The effect of using a birth simulator for the midwifery students' breech vaginal delivery skills

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SOMSA Conference, 28 August 2018
• Breech presentation at term occurs in about 3–4% of pregnant women.
• It is estimated that 8% to 35% remain undetected until labor
• All midwives should be familiar with the techniques that can be used to assist vaginal breech delivery.
• The choice of maneuvers used, if required to assist with delivery of the breech, should depend on the individual experience/preference of the attending midwife.
• For this reason, it is very important for the midwifery students to learn all maneuvers of breech delivery.
• The use of simulation is suggested to be an innovative and appropriate tool in educating health professionals.

• The use of simulation training in obstetrics has been shown to improve health-care providers' knowledge, skills and confidence to manage obstetric cases.
Aim of this study:

- The aim of this study is to determine the effect of using a birth simulator for the midwifery students' breech vaginal delivery skills.
Method:

• A quasi-experimental design was used to address this research question.
• This approach is relevant when there is only one group of participants (i.e. no control group) for studying the effects of an intervention, in this case an educational program.
• The study sample consisted of 28 undergraduate students who were the 6th semester between April 3-21, 2017 at the Midwifery Department of the Faculty of Health Science, Celal Bayar University in Manisa, Turkey.
Questionnaire includes socio-demographic characteristics that was prepared by researchers.

We used “Simulation Design Scale”* in this study.

The scale consists of two parts, at least 20 points and 100 points can be taken from each section.

The design features rated by the students include objectives and information (five items), student support (four items), problem-solving (five items), guided reflection or feedback (four items), and fidelity (two items).

• The other questionnaire form prepared by the researcher was used for individual evaluations of midwife students regarding management of Breech Presentation (included 7 items)
• All students were given 4 hours of theoretical training.
• After the theoretical training, each student was taught management of breech delivery for 30 minutes by the birth simulator.
• Information about the scenario was given and a breech delivery was initiated with the birth simulator.
• The student managed the breech delivery alone.
• When applying student maneuvers, an assistant assisted her when she asked for help.
Simulation applications were configured using ACOG Breech Vaginal Delivery Simulation - Formative Evaluation.

1. Pre-Simulation Briefing (Prebriefing/Orientation)
2. Simulation Setup
3. Room Setup
4. Basic Scenario Tips
5. Case Flow/Algorithm with branch point and completion criteria
6. Post-Simulation (Debriefing and reviewing, use the Breech Vaginal Evaluation/Debriefing Form)

(Simulation applications time had totally one hour for each student)
• Full-size anthropomorphic female robotics simulator was used in the simulation training NOELLE® (554.555, Gaumard Scientific, Coral Gables, Florida).

• Internal modifications of the NOELLE System included the use of a single restraining harness that could control delivery of the simulated infant.
Results

• Average age of the students participating in this study (n=28) is 21.4 ± 1.1 (min=20, max=25).
• The satisfaction level of the students regarding the midwifery occupation was found as visual analogue scale (VAS) 7.7 ± 2.4 (out of 10) (min:3, max: 8)
Findings of Simulation Design Scale (Student Version)

<table>
<thead>
<tr>
<th>The sub-dimensions of the scale</th>
<th>Assessing the simulation design elements Median±Sd</th>
<th>How important that item is to students. Median±Sd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives and Information (5 items)</td>
<td>15,0±8,0</td>
<td>23,2±2,5</td>
</tr>
<tr>
<td>Support (4 items)</td>
<td>12,3±6,6</td>
<td>18,6±1,5</td>
</tr>
<tr>
<td>Problem Solving (5 items)</td>
<td>15,8±7,5</td>
<td>23,4±2,1</td>
</tr>
<tr>
<td>Feedback/Guided Reflection (4 items)</td>
<td>12,5±6,4</td>
<td>18,7±1,7</td>
</tr>
<tr>
<td>Fidelity (Realism) (2 items)</td>
<td>6,2±2,9</td>
<td>8,9±1,1</td>
</tr>
<tr>
<td>Total (20 items)</td>
<td>61,8±31,0</td>
<td>93,0±7,6</td>
</tr>
</tbody>
</table>

The first part of the Simulation Design Scale had a mean total score of 61,8±31,0 and a medium score, while the second part had a total score of 93,0±7,6.
Table 2. Individual Evaluations of Midwife Students regarding management of Breech Presentation

<table>
<thead>
<tr>
<th>Items of Individual Evaluations</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have sufficient knowledge about management of breech delivery</td>
<td>28</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>I can recognize immediately the breech presentation</td>
<td>24</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>I can make quick decisions when breech delivery</td>
<td>26</td>
<td>2</td>
<td>28</td>
</tr>
<tr>
<td>I can make proper maneuvers of breech delivery to deliver the infant.</td>
<td>27</td>
<td>1</td>
<td>28</td>
</tr>
<tr>
<td>I can communicate effectively when I manage breech delivery</td>
<td>26</td>
<td>2</td>
<td>28</td>
</tr>
<tr>
<td>I am sufficient about the management of breech presentation</td>
<td>20</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td>I am quite capable of the management of breech delivery</td>
<td>18</td>
<td>10</td>
<td>28</td>
</tr>
</tbody>
</table>

After the training, 100% of the students stated that they had sufficient knowledge and 96,4% of them could manage the breech delivery effectively.
They used different maneuvers of breech delivery during simulation training.
Limitations of this study

- This study examined the responses of a very small number of students from a very specific midwifery education model, which limits the capacity of this study to be generalised to other midwifery education models.
Conclusions:
It was found that after the simulation training, the students had sufficient skills of the breech vaginal delivery.
• Simulation training and design was found useful by the students.
• Simulation can improve students' self-assessed confidence.
• In addition, it can be said that the simulation training contributes the students' skills of breech vaginal delivery.
thank you