



Sleep as a topic in nursing education programs? A mixed method study of syllabuses and nursing students' perceptions



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ABSTRACT

Background: Sleep is a basic human need and is considered important for maintaining health. It is even more important during illness due to its impact for example on our immune system. Nurses have an important role in identifying sleep deprivation. They are also in a unique position to promote and address sleep among patients. However, it is essential that they are provided with the appropriate knowledge during training.

Aim: To explore and describe nursing students' perceptions of preparedness to address and support patients' sleep during hospitalization and to apply sleep-promoting interventions in a clinical context. Furthermore, the aim was to investigate if, and how, the topic of sleep is explicitly incorporated in nursing education programs.

Design: A descriptive study based on a mixed method approach.

Methods: Quantitative and qualitative data were collected from program and course syllabuses and intended learning outcomes from three universities. Twenty-one nursing students from the same universities were interviewed during their final year of education.

Results: The results of both quantitative and qualitative data consistently show that education regarding sleep and patients' sleep is limited and, in some respects, absent in the Bachelor of Science Nursing programs investigated.

Conclusion: This study indicates that education about sleep and patients' sleep in the nursing programs studied is insufficient and limited. This gap in knowledge may lead to prospective registered nurses using their own experiences instead of evidence-based knowledge when assessing, supporting and applying sleep-promoting interventions.

1. Introduction

The focus of this study is nursing students' perceptions of preparedness to address and support patients' sleep during hospitalization and to explore how the topic of sleep is incorporated in nursing education programs.

Sleep in hospital has been described as a stressor for many patients, and several studies have shown that sleep disturbances, sleep disruption and reduced sleep quality are common among patients (Gellerstedt et al., 2014; Lane and East, 2008; Tranmer et al., 2003; Hultman et al., 2012). Sleep is a basic human need and is considered important for maintaining health (Ganz, 2012; Redeker and Phillips-McEnany, 2011). It is even more important during illness or injury, based on its impact

on, for example, our immune system (Ganz, 2012) and inflammatory processes (Meier-Ewert et al., 2004).

2. Background

Normal sleep proceeds cyclically between two different states, Non-rapid eye movement sleep (NREM) and Rapid eye movement sleep (REM). These two distinctive and different stages of sleep proceed through the night in cycles of approximately 90 min per cycle. During normal nocturnal sleep, the cycles occur three to six times per night, assuming a biological need for about 8 h sleep (Hirshkowitz et al., 2015). The regulation of sleep is governed by several factors and processes. The two most prominent are the circadian rhythm and the

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homeostatic process (Roth, 2004; Morris et al., 2012). Sleep disturbances (Dobing et al., 2016; Wesselius et al., 2018), sleep disruption (Humphries, 2008; Buxton et al., 2012) and reduced sleep quality (Delaney et al., 2018) are common among hospitalized patients.

Sleep plays a critical role in memory regulation processes (Walker, 2008) and is essential to the learning and initial encoding of certain memories (Mogross et al., 2009; Orzel-Gryglewska, 2010). Sleep has also an impact on logical reasoning, the ability to retain new information and decision making (Rasch and Born, 2013). This may have an impact on patients' ability to actively participate in their care and, for example, the performance of self-care. Furthermore, inflammatory processes are associated with reduced sleep and sleep deprivation (Lange et al., 2010; Mullington et al., 2010). Sleep duration and experienced sleep quality regarding night-time sleep have been reported as being significantly worse in patients during care in hospital compared to sleep at home (Dobing et al., 2016; Wesselius et al., 2018). Different types of factors affect patients' sleep during hospitalization, such as light, sound and nursing interventions (Buxton et al., 2012; Bihari et al., 2012; Ding et al., 2017; Yilmaz et al., 2012) and these can be divided into three main categories: psychological, environmental, and physical and pathophysiological factors (Zhang et al., 2013). This knowledge emphasizes the importance of sleep in connection with disease and physical injuries for hospitalized patients.

