Original Article

The effect of video-assisted training given to midwifery and nursing students about pain and its management in newborns on students' level of knowledge

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Abstract

Context: In Turkey, pain and its management in newborns is within the curriculum of midwifery and nursing education. It is important for midwifery and nursing students to have sufficient knowledge and skills for practice about pain and its management in newborns.

Aims: The present study aimed to find the effect of video-assisted training given to midwifery and nursing students about pain and its management in newborns on the knowledge level of students.

Setting and Design: This study employed a quasi-experimental pretest–posttest design in Ondokuz Mayıs University Health Sciences Faculty between 26 and 27 February 2018.

Materials and Methods: Midwifery and Nursing students ($n = 182$) enrolled by census sampling. In addition to students' sociodemographic data and information about the state of observing and applying a painful procedure on newborns, the data were collected through a questionnaire form prepared by the researcher which included pain characteristics, symptoms of the newborn, scales, and management. The questionnaire form filled in before the training was repeated following the video-assisted training given.

Statistical Analysis Used: Data were analyzed using descriptive statistics, Chi-square test, and McNemar's test.

Results: It was found that 74.7% of the students who participated in the study observed a painful intervention to newborn and 23.1% performed a painful intervention on newborn. It was found that students' posttraining states of knowing about newborns' pain characteristics, behavioral and physiological symptoms, scales used in the assessment of pain in newborns, and characteristics about nonpharmacological and pharmacological treatments used in pain treatment increased when compared with pretraining ($P < 0.05$).

Conclusion: It was found that students' states of knowing about newborns' pain increased after the training given when compared with before training. It is recommended that the content of the subject of pain and its management in newborn period within the curriculum of midwifery and nursing schools should be reviewed and improved by new educational methods.

Keywords: Midwifery and nursing students, Newborn's pain, Pain education, Video training

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Received: 06 December 2018; **Accepted:** 27 May 2019; **Published:** 27 December 2019.

Access this article online	
Quick Response Code:	Website: www.jnmsjournal.org
	DOI: 10.4103/JNMS.JNMS_56_18

How to cite this article: Büyük ET. The effect of video-assisted training given to midwifery and nursing students about pain and its management in newborns on students' level of knowledge. J Nurs Midwifery Sci 2020;7:7-12.

INTRODUCTION

In the pain management of the newborn, the aim is to minimize the pain felt by newborns exposed to painful interventions and to help the newborn to deal with the pain. Since midwives and nurses have the opportunity to observe and assess the newborn closer, they should have sufficient knowledge and attitude for the care of the newborn and for being able to decrease or stop the pain.[1,2] In order to stop the pain, midwives and nurses use family-centered care and individualized developmental care and various pharmacological and nonpharmacological methods.[2-4] In addition, for an effective pain management, it is important to make a correct and timely description of pain. In addition to knowing the ways to assess pain in newborns, midwives and nurses should also know about the changes that can be seen in newborns in case of pain and stress.[5,6]

As educators, it is our responsibility to prepare midwifery and nursing students adequately for pain management before they become midwifery and nursing. Midwifery and nursing students must acquire comprehensive knowledge about pain and pain management before completion of their undergraduate education.[2,5] Such information is essential for preparing midwifery and nursing students adequately for their roles in clinical placement and also as nurses in the future. This way, students will be able to better comprehend the reactions of the newborn to pain, behavioral and physiological symptoms, scales used in finding out pain, and pharmacological and nonpharmacological treatment methods used, and they will realize their roles in clinical practices better and be prepared better about their independent roles.

In Turkey, pain and its management in newborns is within the curriculum of midwifery and nursing education. It is important for midwifery and nursing students to have sufficient knowledge and skills for practice about pain and its management in newborns. Students should be aware of pain in newborns, they should take responsibility in stopping and assessing pain, they should make interventions, and they should use their knowledge in clinical practices during their education and in the institutions where they work when they graduate. For this reason, it is important for educators to make the use of new technologies to improve the skills of students. Visual educational materials and videos may be one of these technologies while teaching pain management in the newborn.[1,5]

This quasi-experimental study was conducted to find the effect of video-assisted training given to midwifery and nursing students about pain and its management in newborns on the knowledge level of students.

