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Original research

FIRST-YEAR nursing students' experiences of simulation involving care of older patients. A descriptive and exploratory study

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A B S T R A C T

Mastering geriatric nursing skills takes time and its acquisition should start early in undergraduate nursing training. The purpose of this study is to synthesise and evaluate the learning experiences that first-year nursing students had following geriatric patient simulation and practice of clinical patient handover. Qualitative content analysis of survey comments from first-year students (n = 216) at a large university in Norway were performed. Simulation training included systematic patient observation of scenarios based on genuine geriatric cases in nursing homes and practice of clinical patient handover. Content analyses identified four generic categories: (1) 'embodying theoretical knowledge'; (2) 'increased awareness about one's self'; (3) 'understanding that collaboration is needed'; (4) 'preparing for future work life'. These themes provide evidence for students integrating geriatric theoretical knowledge with clinical skills as a result of simulation. Analysis of learning experiences shows that geriatric scenario simulation and practice of clinical patient handover are valuable instruments before entering clinical training with geriatric patients, even for novice students. The use of genuine simulation cases and instruction on the use of clinical handover instruments are effective in producing conceptual changes that prepare students for their first encounter with complex, real-world geriatric scenarios.

1. Introduction

It can be challenging for higher education institutions to train professionals capable of providing appropriate care to an increasing number of older patients. Until recently, healthcare education was characterised by fragmented curricula that focused on teaching about specific diseases (Frenk et al., 2010). However, this approach does not necessarily teach students about multimorbidities and frailty, conditions common in geriatric patients. Education and learning comprise more than just the acquisition of information. Rather, it involves acquiring conceptual change about a topic (Biggs, 2012). According to Biggs (2012), an educative conceptual change occurs when a student progresses through the following stages: (1) makes clear goals and charts a clear path to achieve them; (2) sees and feels the need to achieve goals that were initially unknown to him or her; (3) focuses on how to achieve a goal, instead of focusing on passing a test on it; (4) develops working routines and dialogues with peers and teachers that will lead to a deeper understanding of a phenomena (Biggs, 2012).

Achieving educative conceptual change is also paramount for nursing students in the acquisition and understanding of how and when to use practical clinical skills. As this aspect of nursing requires time to take hold, novice nursing students do not always have the ability to link theoretical knowledge they acquire with the clinical practice in which they engage. One example is they sometimes lack the ability to see that their patients should be handed over to other healthcare team members (Malone et al., 2016). The ability to link theoretical knowledge with practice in real-world situations takes on special meaning when lives are at risk in a high-stress environment, like in geriatric nursing.

Simulation training within healthcare education enhances students' knowledge and skill performance in a secure, no-risk environment (Cant and Cooper, 2017; Collins, 2014; Norman, 2012). It also allows the achievement of deep learning (Biggs, 2012). A deep approach to learning is characterised by activities that trigger a higher cognitive level of understanding and problem solving, rather than leading to the simple acquisition of fragmented, unconnected information (Biggs, 2012; Biggs and Tang, 2009). Yet, there is still a need for more research about how to design simulation scenarios in specific areas (Tosterud et al., 2013), not least in geriatric nursing.

Learning and making sense of theoretical concepts are processes that occur in a social context (Balgopal and Montplaisir, 2011). Group simulation and interaction with other students and teachers is particularly useful when integrating complex nursing knowledge needed for geriatric care. Responses to learning can be expressed in writing (Balgopal and Montplaisir, 2011), and students' evaluation of a simulation exercise can provide valuable insight into the process of preparing first-year nursing students to meet and care for frail and

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I	**Identity of Patient** Name and age Institution Ward
S	**Situation** Symptom(s)/ problem(s)
B	**Background** History of presentation Date of admission and diagnosis Relevant past medical history
A	**Assessment and Action** What is your diagnosis or impression of the situation? What have you done so far?
R	**Response and rationale** What you want done Treatment /investigation underway or that need monitoring Review: by whom, when and what? Plan depending on results/clinical course

Fig. 1. Explanation of the acronym ISBAR.

multimorbid geriatric patients.

