An exploration of midwives' perceptions of newborn resuscitation programmes for midwifery students

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Introduction

Around the world, significant issues are reported in midwifery education regarding newborn resuscitation. These issues are similar to those raised two decades earlier (Halamek et al., 2000); for example, in 2000, Halamek et al. reported that the newborn manikin's lack of fidelity compared to a newborn baby for realistic training was a major limitation—20 years later, we see the same issue in newborn resuscitation simulation training. Though there has been progress in newborn care, mission has been claimed uncompleted and more work is necessary (Halamek, 2016). A focus on the remaining tasks has therefore been called for, to initiate a cultural change underpinning the essential components regarding the provision of care to all newborns worldwide, every day (Halamek, 2016). One way to implement this cultural change is to draw on a person-centred nursing framework, as its foundation is composed of the core values guiding this paper (McCormack and McCance, 2017).

Newborn resuscitation represents basic, essential skills for midwives worldwide, skills that require continuous improvement (Enweronu-Laryea et al., 2015). Simulation-based training in midwifery skills has been reported to be beneficial, as midwives can learn from mistakes without risk to patients; it may also address the challenge of building competency in infrequent clinical situations (Cooper et al., 2012; Ennen and Satin, 2010). While mastering the skills involved in newborn resuscitation is difficult, both in high- and low-resource settings (Thallinger et al., 2015), there is no universal training programme in these skills (although there are guidelines) (World Health Organization, 2012; Wyllie et al., 2015). In other words, many questions remain unanswered around determining best practice and outcomes for newborns (Ades and Lee, 2016). Nevertheless, strengthening simulation-based medical education is argued as key to successful newborn resuscitation (Mileder et al., 2014).

In 1987, the American Academy for Paediatrics initiated a newborn resuscitation programme (NRP), which has been continuously improved upon in accordance with new evidence (Sawyer et al., 2017). Despite decades of multiple simulation training programmes, midwives still report a need to improve their skills and knowledge in newborn resuscitation (Alhassan et al., 2019). More than half of the midwives from a low-risk unit had imperfect resuscitation skills in a simulation context (Rovamo et al., 2013)—this highlights the urgency of ensuring that these skills are improved, as up to 10% of all newborns will eventually need resuscitation (Lee et al., 2011). A formal endeavour to increase midwifery competence in newborn resuscitation therefore needs to be supported by national policies (Khriesat et al., 2017).

Tailored training programmes in newborn resuscitation, in which individuals' professional background is taken into consideration, have been found useful (De Bernardo et al., 2016; Malmström et al., 2017). Because of their infrequent exposure to clinical newborn resuscitations, training programmes should be tailored to each profession's experiences, to ensure success in improving the providers' skills. Bernando et al. (2016) also reported a significant correlation between technical and nontechnical scores, which highlights the importance of adding nontechnical skills to the current guidelines on newborn resuscitation.

Research about midwifery students' experiences in newborn resuscitation is limited. In three studies from Australia, midwifery students described their experience of simulation exercises in newborn resuscitation (Bull and Sweet, 2015; Carolan-Olah et al., 2016, ; 2018). The available evidence shows that midwifery students improved their knowledge, confidence and skills in newborn resuscitation after simulation exercises (Carolan-Olah et al., 2016, ; 2018). Still, anxiety levels remained static, even if midwifery students felt more prepared after simulation training (Bull and Sweet, 2015). One of the identified benefits of simulation training as a method for learning is that it is designed for small groups; as such, everyone can take an active role, and have the time to reflect during the debriefing on their own communication and situational awareness (Carolan-Olah et al., 2018). Repeated simulation training over a longer period of time was also found to enhance preparedness for newborn resuscitation (Carolan-Olah et al., 2016). Further, researchers have discussed the importance of role understanding as essential to ensuring correct priorities and responsibilities (Carolan-Olah et al., 2016).

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Table 1
Description of included participants.