Promoting sleep during hospital care is an important intervention for the nursing profession. Nurses have both the authority and responsibility to support patients' sleep, by questioning and reducing the amount of nursing assessment during the night if possible (Lee et al., 2004; Ye et al., 2013; Castledine, 2010). Nurses have an important role in promoting an environment that enables patients to sleep (Redeker and Phillips-McEnany, 2011; Pellatt, 2007; Ye and Smith, 2015) and are in unique position to contribute to enhanced sleep and health promotion for patients (Lee et al., 2004). Loss of sleep places the patients at risk for adverse health outcomes (Pilkington, 2013). Examples of health-related risks that sleep deprivation may entail are increased risk of fall (Stone et al., 2008), negative impact on cardio-metabolism (Arora et al., 2011) and increased risk of delirium (Pilkington, 2013). Sleep deprivation and disturbance among hospitalized patients should be a concern for health care professionals. Necessary changes need to be implemented on hospital wards (Lee et al., 2004; Castledine, 2010; Pilkington, 2013).

To identify, initiate and perform nursing interventions regarding sleep, the nurse needs basic knowledge about sleep physiology. In their clinical work, nurses play a crucial role in initiating and implementing interventions that can promote and strengthen patients' sleep and sleep quality (Pellatt, 2007; Pilkington, 2013; Huang et al., 2018). Ye et al. (2013) describe limited understanding of the importance of sleep during hospital care and lack of education regarding identifying sleep problems and assessment of sleep as obstacles in order to address patients' sleep more effectively. These obstacles are confirmed by clinically active nurses who stated that they lacked, or had only received limited, education in this field (Gellerstedt et al., 2015; Radtke et al., 2014). Studies by Huang et al. (2018) and McIntosh and MacMillan (2009) reveal that the topic sleep needs to be further integrated in investigated nursing educations. McIntosh and MacMillan (McIntosh and MacMillan, 2009) describe that the students lacked knowledge about sleep physiology and that they did not feel prepared about the topic sleep by their educational programs. Sleep and sleep-promotion is important for the nursing profession regardless of the type of patient population. Improvements in education and extended knowledge in this field could contribute to health promotion (Lee et al., 2004). It is therefore important to explore and describe nursing students' perceptions of preparedness to address and support patients' sleep during hospitalization and to examine if, and how, the topic of sleep is explicitly incorporated in nursing education programs.

3. Method

3.1. Aim

To explore and describe nursing students' perceptions of preparedness to address and support patients' sleep during hospitalization and to apply sleep-promoting interventions in a clinical context. Furthermore, the aim was to investigate if, and how, the topic of sleep is explicitly incorporated in nursing education programs.

3.2. Methods

A descriptive study using a mixed method approach was conducted (Sandelowski, 2000; Sandelowski et al., 2012; Halcomb and Hickman, 2015). Qualitative data were obtained through individual interviews with nursing students during their final year of education in nursing programs. Quantitative data were obtained from program and course syllabuses and intended learning outcomes as well as through structured questions during the interviews. Four universities, in a metropolitan area in Sweden, offering a Bachelor of Science in Nursing, were approached and the request was made to the principal or the head of department. Three of the four chose to participate and gave permission to conduct the study. In Sweden, the Swedish government establishes the regulations for nurse education. All nursing programs are of three years' duration and correspond to 180 credits in the European Credit Transfer System, leading to a bachelor's degree. The universities in Sweden can design programs in various ways but are required to follow national regulations.

Information about the study and an invitation to participate in an individual interview were sent through the university's web-based platforms to approximately 640 students at the three universities during their final year of education. The students were enrolled through convenience sampling and the students announced their interest to participate by sending an e-mail to the first author. Thereafter, a date, time and place for an interview were booked.

3.3. Data collection

Program and course syllabuses and intended learning outcomes were obtained from the three included universities. A total of 21 interviews were conducted with students in their final year of education at the three universities (The interviews were distributed as follows: 9 at university no.1, 8 at university no. 2 and 4 at university no. 3). The interviews were conducted in an undisturbed place at the universities or at the university library (19 of the interviews were conducted face-to-face and two through FaceTime). Written informed consent was obtained prior to the interview (for the two interviews conducted through FaceTime, a verbal informed consent was given). These informants then sent their written consent to the first author). The semi-structured interviews were based on a predefined interview guide that had been developed by the research group. It consisted of a total of eleven questions, five of these were structured questions such as, "Have there been lectures specifically about sleep during the course?" and "Have there been questions about sleep in exams?" and were answered with response alternatives yes, no, do not know. Non-structured questions were also included, such as "Based on what you have experienced during your clinical placement, how do you perceive that healthcare addresses patients' sleep" and "How do you perceive yourself to be prepared to address and support patients' sleep". The pre-defined guide was tested face-to-face by one lecturer in nursing sciences and one registered nurse, to check comprehensibility regarding the questions' phrasing and content. All interviews were conducted and audio-recorded by the first author. Two pilot interviews were conducted, and these interviews addressed the aim of the study and were included in the analysis. The pilot interviews did not lead to any revisions of the interview guide. 18 students identified as female and 3 as male. With