Effective communication among healthcare providers is necessary to ensure competent delivery of care for geriatric patients with deteriorating health. Clinical handover is a critical point where communication problems might emerge (Bost et al., 2012; Hohenhaus et al., 2006). Clinical handover refers to the process of transferring professional responsibility to another person for the care of a patient (Thompson et al., 2011). Appropriate clinical handover ensures patient safety and continuity of treatment (Malone et al., 2016). Effective communication at this nexus is critical. Use of the ISBAR handover instrument provides nursing students with a clear picture of a patient's clinical status and helps them to identify outstanding issues and tasks (Thompson et al., 2011). The acronym ISBAR stands for: **I**dentity of patient, **S**ituation, **B**ackground, **A**ssessment and action, **R**esponse and Rationale (Hohenhaus et al., 2006; Thompson et al., 2011) (Fig. 1).

Simulation techniques that train nursing students for clinical patient handover have proven to be effective when implemented in the senior year (Yu and Kang, 2017). Simulation is also a well-established method for training healthcare providers already working in hospital settings (Bost et al., 2012; Malfait et al., 2019). To the best of our knowledge, no other studies have examined the effectiveness of simulation training for clinical patient handover at early stages of undergraduate training, for example, in first-year nursing students prior to their first practical training in nursing-home settings. Our specific research question asks whether simulation training for clinical patient handover is beneficial also in early stages of the undergraduate nursing education. Therefore, the aim of our study was to evaluate the learning experiences that first-year nursing had following geriatric patient simulation and using the handover instrument ISBAR. We do this analysis by synthesising the experiences of students who have engaged in this type of training.

2. Method

2.1. Design and research approach

This is a qualitative descriptive study where university nursing students' comments about simulation learning were analysed using a manifest qualitative content analysis.

2.2. Setting and participants

The study was conducted in a large university in Norway having a student population of approximately 16,000 students. Participants were first-year nursing students. In Norway, full-time undergraduate nursing students complete their professional nursing training in three years and are qualified to work as nurses after graduating with their diploma.

2.3. Data collection

Data were collected over a period of 3 academic years (2012, 2015, and 2016). Participants' answers on and opinions about their first simulation-based training experience comprised the data. An anonymous and voluntary online web-based survey with structured and open-ended questions (Table 1) was used. In this manuscript, we are presenting the latest. The survey was created and distributed to students using the Learning Management System, Itslearning™ (itslearning.com/no). Itslearning™ is a digital online management software application for the administration, documentation, tracking, reporting, and delivery of educational courses, training programmes, or learning and development programmes. The survey was presented in Norwegian, one of the default languages for Itslearning™. For presentation purposes in the article, we translated survey questions and respondents' answers into English.

Before the study started a pilot testing was performed in 2011 where 185 first-year nursing students received an invitation to participate in a pilot study with the following topics: simulation training, geriatric patients' medical issues, and ISBAR as a clinical handover instrument. Several students volunteered to participate, but we only had enough trained facilitators to offer simulation to eight students. These eight students evaluated the simulation experience, which constituted the pilot study. Data from 2011 was not included in this study but the feedback given by these students and experiences collecting these data helped us refine and implement the simulation-based training in the

Table 1
Presentation of the Yes/No and Open-ended questions.

	Type of question	
	Yes/no	Open- ended question
Did you achieve positive learning outcomes following simulation training?	x	
If yes, which one was the best learning outcome during the simulation training?		x
If not, what has limited you in achieving positive learning outcomes during the simulation training?		x
Has simulation contributed to knowledge that you could use in your upcoming practical training, or later as a nurse?	x	
What has been helpful?		x
What kind of improvements could be made to the simulation?		x
• Are there any other areas that would be suitable for peer-learning activities?		x
• Any other comments?		x

nursing curriculum of first-year students beginning in 2012. Data were not collected in 2013 or in 2014 due to the nursing programme moving to a new university campus.

