0.649$, $P = 0.420$), Twitter for clinical practice ($X^2 = 0.003$, $P = 0.953$), anxiety ($X^2 = 0.623$, $P = 0.430$), curiosity ($X^2 = 0.019$, $P = 0.892$), fear of wrong application ($X^2 = 0.007$, $P = 0.935$), fear of failure to provide the necessary care and service to the patient ($X^2 = 0.119$, $P = 0.730$) were not significantly correlated [Table 4].

DISCUSSION

Within the scope of the undergraduate programmes designed to help students acquire midwifery qualifications, theoretical and clinical evaluation should be performed as a whole. Clinical evaluation is of major importance for the training of qualified midwives.

Our study revealed that in both groups of students, the continuous anxiety scores were higher at the beginning

of the educational period than both before and after clinical application. In similar previous studies, it has been reported that in first-year midwifery students, the state and continuous anxiety and stress levels increase as the clinic education time increases, subsequently decreasing.^[6,17,18] It has also been reported that clinical practice is the main source of stress for midwifery and nursing students.^[17,19] Although stress may exert positive effects on learning, it can also prevent students from experiencing higher learning levels,^[20] leading to panic and decreased success.^[21] It is thought that students' fears increase the levels of anxiety and stress, which can be lessened by greater experience.

Research has shown that students who use the daily life activities model to plan midwifery care have a higher level of self-efficacy. Midwives' roles include caring,

decision-making, protective-surveillance-advocacy, execution, rehabilitation, relaxing, education, and counselling, all of which enable individuals to heal and gain independence, thus improving community health. Students in midwifery departments follow a systematic learning process on how to meet human needs.^[22] Daily life activities and functional health patterns are widely used to provide professional communication,^[23] aiming at a controlled assessment of individuals as a whole. This model should be easy to use, implement, and maintain. It has previously been determined that first-year midwives can use the daily life activities model more easily, while learning about the care process. Specifically, this model is practical and easy to understand for first-year students.

The effectiveness of clinical practice affects the training period, model and method. The International Confederation of Midwives (ICM) stresses that practical courses designed for the acquisition of professional skills should comprise at least 40% of theoretical lectures and 50% of clinical practice.^[24] Results from the present study indicate that the self-efficacy levels are higher in students who perform 8 hours of clinical practice. However, the clinical practice time was not objectively evaluated and further studies, at an international level, are required to determine the maximum practice time.

The present study showed that the level of self-efficacy of the students performing clinical practice under the supervision of midwives or nurses is high. Students need to be supported and directed, especially during their first clinical experience. The professional knowledge, skills and experience of clinical midwives are crucial, acting as a role model to the students.^[25,26] Clinical factors such as the lack of professional knowledge and skills, difficulty in communicating with the patients and clinical staff, and academic factors such as clinical examination and contact with the educator, are the most important causes of stress during clinical practice.^[27] A previous study reported that first-class students were more nervous about nurse support.^[28] This suggests that clinical midwife or nurse supervision is beneficial for the students' acquisition of clinical skills.

The present study showed that laboratory practices are evaluated as successful/unsuccessful and that students who have performed clinical practice exams exhibit high levels of self-efficacy. Evaluation aims to assess whether the student has acquired the intended clinical application skills. For this purpose, it is suggested that evaluation activities should cover all education objectives and an objective assessment of cognitive, affective and dynamic areas should be offered.^[29,30] It is thought that repeating the clinical application in the following weeks increases

the level of self-efficacy, since students evaluated as unsuccessful are allowed to gain proficiency.

The results of the present study show that the students' state and continuous anxiety levels were low, whereas their self-efficacy levels were high. It has previously been reported that students in the midwifery department willingly influence their educational processes in the first year.^[11,12,31] It is thought that the anxiety experienced unintentionally causes the students to experience stress. In order to cope with the negative feelings of fear and anxiety, it is recommended that the students be evaluated immediately before their first clinical experience.^[11]

Both theoretical education and clinical practice are crucial for the acquisition of midwifery qualifications. Although clinical learning allows students to acquire professional knowledge and develop skills, it is also among the most stressful situations faced by the students. Evaluation of midwifery basic competencies in a clinical setting is important for the training of qualified midwives. In midwifery practice, the education model used for skill acquisition is extremely important for the management of students' stress, anxiety and self-efficacy. In the planning stage of midwifery care, the self-efficacy level of the students will be increased by using the daily living activities model. No previous studies have looked into this subject. To improve the quality of midwifery education, it is recommended to carry out advanced studies on model use, clinical application time, trainer and evaluation.

CONCLUSIONS

When planning midwifery care, students who use the daily life activities model, perform clinical practice for 8 hours and under the supervision of midwives or nurses, evaluate laboratory practices as successful/unsuccessful exhibit a high level of self-efficacy.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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