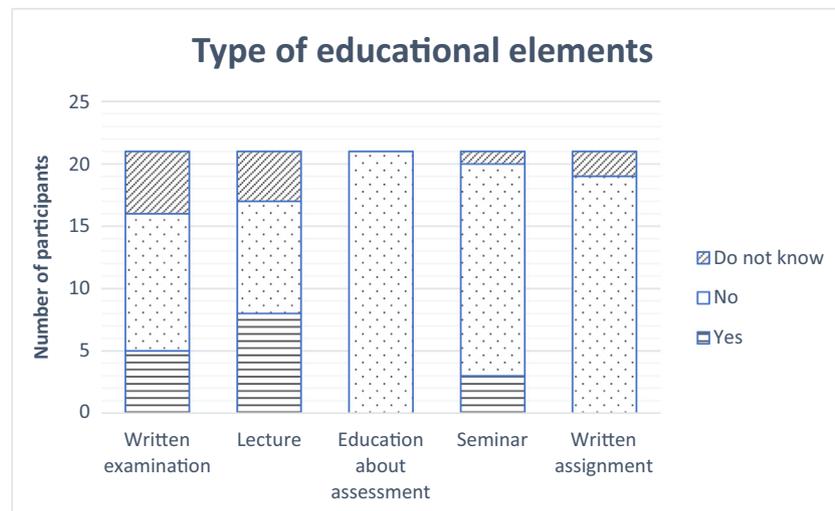


Fig. 1. Description of answers from the structured questions during the interview about education and sleep, (n=21).

regard to the distribution between fifth and sixth term, 11 of the 21 informants were students in fifth term. The length of the interviews ranged from 17 to 37 min, with a mean time of 25 min.

3.4. Data analysis

3.4.1. Data analysis - quantitative data

The program and course syllabuses, as well as intended learning outcomes, obtained from the three universities were read word for word and scanned for the pre-set word, sleep. When it appeared, the word 'sleep' was highlighted, and a mark was made to indicate whether the word had been found in a program, course syllabus or in the intended learning outcomes. This analysis was completed by two of the authors. The five structured questions in the individual interviews (n = 21) were analysed, based on 'yes', 'no' and 'do not know' responses (Fig. 1).

3.4.2. Data analysis - qualitative data

All interviews were transcribed verbatim shortly after the interviews. The interviews were transcribed by the first author and by an independent person not working at the university. All transcribed text was checked against the recording to ensure that no words were absent. The qualitative data were analysed by qualitative content analysis with a manifest approach as described by Krippendorf (2013). The analysis process followed Graneheim and Lundman (2004) and Graneheim et al. (2017). Collected data were considered as rich, and the answers in the interviews were explicit. The analysis was conducted with the aim of keeping as close as possible to the manifest content of the text (Krippendorf, 2013). The analysis process was initiated by reading the text repeatedly to gain a comprehensive understanding of the meaning and to capture emerging patterns. Throughout this process, notes and reflections were made in the margin. Subsequently, the text was read to identify meaning units that captured and addressed the aim of the study. Identified and established meaning units were coded, and all codes were compared to identify similarities and differences. The codes were then grouped into preliminary sub-categories and, finally, into three formulated categories (Table I).

The research group's preconceptions regarding the subject varied. The first author is RN and lectures regularly about the topic sleep. The others in the research group are well acquainted with the topic and have extensive clinical experience and scientific education. Due to this, during the first step in the analysis process, the interviews were first read separately by all the authors and then the content of the interviews was discussed in the group. Thereafter, the first author identified

meaning-units, coded the data and formulated preliminary sub-categories. Subsequently, the analysis was compared and discussed with the other authors. Each step of the analysis process was characterized by repetitive verification and flexibility. Discussions were held until consensus was reached within the research group to improve credibility.