Participant	Age	Years of practice	Level of maternity ward, number of births/year	Experiences from different maternity wards
1	40	12	University hospital (7000)	1
2	38	2	Midwifery-led maternity wards (400), (2000)	2
3	50	14	University hospital (6000), maternity clinic (1400)	2
4	35	5	University hospitals (7000), (2750)	2
5	37	1	Maternity clinics (2000), (63,000), (650)	3
6	36	2	University hospital (6000) Midwifery-led ward (450)	2
7	56	25	University hospital (6000), Maternity-led wards (500), (50 000)	3
8	56	26	University hospital (6000), Maternity wards (2000) (500)	3
9	32	5	University hospitals (6000) (5000), Maternity wards (1500)	3
10	52	28	University hospital (6000) Maternity clinics (1600), (2000), (350), (30), (150)	6
11	40	7	Maternity clinic (3000)	1
12	40	5	Maternity clinic (3000)	1
13	61	35	University hospital (7000), Maternity clinics (800), (500), (2000), (3000)	5
14	56	32	Maternity clinics (430), (2000)	2
15	44	15	Maternity clinics (2200), (600), (2000), (800), (1500), (500)	6
16	42	15	Maternity clinics (60), (2000), (4000)	3

Table 2
Semi-structured interview-guide.

1.	Do you feel prepared for newborn resuscitation?
2.	How can midwifery students prepare themselves for newborn resuscitation?
3.	What should an educational programme in newborn resuscitation include?
4.	Can you please relate your experience in newborn resuscitation to knowledge, skills, communication and teamwork in simulation training?
5.	Do you have other comments or want to share experiences that have not been discussed during this interview?

Because midwifery students' limited exposure to newborn resuscitation, researchers suggest that institutions prioritise the enhancement of bereavement support training, in an effort to practice these complex situations in midwifery education (Forster and Donovan, 2016). A study in which midwifery students were 'interrupted' while in a university classroom setting with an obstetric emergency—as a 'real-time' simulation—proved successful in helping them develop knowledge and skills for real practice (Deegan and Terry, 2013). However, though simulation has been used widely in midwifery education, the simulations have been reported to lack realism; this is compounded by the fact that some situations are impossible to simulate (McKenna et al., 2011).

Norwegian midwives attend most births and are not under the direction of physicians—as such, they are independently responsible for normal pregnancies and births (Skåre et al., 2015; Wyllie et al., 2015). Our research group emphasise that newborn resuscitation is demanding, especially for midwifery students, who still are novices within midwifery. As newly graduated midwives, they will often have the sole responsibility for neonatal resuscitations, but (as mentioned earlier) existing guidelines in newborn resuscitation are not specifically adapted to midwifery. Thus, it is crucial to develop a programme to help prepare midwifery students for these demanding situations. However, developing such a programme is made more challenging by the fact that limited research has been published on this topic—highlighting a clear gap in midwifery education. To help bridge this gap, we performed a qualitative study to explore midwives' perceptions about what constitutes necessary content and methods of instruction in a newborn resuscitation program tailored for midwifery students.

Methods

We conducted a qualitative study, using an exploratory, interpretive design (Creswell and Poth, 2018); this is proved to be a suitable method for exploring midwives' perceptions about developing the programme.

Recruitment

To recruit eligible midwives, we posted an invitation to participate in the study on a Norwegian midwifery forum on Facebook consisting of 2300 midwives in August and September 2018. We also employed snowball sampling. Midwives working in high-risk and midwifery-led maternity wards in several hospitals were asked to pass along word-of-mouth information and/or flyers to colleagues they believed would meet the inclusion criteria (Creswell and Poth, 2018). The inclusion criteria were: registered midwives (whether newly graduated or experienced) who had performed newborn resuscitation on Norwegian maternity wards. We included a convenience sample of 16 midwives (Creswell and Poth, 2018).

Participants

The participants were female, Scandinavian language-speaking, aged 32–61 years, and representing urban and rural parts of Norway. They worked at small midwifery-led wards, maternity clinics or university hospitals, in which the number of births ranged from 30 to 7000 births annually. Their working experience varied, from 1 to 35 years (mean of 14 years), and they had experiences with newborn resuscitation from 26 different maternity wards (Table 1). 14 participants had a Norwegian university-college- or university-education and two were educated from institutions in other Nordic countries. Most of them had completed postgraduate education or courses, and some had worked abroad.