MATERIALS AND METHODS

Type of study and the study population and sampling

This study employed a quasi-experimental pretest–posttest design in Ondokuz Mayıs University Health Sciences Faculty comprising the sample of the study between 26 and 27 February 2018. The study questions were: (1) What is the knowledge and attitude level of students about pain and its management in newborns? and (2) Did video-assisted training given to students about pain and its management in newborns increase students' knowledge on the subject? The universe of the study consists of all of the students ($n = 204$) studying in their 3rd year in a university's Faculty of Health Sciences, Department of Midwifery and Nursing, during the academic year 2017–2018. The study was conducted with 182 students who accepted to participate in the study in accordance with the principle of volunteerism by census sampling. Overall, 89% of the universe was reached.

Data collection

The study included a pretest, a training program on about pain and its management in newborns and a posttest. The data were collected using a questionnaire form developed by the researcher. In addition to students' sociodemographic data and information about the state of observing and applying a painful procedure on newborns, the questionnaire form prepared by the researcher included a total of 27 items which consisted of questions about pain characteristics, symptoms of the newborn, behavioral and physiological symptoms, scales used in the assessment of pain in newborns (CRIES, NIPS, and FLACC), and characteristics about nonpharmacological and pharmacological treatments used in pain treatment. Before the training, the students were given the questionnaire form and asked to fill in the form, and they were asked to answer the questions as true or false. Later, they were given a 2-h long video-assisted training about pain characteristics, symptoms of the newborn, pain assessment forms (a video presentation about the content of the form and use of the forms), and pain management (a video presentation about nonpharmacological and pharmacological treatment methods and studies conducted in the field on these issues). Before the study was conducted, the students were explained the aim and method of the study and their oral and written consents were taken. It took about 20 min to fill in the data collection form used in the study. One day later, the form was once again distributed to the students and they were asked to complete it.

Data assessment

The data were assessed with a computer using SPSS 18.0 (Statistical Package for the Social Sciences for Windows SPSS 20, IBM, Armonk, NY, United States of America) program. The results were assessed within a confidence interval of 95% and at a significance level of $P < 0.05$. Data were analyzed using descriptive statistics (frequency, mean, and standard deviation), Chi-square test, and McNemar's test.

Ethical consideration

Approval of the Ethics Committee of the institution wherein the study was conducted was received for the study (B.30.2.ODM.0.20.0871510). After the students were informed of the voluntary nature of their participation in the study and provided with information on the aims and objectives of the study and how the results would be used, their informed consent to participate was obtained verbally. The students were told that the information obtained about them would not be disclosed to others and that the "privacy policy" would be strictly followed.

RESULTS

Most of the participants were midwifery students and female. Furthermore, most of them observed a painful intervention to newborns, but a fewer number performed a painful intervention on newborns [Table 1].

It was found that students' posttraining states of knowing about newborns' pain characteristics, behavioral and physiological symptoms, scales used in the assessment of pain in newborns, and characteristics about nonpharmacological and pharmacological treatments used in pain treatment increased when compared with pretraining [Table 2].

Table 1: Some of the sociodemographic characteristics of nursing and midwifery students (*n*=182)

Variables	*n* (%)
Age, mean±SD (range)	21.14±1.86 (19-37)
Department, *n* (%)	
Nursing	79 (43.4)
Midwifery	103 (56.6)
Gender, *n* (%)	
Female	162 (89.0)
Male	20 (11.0)
State of having observed a painful intervention to newborn, *n* (%)	
Yes	46 (25.3)
No	136 (74.7)
State of having performed a painful intervention on newborn, *n* (%)	
Yes	42 (23.1)
No	140 (76.9)

SD: Standard deviation

DISCUSSION

In the present study, it was found that students did not have enough information about newborn pain characteristics, behavioral and physiological symptoms, scales used in pain assessment, and nonpharmacological and pharmacological treatment methods before training. It was found that nurses did not have enough information and attitude about pain in Turkey.[2,7] Researchers found that nurses had moderate levels of knowledge and behavior scores about patients in pain and pain management, only about half (48.7%) of the nurses observed patients' behaviors in describing pain intensity, and 66.7% did not use pain scale to measure patients' pain.[8] One study found that in addition to not having information about scales used in pain assessment, a great majority of nurses (95%) did not use any pain assessment scales and did not apply the methods they could apply independently about stopping/decreasing pain.[5] In terms of studies conducted with nursing students, the authors reported that nursing students had a moderate level of knowledge about nonpharmacological methods in pain control, and students who experienced pain knew more about methods used in stopping pain.[9] Other researchers found that nursing students did not have the required level of knowledge about pain and its management in newborns and a great majority of the students used behavioral indicators in the assessment of pain in newborns.[10]