4. Findings/results

All program and course syllabuses as well as intended learning outcomes from the three included universities were analysed. In the program and course syllabuses, the word sleep was not found in any of the three nursing programs. The word sleep occurred three times in two learning outcomes at one of the three universities.

During the interviews, we asked enrolled students if they had had examinations, lectures, seminars and assignments in which sleep had a prominent place. Five of the students replied that it had been in an exam, eleven answered no and five did not remember. Regarding lectures in the topic, eight responded yes, nine no and four did not remember. Concerning seminars about sleep, three answered yes, seventeen said no and one did not remember. During the interviews, the students were also asked if they had had a lecture or received any other kind of education about assessment and self-assessment scales that could be used in health care to evaluate sleep. All responded that they had not received such knowledge. None of the respondents had had an assignment about sleep during their education (Fig. 1).

The findings from the individual interviews comprise three categories and six underlying sub-categories describing nursing students' perceptions about their education, knowledge acquisition regarding sleep and preparedness to address and support patients' sleep and sleep-promoting interventions (Table II). Quotes from the individual interviews are presented beneath each sub-category to shed light on the reported experiences.

5. Education and acquisition of knowledge during nursing education program (category 1)

This category describes nursing students' perceptions of how the topic of sleep was incorporated within their education, and a description of their knowledge, knowledge acquisition and their questioning of using their own experiences as knowledge in a clinical context.

Table I
Examples from the qualitative analysis process.

Interview text/meaning unit	Code	Sub-category	Category
“We have not talked about sleep during the program, I cannot say I know any nursing intervention regarding sleep at all.”	Perceptions about education	Nursing students' perceptions about education regarding sleep and patients' sleep	Education and acquisition of knowledge during nursing education program
“I have things about sleep that I can talk about, things I've obtained by myself, but it's not really right, you should not use experience as knowledge.”	Criticism about knowledge	Descriptions of knowledge levels and knowledge acquisition, as well as critical views	
“I will seek knowledge through a reliable source, such as a scientific journal or by searching a scientific database.”	Knowledge acquisition	Descriptions of knowledge levels and knowledge acquisition, as well as critical views	

5.1. Nursing students' perceptions about education regarding sleep and patients' sleep (sub-category 1)

The students' answers and descriptions gave a coherent picture that sleep, and patients' sleep are not highlighted during the programs. Only one of three programs offered a lecture specifically about sleep during the three years of education, but the topic was not addressed again during the program. The students considered sleep to be a basic need and that it should be treated in the same way as, for example, pain, wounds and nutrition. The latter areas were handled in a different way to sleep, i.e. these areas were presented several times during the program and students were obliged to increase their knowledge of these subjects.

“Nothing at all, I do not think that I have seen or heard the word sleep anywhere in the course. I don't think I've seen the word sleep in any learning goals or in a syllabus. It's a good idea to say that sleep is important, it's roughly like that, but I cannot remember that you've got any kind of education about it.”

During their clinical training the students realized that sleep is an area that affects the health and well-being of inpatients. They were therefore disappointed that the topic was not included in their training. They wanted to consider various aspects, e.g. sleep physiology, pharmacology and nursing interventions.

“We have not talked about sleep during the program, I cannot say I know any nursing interventions regarding sleep at all.”

Most students described that the topic of sleep could not to be found in the course plan, syllabuses or in learning outcomes in the nursing programs. It appeared that sleep was mentioned as an important area, only in passing, in other contexts but it was not focussed upon.

5.2. Descriptions of knowledge levels and knowledge acquisition, as well as critical views (sub-category 2)

The students described how they, or close relatives had experienced sleep problems, and this was their sole source of knowledge about sleep. They reported how sleep deprivation had affected their own health and how they had tried out different self-help methods to improve their sleep. They described how these experiences had become part of their knowledge about sleep; a level of knowledge described by the majority

Table II
Descriptions of the findings with categories (n = 3) and sub-categories (n = 6).