Data collection

Individual interviews was conducted by the first author, lwl, between August 2018 and January 2019 at different locations chosen by the participants. When themes began appearing repeatedly, the first and last author agreed on the 'richness' of the data and stopped recruiting (Graneheim and Lundman, 2004). The interviews had two aims: 1) to explore midwives' experiences of performing newborn resuscitation (Ljungblad et al., 2020); and 2) to explore midwives' perceptions about what constitutes necessary content and methods of instruction in a newborn resuscitation program tailored for midwifery students. The data presented in this paper focus on the second aim. Two pilot interviews were conducted, which were not included but which prompted adjustments to the interview technique and questions. This part of the interview followed a semi-structured interview guide consisting of 5 questions (Table 2), and lasted from 15 to 43 min (mean of 26). All interviews were recorded and transcribed verbatim by the first author. The data collected comprised a range of experiences relating to the content and methods of a tailored newborn resuscitation programme for midwifery students.

Data analysis

Systematic text condensation (STC) was used to analyse the data (Malterud, 2012). The analysis was conducted by the first and last authors and discussed and agreed upon by all authors. STC is a four-step cross-sectional thematic analysis (Malterud, 2012). In the first step, the

material was read to achieve an overall impression of the data and elicit preliminary themes. Preliminary themes centred around skills practice, theoretical knowledge, pedagogical tools, teamwork, learning from experience, reflection and structure. In the second step, the interview texts were read line-by-line, identifying meaning units representing midwives' perceptions of what constitutes the essential content and methods of a newborn resuscitation programme. The meaning units were coded and organised, and given the preliminary code-group names of 'craft knowledge', 'content' and 'structure'. In step three, we identified subgroups exemplifying key aspects of each code group, and meaning units within the subgroups were summarised and condensed. Finally, we created an analytical text, based on the condensed subgroups. The titles were adjusted and elaborated, and quotations were used to elucidate the findings.

Ethical considerations

The study was conducted in accordance with the Declaration of Helsinki; Ethical Principles for Medical Research in Human Subjects (World Medical Association, 1964). Approval for the study was granted by the Regional Committee for Medical and Health Research Ethics (2018/975). The Norwegian Centre for Research Data assessed the study and considered it to be outside the scope of sections 2 and 4 of the Health Research Act (60,726). Prior to the interviews, all participants received written and oral information about the study, including assurances of anonymity and confidentiality. They were informed that they could withdraw from the study at any time without explanation, and each participant provided written consent.

Results

This study highlights a significant need for simplified guidelines in newborn resuscitation adapted to the midwifery profession, as described in Table 3. Moreover, innovative methods are needed when developing a tailored programme in newborn resuscitation, and a supportive culture is emphasised as essential when performing newborn resuscitation.

> Guidelines for newborn resuscitation must be simplified and adapted to the midwifery profession

Pedagogical tools

The participants suggested that engaged educators from clinical practice be involved in the development of a tailored programme. They recommended that paediatricians start the session by speaking about the theory of basic normal transition, followed by an open dialogue with the possibility to ask questions and thus facilitate discussion. Further, these sessions should be precipitated by an e-learning programme, to provide basic knowledge in advance of the theoretical session. Videos and illustrations (preferably used in combination) were described as enhancing

Table 3
Overview of the code groups and sub-groups.

Code-groups	Sub-groups
Guidelines for newborn resuscitation must be simplified and adapted to the midwifery profession	Pedagogical tools Time and frequency Midwife-friendly approach
Innovative methods are needed when developing a tailored programme in newborn resuscitation	Practical skills Theoretical skills Midwifery competency
A supportive culture is essential when performing newborn resuscitation	Trusting and clear communication Safe culture

midwifery students' ability to acquire new knowledge. It was considered especially useful that videos can be watched repeatedly.

> I really believe in the use of videos, good videos that you can see repeatedly. And the use of mannequins of course… it must be hands on (10).

In addition, the participants emphasised that midwifery student's need authentic equipment to practise resuscitation, and that it is essential that they have a thorough understanding of all the equipment. However, some mannequins were described as too advanced or too rigid for students. Participants also felt students should be allowed to learn in their own way, in their own rhythm. They asserted that role play simulations must be stress- and expectation-free—and include circumstances in which students can make mistakes.

> We need to provide a safe context… that is very important, I think. You want to demonstrate that you are good and you fear making a fool of yourself as this will influence what your colleagues think of you (6).