Some of the studies conducted abroad also show that nurses have an insufficient level of knowledge and attitude about pediatric and newborn pain and its management.[11,12] Investigators emphasized that having lack of knowledge influenced nurses' attitudes toward pain in the clinic.[13] Others found that nurses had a lack of knowledge about pain in newborn and that they needed training.[14] Researchers showed that nurses working in newborn intensive care had an insufficient level of knowledge about the assessment, measurement, and relaxation of pain but showed a positive attitude toward pain control in newborns.[15] Similar results can be seen when studies conducted with students are examined.[16-18] The authors stated that nursing students did not have sufficient knowledge about attitudes to pain, undergraduate students had a better level of knowledge when compared with college students and that the content of education should be reviewed.[19] It was found that students in Jordan showed negative attitudes toward pain and they did not have sufficient knowledge about physiological and vital signs of pain.[20] Researchers stated that nursing students had insufficient knowledge about the assessment and treatment of pain, but they showed positive attitudes toward care of children with pain.[21] Another researcher

Table 2: Distribution of students' pre- and post training answers to questions about the pain and its management in newborns

	Pretraining correct answers, *n* (%)	Posttraining correct answers, *n* (%)	χ^2*; *P*
1. Nurses/midwives can guess a newborn's pain correctly by looking at the newborn's appearance or activity (F)	50 (27.5)	166 (91.2)	17.702; <0.001
2. Nurses/midwives guess newborns' pain less than it actually is (T)	90 (49.5)	153 (84.1)	17.435; <0.001
3. A newborn who continues activity or sleep does not have pain (F)	116 (63.7)	154 (84.6)	14.119; <0.001
4. Having pain will not do harm to a newborn (F)	167 (91.8)	179 (98.4)	8.416; 0.003
5. A newborn's pain will negatively influence the newborn's sensory development and growth (T)	140 (76.9)	168 (92.3)	16.545; <0.001
6. Pain experienced in newborn period has an influence on the reaction the newborn will develop against pain in the future (T)	133 (73.1)	170 (93.4)	26.961; <0.001
7. Newborns can develop cyanosis with pain (T)	152 (83.5)	171 (94.0)	9.923; 0.001
8. In newborns, heart rate increases with pain (T)	101 (55.5)	176 (96.7)	10.828; 0.001
9. In newborns, respiratory rate decreases with pain (F)	75 (41.2)	136 (74.7)	11.487; <0.001
10. In newborns, blood pressure and intracranial pressure increase with pain (T)	95 (52.2)	175 (96.2)	27.742; <0.001
11. In newborns, muscles relax with pain (T)	100 (54.9)	167 (91.8)	17.012; <0.001
12. In newborns, carbon dioxide decreases with pain (F)	103 (56.6)	157 (86.3)	10.171; 0.001
13. In newborns, grimaces and wrinkles on eyebrows and forehead occur with pain	111 (61.0)	180 (98.9)	17.843; <0.001
14. In newborns, there occur changes in waking up periods with pain (T)	116 (63.7)	181 (99.5)	19.351; <0.001
15. In newborns, there occur changes in activity level with pain (T)	126 (69.2)	180 (98.9)	12.494; <0.001
16. In newborns, there occur inabilities in feeding with pain (T)	130 (71.4)	180 (98.9)	11.455; 0.001
17. CRIES is among pain scales used in newborns (T)	92 (50.5)	170 (93.4)	82.868; <0.001
18. NIPS is among pain scales used in newborns (T)	81 (44.5)	168 (92.3)	96.215; <0.001
19. FLACC is among pain scales used in newborns (T)	72 (39.6)	160 (87.9)	92.046; <0.001
20. Faces scale is among pain scales used in newborns (F)	16 (8.8)	161 (88.5)	63.755; <0.001
21. Decreasing environmental stimulants is among nonpharmacological treatment methods applied in decreasing pain in newborns (T)	160 (87.9)	174 (95.6)	7.120; 0.006
22. Kangaroo care is among nonpharmacological treatment methods applied in decreasing pain in newborns (T)	147 (80.8)	174 (95.6)	19.225; <0.001
23. Giving pacifier is among nonpharmacological treatment methods applied in decreasing pain in newborns (T)	147 (80.8)	173 (95.1)	12.476; <0.001
24. Breastfeeding is among nonpharmacological treatment methods applied in decreasing pain in newborns (T)	146 (80.2)	170 (93.4)	13.823; <0.001
25. Giving sucrose is among nonpharmacological treatment methods applied in decreasing pain in newborns (T)	46 (25.3)	141 (77.5)	99.251; <0.001
26. Analgesics can be safely used in decreasing pain in newborns (T)	29 (15.9)	117 (64.3)	88.564; <0.001
27. Narcotic analgesics can be used conveniently even in newborns with very low birth weight (T)	10 (5.5)	160 (87.9)	73.861; <0.001