2.4. Simulation-based training procedure

Simulation training took place in a modern skills laboratory that was well known to the students. Students received simulation-based training after enrolling in the class module called, 'Nursing to Geriatric Patients'. This module comprises learning material that introduces students to geriatric nursing topics such as multimorbidity frailty, delirium, pain, nutrition, and palliative care. Before simulation-based training begins, students received information about the ISBAR (Thompson et al., 2011) handover instrument. The student must complete and pass the module 'Nursing to Geriatric Patients' before they can start their first practical training as nurse student in real-world nursing homes.

Nursing faculty members with extensive geriatric clinical experience and with training in simulation techniques created the learning scenarios and led the simulation-based training of students. Simulation scenarios addressed acute cases that students would likely encounter in nursing-home settings, such as complications related to chronic obstructive pulmonary disease, diabetes, fractures, heart disease, delirium, and stroke. For all scenarios, students systematically observed "patients" and practiced patient clinical handover using ISBAR.

Each student participated in four group simulation sessions. There were four members per group, with members playing the following roles: "patient", "nursing student", "assistant", and "observer". Learning goals for the scenarios were as follows: (1) to increase students' knowledge so that they could identify acute cases in nursing-home settings, and (2) to gain experience in the process of handing over patients to other healthcare providers (nurse or doctor) via ISBAR. Students received an initial patient report from a facilitator. If students requested additional information about the simulation scenarios, it was provided. Each simulation scenario took approximately 45 min to complete and they were practiced twice, followed by student debriefing. Examples of the simulation scenarios are provided in Appendix 1.

The web-based evaluation survey covering different aspects of the simulation experience was completed by the students after all scenarios were completed.

2.5. Data analysis

To analyse the students' written comments, an inductive, manifest qualitative content analysis (Elo and Kyngas, 2008) was performed. First, all the written comments were organised in a two-column spreadsheet, one column listing the individual comments and the other listing identified codes. Each comment was read several times to get a clear understanding of its content. Next, we performed open coding, in which data focusing on learning aspects of simulation were highlighted. Each comment could have several codes describing the content.

Using abstraction, codes that were similar were put together into subcategories; these were labelled according to their content. Similar subcategories were also abstracted into generic categories, producing four generic categories. These categories reflected aspects of the training that were learned when using simulation to achieve the learning goals. Number of codes for each generic category are presented in Table 2. One of the authors has extensive experience in using content analysis and was responsible for performing the analysis.

To enhance trustworthiness (Elo et al., 2014), all of the authors regularly and frequently discussed the analysis and categorisation processes. Preliminary findings were also presented to other local researchers and faculty members with knowledge in the area to get feedback.

Table 2
Number of codes for each category and year.

Generic Category	Year		
	2012	2015	2016
Embodying Theoretical Knowledge	42	56	69
Increasing Awareness About Self	8	9	17
Understanding the Need for Collaboration	23	17	32
Preparing for Future Work Life	18	34	68

2.6. Ethical considerations

As the study did not record identifiable personal data, either directly or indirectly, the Norwegian Centre for Research Data did not require a consent form. Students were informed about the nature of the study and answered our questions voluntary and anonymously. Even though it was explained that their responses could not be identified, the possibility that some participants felt compelled to participate in our study cannot be ruled out.

3. Results

This study shows results from evaluation of simulation training completed by first-year nursing students in 2012, 2015, and 2016. In total 568 students were eligible to be participants. By the end of 2016, 216 students (38%) completed the survey and contributed data for analysis. Since the survey was anonymous, demographic data of the participants have not been collected. There were 213 comments focusing on the learning aspects of using simulation to increase knowledge about acute scenarios in nursing-home settings and in the use of ISBAR. Five comments stated no learning occurred.