Moreover, having enough time for reflection and frequent hands-on training was mentioned as important for increasing students' knowledge. A test (preferably undertaken as a quiz) in basic knowledge, both theoretical and practical and including foetal circulation and newborn transition, was suggested; relatedly, a competition around learning how to prepare the asphyxia table for transportation was highlighted as a way for midwifery students to rapidly become very skilled. A final suggestion was that midwifery students could make instructional videos in workshops, in which they argue for why they do which action at what time, to promote their own understanding of newborn resuscitation.

> …that students make instructional videos where they must argue professionally for the decisions they make. Then they need to argue why they start using oxygen or start bagging… what are their motivations for these actions (11).

Time and frequency

The midwives warned against training too many students in newborn resuscitation within a limited timeframe, as this can lead to frustration when students have insufficient time to become familiar with the equipment. Students need to learn about ventilation, mask positioning, equipment and free airways—all of which are time consuming. In addition to the duration of the training, the frequency of the training was deemed equally important, specifically regarding practising ventilation and assessing the mannequins for chest expansion. Several midwives emphasised that newborn resuscitation should be given greater priority, and should be practised at least four times during the midwifery education, preferably more often and in small groups.

> To avoid ending up becoming obstetric nurses we must rely on our professional knowledge and our abilities, and this requires training… at least four times during the education. This should be prioritized because we need midwives who are professionally confident (8).

The participants argued that while this training is not a direct replacement for hands-on clinical practice, it still resulted in more knowledge than a PowerPoint presentation.

Nevertheless, participants also suggested that students extend their clinical practice at the neonatal intensive care unit, and that they participate in a practical training session just before certification, once the students had gained a deeper understanding of the newborn. According to the participants, there can never be too much practical hands-on training. As one midwife argued,

> …everyone should practise all tasks in simulation training… everyone should be able to feel it in their fingers—there should be time enough so everyone can try, at least once (5).

Midwife-friendly approach

Midwives are responsible for assessing all newborn babies within the 'golden minute': within the first 60 s following birth, they must confirm normal onset of breathing, or initiate ventilation and simultaneously call for help if needed. A midwife in this study underpinned the responsibility involved in assessing a newborn baby:

> We are the first persons on the spot, so 'the golden minute' is still the most important time I think. You need knowledge about free airways, how to ventilate and how to call for help… we play an important role during the first minute (1).

According to the participants, midwives play an important role in the first minute, and the skills (e.g. ventilation) needed in this timeframe should therefore be the focus of the guidelines. As such, it was recommended that simplified guidelines be created for midwifery students, since the existing guidelines contained too much text to be considered midwife-friendly. They suggested that:

> 'Keep it simple' could be a useful motto, and a simplified print 'pocket' version of the guidelines would be ideal (1).

Innovative methods are needed when developing a tailored programme in newborn resuscitation

Practical skills

According to the midwives, students need to have frequent hands-on training to integrate the resuscitation guidelines into their day-to-day competence, as midwives often release the mask too quickly to assess the baby. Students need to be prepared before starting their first placement, and they need to know what is expected from them in newborn resuscitation to avoid panicking the first time they experience a non-breathing newborn. Several midwives suggested that frequent training in 'real life' was the only way to gain a 'clinical gaze'. 'Drilling days' in clinical practice, described as days of intensive skills practice, were described as beneficial and were advised to be held regularly.

> 'Drilling days' are good but practicing once a year is not enough since these days cover a variety of acute procedures. We need to practice at least twice a year, maybe every third month (4).

Moreover, to become skilled practitioners, the participants noted that students need to be curious about the equipment—not only to find out how it works but to feel safe using it in real situations. They also argued that simulation training with team members from other professions in practice placements at maternity wards could be beneficial; even though simulation is not a direct replacement for real life, participants felt that it provides students with necessary training before starting their clinical practice. The participants emphasised that midwives also need to be trained to take responsibility to perform newborn resuscitation whilst waiting for the resuscitation team to arrive. These kinds of skills (for example, ventilation) cannot be learned by watching from the bedside.

> You have to get it under your skin. You can read 100 books, but it cannot exclusively prepare you for such situations: feeling the bag in your hands when ventilating a baby (6).

Theoretical skills

The participants stated that studying theory about newborn resuscitation is easy—the challenging, but necessary, aspect is for students to *embody* the theory. Moreover, they argued that midwifery students need knowledge about the natural transition of the newborn as well as knowledge about anatomy, physiology and pathology in order to understand when and how to initiate resuscitation; this would enhance the confidence needed to determine the order of when and which actions to perform.