*χ^2: McNemar's test. F: False, T: True, CRIES: Crying, requires increased sıngs expression, sleeppless, NIPS: The neonatal infant pain scale, FLACC: Face, legs, activity, cry, consolabity

stated that nursing students did not have sufficient knowledge and that pain knowledge should be integrated into the teaching plan.[22] Others found that pediatric nurses and students receiving pediatric lesson had a low level of knowledge about pain and approaches to pain in children.[18] Researchers found that students had a very insufficient level of knowledge about pain and they had very low rates of answering questions correctly (4.8%).[23]

In the present study, it was found that the training given to students about pain and its management increased their level of knowledge. It was found that in our country, nurses are trained about pain; however, practices based on evidence should be increased, and education-based practices should be enriched with multidimensional strategies.[1,24] It was found that nurses working in pediatric surgery units in Turkey had information about nonpharmacological methods, but they needed to use these methods more frequently in clinical care. İnvestigators found that 56.2% of nurses recognized physiological pain symptoms and 60.0% of nurses recognized behavioral pain symptoms in newborns. In addition, 63.8% of the nurses stated that nonpharmacological methods were used in services they worked in order to decrease pain in newborns.[25]

When studies conducted abroad were reviewed, it was found that trainings about pediatric and newborn pain influenced levels of knowledge and attitude. One study showed that nurses who were experts in pediatric pain participated, nurses had better knowledge about pain management, pathophysiology, and treatment methods when compared with the control group.[26] One researcher showed that with training given on pain, nurses working in a pediatric clinic in Mongolia increased their attitude and knowledge level of pain.[11] Other researchers found that a 4-h long training given to nurses on pain was effective in developing knowledge and attitude.[27] One study found that pain management training given to nursing students through the internet was effective.[28]

Researchers found that video-assisted training given to nursing students about pain in children increased their level of knowledge and they answered 91.4% of the questions correctly after training.[29] A study found that in training participants had significantly more knowledge of cognitive-behavioral strategies after the training program versus before it when compared with the control group (especially about nonpharmacological methods).[30]

The present study has some limitations. First of all, the study was conducted on only one midwifery nursing school and it does not include the other schools in Turkey. Second, to what extent students reflected their knowledge and attitudes to the clinic after training was not measured. Third, features such as attitudes and personal beliefs can be influenced by culture, and for this reason, more studies are needed in newborn pain management practices. In addition, there is no control group and no randomization in our study.

CONCLUSION

It was found that students' posttraining knowledge about the characteristics of pain in newborns, behavioral and physiological symptoms, scales used in the pain assessment of the newborn, and nonpharmacological and pharmacological methods increased when compared with pretraining.

It is recommended that the content of the subject of pain and its management in newborn period within the curriculum of midwifery and nursing schools should be reviewed and improved since it was found that health workers in our country need training about pain management and clinical practices are insufficient. It is recommended that this subject should not be taught only in class environment, but it should be repeated through simulation method, and the internet in addition to being video-assisted and students' knowledge and attitudes should be developed. It is recommended that trainings in which other health team members are included should be planned and practices in clinical environment and the efficiency of these should be researched so that there would not be a theory–practice gap about pain and its management in newborn period. It is recommended that students should be provided with learning experiences that will enable them to use nonpharmacological methods in the pain management of newborns in clinical practices. It is important to plan and apply in-service trainings to include evidence-based practices in pain and its management in newborns after students graduate.

Conflicts of interest
There are no conflicts of interest.

Authors' contribution
All authors contributed to this research.

Financial support and sponsorship
Nil.

Acknowledgment
The authors would like to thank all nurses and midwifery students who helped them in performing this study.

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