Content analysis of responses to the open-ended questions about simulation training revealed that first-year nursing students had four different kinds of learning experiences: (1) *embodying theoretical knowledge*; (2) *increased awareness about self and one's nursing skills*; (3) *better understanding of the need for collaboration*; (4) *preparing nursing students for their future work life*. These four generic categories will be explained further in the following sections, exemplified by participants' comments.

3.1. Embodying theoretical knowledge

Simulations enabled students to apply previously acquired theoretical knowledge, in general, and to practice geriatric nursing in a low-risk environment. Students' responses indicated that although the courses they had completed provided them with knowledge on diverse areas and nursing phenomena, simulation helped them to integrate this knowledge and apply it in a practical way under real-world conditions. Thus, participating in simulations deepened and increased their understanding of theoretical knowledge because simulations enabled the students to experience its transferability to practical skills. Students expressed the idea that after simulation training, knowledge became less detached and more relatable to the actual tasks nurses perform in geriatric settings. One student described the learning produced from simulation in the following way:

> 'It [theoretical knowledge] sits now in my head and has started to come down to my fingers.'

3.1.1. Student from year 2015

Learning only by reading books was sometimes described as difficult. Simulation helped students to understand more deeply and remember theoretical knowledge.

'I think it is easier to see the connection between all the theory we have had so far. It is a big difference between reading [about] something and doing it in practice'.

3.1.2. Student from year 2016

One way to consolidate knowledge is to repeat theory that was previously learned, while another way is to perform each simulation case twice. Undergoing simulation training a second time provided students with an opportunity to learn from their earlier mistakes. The simulations also allowed the students the time to reflect on their experience and to discuss it with other peers and teachers, and this reflection helped students to achieve a higher level of understanding. Discussion of simulation cases gave students the opportunity to think about what had happened, what had been done and why, and also a chance to improve both from a general perspective but also regarding certain moments.

'Very useful to go through ISBAR step-by-step when we were simulating and to get feedback about what we did well and about what can be improved.'

3.1.3. Student from year 2016

In summary, the first generic category characterised the learning experience as transforming geriatric theoretical knowledge into real-world application.

3.2. Increasing awareness about self

Participants explained that simulations helped them to be more aware of themselves as healthcare providers and of their strengths and weaknesses as nurses. It was described that nursing students sometimes are insecure about what to do in different situations where the simulation training can help them become more confident. Participants' also felt more secure when realizing that they had enough knowledge to manage acute situations, like those presented in the simulations. They felt that they would act appropriately if they encountered a similar scenario, either during their practical training or later as practicing nurses.

'I learned a lot about myself in acute and critical situations and where I, as a nurse [student] have to take responsibility for what is done. … I had a feeling of mastery, of security, and that I had nurtured experiences that will come in handy, if necessary, during training.'

3.2.1. Student from year 2016

Simulation training challenged students in a positive way and encouraged them to take responsibility for their learning, to search for necessary information, and to become more independent. Simulation also increased their motivation for additional studies.

'I have received better insight about both strengths and weaknesses within myself, so that I better know what to focus on in practice, and also as a person.'

3.2.2. Student from year 2012

However, it could also lead to insecurities and feelings of helplessness when realizing that one was having knowledge gaps in certain areas.

In summary, the second generic category characterised the learning experience as acquiring conscious knowledge of one's abilities and limitations in nursing.

3.3. Understanding the need for collaboration

Simulations also increased the students' understanding of and appreciation for teamwork when caring for older persons. Simulation exercises were designed in a way to encourage collaboration: A group of students had to work together to solve problems and deliver geriatric care.

'I learned [how] to create [an environment] of collaboration in which one can come up with as much knowledge as possible.'

3.3.1. Student from year 2012

During simulation, the students better realised the value of teamwork and collaboration among healthcare providers. They also learned how to offer good patient care when playing different roles. Students experienced the sharing and interchange of knowledge—their own and their peers'—to be highly valuable.

'Learned to create collaboration so that one can get the most knowledge together.'