Knowledge about anatomy, physiology and pathology are important to know why we do what we are doing. So, obviously, the students must learn this. However, they also need to learn the concrete resuscitation procedure… what do we do when we resuscitate (13).

As such, they emphasised, an education programme should focus on providing students with sufficient knowledge for them to feel safe when initiating newborn resuscitation. It was suggested that one way to achieve this was for the theoretical and clinical parts of the resuscitation programme to have a 50/50 ratio. After having attended the programme, the students should be familiar with the guidelines and then practise newborn resuscitation repeatedly.

> So, practicing resuscitation regularly is important … we did that in school, but then everything was new, and it was difficult to understand what being in a situation like that would be like (5).

Midwifery competency

The participants described having developed a 'gut feeling' that they used when assessing the baby's breathing—which highlights the fact that not all newborns start breathing immediately. Some participants described colleagues as forgetting about midwifery competency and normal transition physiology; others said they felt inadequate yet still responsible for the situation. This responsibility was described as overwhelming even if the midwives had been trained for it.

> It feels like you are holding the baby's life in your hands… and in a way you do… That is why it's important to act and not wait for someone more skilled or experienced to turn up. Sometimes I think that I am 'only' a midwife, and I am not qualified to do this, but you are qualified. It sometimes feels like being responsible for life and death (11).

Relatedly, preparing midwifery students for such situations was reported as challenging, as one needs to 'just act' in these situations since newborn resuscitation consists of much more than a technical procedure. To avoid these situations, participants' emphasised knowledge about risk factors as essential—and that midwifery students be able to act on this knowledge automatically, when needed.

> It sometimes takes more than one minute before the colour changes, but I think that if you experience that the baby is slack and completely blue and it has a low heart rate, you understand that you need to act (4).

A supportive culture is essential when performing newborn resuscitation

Trusting and clear communication

The midwives argued that, to become clinical experts, midwifery students need to have a strong motivation to become skilled, gain knowledge and have the courage to discuss this topic. Here, having the ability to process by talking through critical situations and following up with a thorough debriefing was deemed essential. In addition, the participants emphasised that resuscitation teams require clear leadership to provide the necessary oversight around planning the next step in newborn resuscitation. In their own experience, they found closed-loop communication to be key in these situations. The participants underscored that, when performing resuscitation, it is vital that messages are clearly communicated and roles are clarified through both verbal and non-verbal communication.

> When you are standing in the labour ward with a baby in need of help, or if you are about to resuscitate a baby, communication with all parts involved is extremely important, especially communication with the persons who arrive at the resuscitation table when you come running out with the baby (8).

Consequently, it was recommended that students practise (verbal and non-verbal) communication as part of their education and, moreover, that communication skills be drilled in acute situations whenever possible in students' clinical practice. This latter should focus on students' ability to answer what, how and to whom do you communicate in this situation.

> Communication is a tool and a skill, which is important to practice (2).

Safe culture

The participants felt that a universal theoretical foundation for all professions included in the team was key for understanding each other's roles in newborn resuscitation. It was thus advised that midwifery students practise their own role in conjunction with other members of the team, to make simulation training more realistic—participants argued that this would help increase the knowledge the students learned through their clinical practice.

> Students should participate in the resuscitation training at their place of practice. It is extremely important to learn how to cooperate in acute settings (16).

It was recommended that they practise for at least half a day in these collaborative role-play simulations. Video-recording the simulation scenario was mentioned as a method to help facilitate effective debriefings following the activity and to enhance self-confidence and security.

Networking was recommended as a tool to help strengthen understanding and communication around the other team members' roles—and, importantly, to facilitate a safe and supportive culture. Teamwork was described as essential to both learning and practising newborn resuscitation—and teamwork in simulations was emphasised as a way to allow midwifery students to fail without fear.

> In the beginning, it is ok just to learn the principles and avoid too much stress. You should be allowed to try and fail… to know that you can do that (9).

It was also emphasised that a team is essential to managing newborn resuscitation—or birth, more generally. They described having a good team member as a positive, and that *being* a good team member is important. Some acute resuscitation situations were described as impossible to prepare for, but that this was mitigated by support from colleagues. One midwife explicitly stated that students should never be made to feel afraid to call for help. This kind of supportive culture, they argued, would also help enhance midwifery students' confidence in performing newborn resuscitation in maternity wards. As one participant remarked,

> …the culture in the maternity ward should be supportive, and you should never be alone, (…) the ward culture, communication culture, should be 100% safe—you are never alone, that should be the culture (15).

Discussion

We aimed to explore midwives' perceptions about what constitutes necessary content and methods of instruction in a newborn resuscitation programme tailored for midwifery students. The findings highlight a significant need for simplified guidelines for midwifery students, the use of innovative methods to increase midwifery students' competency, and facilitating a supportive culture to manage newborn resuscitation.

One of the main findings in this study revealed that the existing guidelines in newborn resuscitation are too complex and contain too much text, making them confusing for clinical midwives to follow systematically. In addition, the participants suggested that the guidelines then be printed in a pocket version. They were confident that these elements (especially simplifying the guidelines) would enhance midwifery students' ability to manage newborn resuscitation. This finding has not been identified elsewhere, and adds new insight into the needs of midwifery competency in newborn resuscitation.

Research has shown that midwifery students had the same level of theoretical knowledge six months following newborn resuscitation training, even they had not retained their practical skills as well (Caldelari et al., 2019). This demonstrates that the frequency of training is essential to maintaining practical skills. Our participants suggested the motto 'keep it simple' as a way to ensure proper focus in newborn resuscitation: i.e. on ventilation within the 'golden minute', in which midwives assess all newborns before consulting other professions for help. However, a need to increase midwifery knowledge and skills and to improve midwifery students' confidence in newborn resuscitation simulation training is supported by findings from a recent Australian study (Carolan-Olah et al., 2016).

Nevertheless, it has been found difficult to construct real-time simulation in a university context, even though it helped midwifery students develop their knowledge and skills in managing newborn resuscitation (Deegan and Terry, 2013). An open debate was recently introduced in midwifery education about the pedagogical use of the High-Fidelity Perinatal Simulation (Vermeulen et al., 2017). As a positive perspective into midwifery education, our study's findings contribute to this debate by suggesting pedagogical improvements and simplified guidelines in newborn resuscitation. Karakoc et al. (2019) suggested computer-assisted simulation as a student evaluation at maternity wards to effectively improve knowledge and skills—a suggestion made by the participants in our study as well. There are a range of new technological tools available today; for example, with Lerdal's eSim, one can repeatedly resuscitate a virtual newborn to learn the steps in newborn resuscitation, and simultaneously receive feedback for use in self-reflection (Ghoman and Schmölzer, 2019; Ghoman et al., 2020). In addition, virtual reality can enhance the simulation experience for midwifery students and may be an ideal method to learn newborn resuscitation (Williams et al., 2018). We suggest that innovative methods for learning newborn resuscitation, including virtual reality, be implemented in an educational programme, as this method includes no risk for newborns regarding patient safety (World Health Organization, 2011). In the future, it is possible that technological developments will lead to 'life-like' scenarios, specifically tailored for clinical midwives and students to repeatedly train and prepare themselves for real life newborn resuscitations.

Our findings agree with those of other studies describing a need for educators to engage in designing and conducting research on using virtual reality in midwifery programmes (Fealy et al., 2019); this kind of approach would help midwifery students gain this knowledge 'by heart'. However, theoretical knowledge is also required—especially, as the participants in our study highlighted, regarding the natural transition for newborns. Midwives delayed starting ventilation, were unable to keep the mask sufficiently tight, over-expanded the lungs and followed the guidelines inadequately even after simulation training; as such, the authors recommend frequent hands-on training programmes in newborn resuscitation (Rovamo et al., 2013). The findings from our study suggest that e-learning and practical hands-on training should thus be more frequently used in tandem in midwifery education.

The need for frequent simulation training was also raised by the participants. Other research has demonstrated similar findings, reporting that frequent, brief, on-site training was beneficial (Mduma et al., 2015). Participants referenced storytelling as a helpful debriefing method—this suggestion is supported by a recent study reporting positive student evaluations of web-based, interactive storytelling as having the potential for learning and teaching in midwifery education (Scamell and Hanley, 2017). The contextual setting does not matter in storytelling, and as

such does not require expensive and technological equipment; this kind of person-centred context is highly valued in a person-centred nursing framework (McCormack and McCance, 2017). Participants also recommended the use of performance skills stations, integrated skills stations, simulations and debriefing, all of which build on existing systematic advances in newborn resuscitation (Sawyer et al., 2017).