3.3.2. Student from year 2012

Simulations stimulate communication. In their comments, students highlighted the importance of exchanging accurate information when working with different healthcare providers and using ISBAR was found effective. Handing over patients to others and using ISBAR as an instrument helped students to be aware of the importance of communicating concrete facts in a structured way to their colleagues.

'I am now aware of what [kind] of information I am going to give to other healthcare providers, and that [this information] has to be as accurate as possible.'

3.3.3. Student from year 2015

In summary, the third generic category characterised the learning experience as understanding that teamwork, collaboration, and good communication are required in caring for geriatric patients.

3.4. Preparing for future work life

Students expressed how simulation training was a helpful experience and that gave them the knowledge needed to become competent and skilled nurses. Most of the students commented that simulation prepared them to meet patients for the first time and gave them a glimpse of what the working life of nurses is like. This is because the students found the settings to be genuine and the simulation cases to be realistic, in that the simulations mimicked the types of situations that could actually take place when caring for geriatric patients. One student wrote:

'I experienced a situation similar to the one we simulated, barely some days after the simulation [exercise].'

3.4.1. Student from year 2015

Some students thought that they learned more from the simulations than from the practical training they received in the clinic, and that simulations offered them the opportunity to learn how to manage and respond to stressful situations and to become familiar with specific practical skills. Another benefit noted by students was that simulation gave them a 'safe' environment to acquire clinical skills without harming 'real' patients. In this situation, it was ok for them to fail and learn from their mistakes, unlike in real-world situations where errors and failure can lead to adverse outcomes. These experiences lead students to feel safer and more secure as they cared for geriatric patients.

'It is very educative to participate in this kind of training, and I really appreciate that we get the opportunity to try ourselves in a safe

environment before a similar situation can arise in everyday life. I think it is good to be safer on the procedures and already feels that I would have been more confident about breaking into situations where my help might be needed'.

3.4.2. Student from year 2015

In summary, the fourth generic category characterised the learning experience as acquiring the practical experience and skills needed to successfully carry out their future nursing duties in caring for geriatric patients.

4. Discussion

The aim of the present exploratory study was to produce a synthesis of the learning experiences first-year undergraduate nursing students had following clinical patient simulation training in a geriatric setting and using the ISBAR handover instrument. In doing the content analysis of participants' reported experiences, our larger goal was to identify areas in which the simulation training was effective and areas where it could be improved, better preparing future student nurses for their first meeting of geriatric patients in practical training. Our results show that simulation and the use of ISBAR are valuable instruments, suitable for introducing novice nursing students to complex clinical cases, such as those present in nursing homes. By using manifest qualitative content analysis (Elo and Kyngas, 2008; Elo et al., 2014), we revealed that simulation is an appropriate teaching methods to enhance educative conceptual change (Biggs, 2012; Biggs and Tang, 2009), and critical manifestation of real learning (Biggs, 2012).

The challenging nature of caring for geriatric patients demands that healthcare providers are able to identify and manage complex cases. This point is key in achieving WHO's goal to ensure a sustainable and appropriately trained healthcare workforce able to deliver care to older patients. WHO recognises the need to provide basic training on geriatrics and gerontological issues during preservice training and in continuing professional education (WHO, 2015).

Institutions of higher education providing nursing degrees can benefit from implementing training strategies that promote a deep approach to learning. Our results on training first-year nursing students with simulation cases represents such a strategy. After simulation training, novice nursing students understood how earlier-acquired theoretical knowledge and use of ISBAR could be used in a practical way; acquired increased awareness about themselves and abilities; understood that collaboration was needed in caring for geriatric patients; and felt more prepared for future work life in caring for geriatric patients. First-year nursing students' acquisition of the conceptual change captured in these generic categories is in harmony with the goal of WHO to provide appropriate healthcare that an increasingly older society needs (WHO, 2015).