Our findings highlight the need for midwifery students to have a safe context in which to interact and communicate. Midwifery competency, knowledge and intuition are closely related to embodied knowing and knowing one's self, components in a person-centred nursing framework (McCormack and McCance, 2017). We argue that we must draw on the values in person-centredness concerning mutuality, reciprocity, empowerment, participation and critical reflexivity, as key for enabling midwifery students to understand their role in newborn resuscitation, to ensure correct responsibilities and priorities (Carolan-Olah et al., 2016; McCormack et al., 2017). Moreover, midwifery students' understanding about their role improves in simulation training, specifically when communication skills and task delegation are areas of focus (Ruyak et al., 2018). In simulation training, too, midwifery students prepare themselves—and reflect upon this preparedness—to manage newborn resuscitation (Forster and Donovan, 2016).

Participants in our study further argued that a supportive culture is essential for midwives to feel safe learning and practising newborn resuscitation. Prior research shows that even when midwifery students are more prepared for newborn resuscitation after simulation training, their anxiety levels remain static (Bull and Sweet, 2015). As such, a supportive culture when working in teams is key to reducing this anxiety, and thus a person-centred approach in the ward or in simulation training should be emphasised (McCormack et al., 2017).

A recent study found that even when the midwives reported improved knowledge, confidence and skills, they still felt unprepared for newborn resuscitation, and requested a newborn resuscitation programme to strengthen their knowledge and confidence (Carolan-Olah et al., 2018). Moreover, the authors report that the midwives requested active participation in simulations, to learn from each other in a collaborative approach (Carolan-Olah et al., 2018; McCormack et al., 2017). However, simulation training in newborn resuscitation is argued to be more beneficial if it takes place earlier in the midwifery curriculum (Coyer et al., 2014), which is in line with our study's findings. Here, simulation training in newborn resuscitation should be focused not just on improving midwifery students' practical skills but it also needs to include reflection and critical thinking; in this context, the educator plays an important role in facilitating a safe culture of learning and practice (McCormack and McCance, 2017; Lendahls and Oscarsson, 2017).

Related to this, participants pointed to the helpfulness of debriefing to create a safe maternity ward culture. However, although others have found debriefing to be a critical component in simulation, the participants in this study were frustrated by a lack of systematic debriefing to enhance their practice (Sawyer et al., 2016). Simulation training has had positive outcomes in this respect, strengthening midwifery students' professional training and facilitating a culture of safety and support (Reyhan et al., 2018).

Strengths and limitations

A qualitative study is not meant to make changes at a macro level. However, the use of a convenience sample with thick descriptions may still provide insight, and ensure sufficient information both to enhance credibility and for the reader to conclude whether the findings are transferrable to similar situations (Lincoln and Guba, 1985). To enhance the study's validity, we drew on Malterud's (2001) concepts of internal and external validity and reflexivity. The research group included two professors, an associate professor and a doctoral candidate; two members are nurses and two have extensive practice in nurse midwifery, including in newborn resuscitation. This provided a solid knowledge base and

a varied perspective on the study topic. We discussed whether the study explored what it intended to explore, and if appropriate methods were chosen; it was decided that the use of individual interviews allowed the participants to speak freely about challenging situations at a personal level. Regarding external validity, we agreed to have a sufficiently varied sample (Malterud, 2001); we included midwives living in urban and rural areas in Norway with different experiences, all of whom were engaged in the topic. This latter issue may be a limitation, however, as their willingness to participate may represent self-selection bias. Finally, midwifery students were not included in our sample, and this may have affected external validity (Malterud, 2001).

Conclusion

This study highlights a significant need for simplified guidelines in newborn resuscitation adapted to the midwifery profession. Innovative methods are necessary when developing a tailored programme to increase midwifery students' competency, and a supportive culture is emphasised as essential when performing newborn resuscitation. We suggest that all aspects of the existing guidelines be taken into account when developing a newborn resuscitation programme tailored to midwifery students. Further research—including the development and implementation of a tailored programme in newborn resuscitation in midwifery education—is recommended, to help prepare midwifery students for their clinical practice and everyday work.

Conflict of interest

None declared

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.midw.2021.103021.

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