Our results support the findings from other studies. For instance, a review aiming to evaluate and synthesise research findings regarding evaluation of simulation in undergraduate nurse education revealed that students usually were satisfied with simulation and that simulation lead to confidence/self-efficacy, increased skills/knowledge, and interdisciplinary experiences, but also feelings like anxiety and stress (Foronda et al., 2013). Here, it was found that students felt secured when realizing that they could manage the simulation, but the lack of knowledge could lead to insecurity. An interesting result from our study was that this could result in increased motivation for learning more which makes simulation valuable already early in the nursing program. Both this and other studies have also shown that simulations help students to strengthen the link between theoretical knowledge and clinical practice (Joseph et al., 2012; Reime et al., 2016). In our implementation of the simulation strategy, the debriefing that followed each simulation session also gave experienced nurses (i.e., teaching staff) the opportunity to provide additional knowledge and almost-immediate feedback to students. Rapid feedback increases the probability of achieving an appropriate learning activity (Gibbs and Simpson, 2004). Even though the benefits are known, simulation training has been primarily used at later stages of educational training programmes for both nursing and medical students (Johnson et al., 2012; Reime et al., 2017; Yu and Kang, 2017). Our positive results on early-stage training with simulation cases suggest that novice nursing students can also benefit and achieve conceptual change at an early stage of their nursing education. It is likely that this early training and deep learning will help them to be better prepared when they meet their first geriatric case. This is in harmony with the goal of providing appropriate care that an increasingly older society needs and the responsibility of healthcare education institutions in familiarising their students with geriatric patients early on their training. For example, an observation study about using simulation to teach nursing students how to prevent falls of older persons revealed that students often had knowledge on falls and gave good advice (Silén-Lipponen et al., 2018). However, the older persons autonomy and ability to make own decision, which is essential in good nursing practise, were sometimes overlooked (Silén-Lipponen et al., 2018). To acknowledge and help nursing students improve their skills about communication and decision-making requires practical experiences. Simulation facilitates the possibility to practise such skills already in the beginning of the education.

Early simulation training prepares nursing students in other ways too. Due to their lack of experience, nursing students may fear encountering unfamiliar clinical situations, and making mistakes (Pulido-Martos et al., 2012). They may also doubt the quality of their clinical education and their preparation to join the workforce as nurses (Milton-Wildey et al., 2014). These fears and doubts could have a negative impact on students' confidence in applying their theoretical knowledge in real-world clinical situations. Our study shows that simulation training and ISBAR practice helps nursing students to boost their confidence, preparing them better for their first face-to-face encounters with geriatric patients.

On the other hand, the complexity of geriatric health issues might also fail to be captured by simulation, as it is common for many geriatric patients to be frail, have multiple comorbidities, and take numerous medications. Thus, it is not always possible to simulate the myriads of possible scenarios nursing students will likely encounter with geriatric patients. Even though our students are academically well prepared, they still might react adversely to the overwhelming healthcare needs of some geriatric patients, even with some simulation training. This is where knowing when to hand over patients to more skilled healthcare providers is critical (Ascano-Martin, 2008; Thompson et al., 2011; Woodhall et al., 2007). ISBAR reduces nursing students' anxiety in cases requiring them to prepare handover reports (Kostiuk, 2015). In our study, simulation practice with ISBAR helped students to recognise its value.

Appropriate healthcare of older patients involves using a multidimensional and interdisciplinary approach (Braude et al., 2015). Novice nursing students are not always aware that working with other healthcare professionals can be beneficial. Simulation training and practice with ISBAR enhances the development of collaborative working patterns and effective communication among healthcare providers. This kind of engagement also helps novice nursing students to acquire a deeper understanding of complex clinical phenomena and to learn how to solve various challenges they may encounter in the clinic. Although the development of realistic clinical cases for simulation training is time-consuming, its benefits are demonstrated. The early implementation of simulation training in nursing programmes can lead to benefits for older patients in the long term. As simulation increases positive attitudes of students towards interdisciplinary practice (Joseph et al., 2012; Labrague, 2018), they will more likely seek the advice of other healthcare professionals as they care for geriatric patients. Our study shows that, early on in their studies, nursing students do benefit when they become aware of the importance of interdisciplinary collaboration when providing healthcare to older patients.

While our study demonstrated the utility and benefit of simulation training for novice nursing students in promoting deep learning and developing practical skills for geriatric nursing, there were several limitations. First, only 38% of eligible first-year nursing students participated answering the survey. This response rate may suggest the possibility that selection bias was present, especially if the students who took the survey were those who already had some positive experiences and were thus motivated to participate. This response rate is not unusual, as comparable rates have been reported in studies employing web-based surveys designed for students (Lefever et al., 2007; Shih and Xitao, 2008). Second, we did not send follow-up reminders to non-responding students; this effort could have increased the response rate (Shih and Xitao, 2008). Third, we lack demographic information regarding participating students. However, as our study was anonymous and because we are following guidelines from The Norwegian Centre for Research Data, it is not possible to retrieve any demographic data linked to these students. At last, our results are based on data collected from a single educational centre. Even though our university is one of the largest institutions of higher education in Norway, we cannot rule out the possibility that students in other educational centres may have responded differently to the simulation training and may have reported different advantages and disadvantages. Therefore, our results must be interpreted with caution and may not be generalisable to different contexts.

We used both structured questions with fixed answers and open-ended questions, which enabled students to give written, free-text comments. Analysis of these qualitative data achieved deeper insight into the students' experiences with clinical patient simulations. This design and analysis revealed that participants themselves believed simulation was beneficial, a finding that may have been masked by using solely a structured format (Riiskjær et al., 2012). The strategy of using open-ended questions has been used previously to assess the competence of nursing students participating in medication administration simulations and to evaluate the perception of nursing student towards peer learning (Milton-Wildey et al., 2014; Stenberg and Carlson, 2015). Content analysis is also a good method for analysing such information (Rich et al., 2013).

The open-ended questions sought to determine how the students thought simulation training affected their learning. Although five participants indicated that they did not learn much, the majority of the participants wrote positive descriptions of the simulations and use of ISBAR. Shortcomings were also highlighted about the way the simulation was conducted, and suggestions were offered for improvements. Although these comments were excluded from our analysis because they did not actually answer the research questions, they provided important information for fine-tuning the simulations. As our study focuses on first-year nursing students learning experiences following geriatric patient simulation, future studies could aim to explore how nursing-home settings, perceive these students' clinical skills and knowledge when meeting complex geriatric cases in their clinical practice.

5. Conclusions

A sustainable and appropriately trained healthcare workforce is necessary for delivering care to an increasingly larger population of older patients (WHO, 2015). To effectively train future healthcare providers, educational activities that lead to a higher cognitive level of understanding and problem-solving in students are needed. Here, first-year nursing students reported that simulation training and ISBAR are valuable teaching methods, ones they believed prepared them well for their first clinical training with geriatric patients. Use of real-world simulation cases and practice on the use of handover instruments are effective methods that promote conceptual changes in novice nursing students and prepare them for their first encounter with complex, real-world geriatric scenarios.

CRediT authorship contribution statement

Wenche Mjanger Eide: Data curation, Writing - original draft. **Linda Johansson:** Data curation, Writing - original draft. **Leslie SP. Eide:** Data curation, Writing - original draft.

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Appendix 1. Example of simulation scenario

Scenario - Clinical problem	Expected actions
A 75 years-old male with history of chronic obstructive pulmonary disease (COPD) and several other comorbidities. Sudden exacerbation of COPD with dyspnea and productive cough. The patient uses accessory muscles to breath and look distressed. *Vital signs*: Initial respiratory rate 20 per minute, increases to 28. Heart rate = 100 per minute. Blood pressure = 140/90. Temperature = 37.2 °C.	Perform ABCDE. Call for help. Perform ISBAR.

ABCDE = Airways, Breathing, Circulation, Disability, Exposure. ISBAR = Identity of patient, Situation, Background, Assessment and action, Response and Rationale.

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