No	Category	Sub-category
1	Education and acquisition of knowledge during nursing education program	- Nursing students' perceptions about education regarding sleep and patients' sleep - Descriptions of knowledge levels and knowledge acquisition, as well as critical views
2	Perceptions of how patients' sleep is addressed in health care	- Nursing students' perceptions about patients' sleep
3	Nursing students' preparedness to address the topic patients' sleep and sleep promotion	- Nursing care regarding patients' sleep is subordinated and controlled by routines - Descriptions of preparedness - Planned strategies to address and support patients' sleep

as inadequate and shallow.

“Most of the knowledge about sleep I've picked up by myself, a kind of private knowledge, as I've read different health and training magazines, they usually highlight sleep. When I've been a patient myself, you've got some experience and that experience becomes a kind of knowledge.”

Research methodology and the critical examination of research findings are included in nursing education, and the study shows that the students understood the importance of using scientific and reliable sources. They described searching through databases, such as PubMed and Cinahl, to expand their knowledge about sleep.

Students in the nursing programs, were aware that interventions used in health care should be based on scientific evidence and their use of their own experiences as knowledge did not feel satisfying.

6. Perceptions of how patients' sleep is addressed in health care (category 2)

This category includes how nursing students perceived patients' sleep during their clinical training in several different hospital settings, and descriptions of how they perceived health care organizations address issue of patients' sleep.

6.1. Nursing students' perceptions about patients' sleep (sub-category 1)

The interviews highlight and reveal nursing students' perceptions and experiences regarding patients' sleep in hospital. The majority reported that patients' sleep is affected by various factors. They felt generally that patients' sleep in hospital care is insufficient, regarding both quantity and quality. They provided descriptions of how sleep is adversely affected by multi-bed rooms, and patients being disturbed by other patients, and care staff failing to coordinate their interventions and responsibilities. Most students described that they were surprised by the extent to which patients' sleep was impaired during hospital care.

“The patients' sleep is generally very bad, they are very often in rooms with several beds, they are disturbed by other patients and they have nurses and doctors who run in and out of the room and they do not coordinate their interventions.”

The results imply a major contrast between somatic and psychiatric

care regarding patients' sleep. The students noted that in somatic care, the area of sleep is completely forgotten or given low priority whereas in psychiatry, patients' sleep is highlighted as an important part of the healing process and promotion of health.

“Within psychiatry, patients' sleep seems to be important but not in somatic care, it's just like it's completely forgotten.”

Since the students had been working clinically at several departments and clinics during their training, they had a broad and comprehensive picture. They gave examples of patients having asked in desperation to be discharged because of insufficient sleep during their hospital stay.

6.2. Nursing care regarding patients' sleep is subordinated and controlled by routines (sub-category 2)

The study shows that the nursing students were aware of the importance of sleep and they considered promotion of sleep as synonymous with health promotion. In their description of patients' sleep from their clinical placements most students expressed the view that it was not given priority and that lack of time was one explanation. However, they conveyed that health care staff do not appear to be interested in the topic of sleep or how sleep deprivation affects the patient's entire situation. The students observed that care is managed and performed according to routines and that the possibility for individual solutions is very limited.

“Everything seems to be handled according to routine, I thought about this during my practical training - I thought it was strange to go in and wake someone who was sleeping, but I was told that they have to have their morning medicine now and we will never get through the day at all if everyone was left to sleep. The supervisor said that patients cannot sleep during the medical round...”

Furthermore, although nursing care documentation described patients' sleep problems there were no indications that these were followed up or evaluated.

The results show a coherent view of how patients' sleep problems are handled through very limited interventions. Most students stated that handing out sleeping pills appeared to be the only sleep promoting intervention used. One student said:

“On the wards, you do not work with sleep, if someone complains, they have received sleeping pills, but in addition to tablets, I cannot say that it is something that you work with or focus on.”

7. Nursing students' preparedness to address the topic of patients' sleep and sleep promotion (category 3)

Category 3 includes nursing students' perceptions about their preparedness for working in the field, and their descriptions of planned strategies to work with patients' sleep.

7.1. Descriptions of preparedness (sub-category 1)

Nursing students in the study described themselves as being equipped to work with sleep and patients' sleep in the clinic to varying degrees. Most described themselves as quite prepared as they had their own experiences of disturbed sleep and sleep problems. During the interviews, it became apparent that they would like to know more and gain a deeper understanding of the area to increase their preparedness. Some students felt unprepared and expressed concern about how to manage patients' sleep in their future work as registered nurses.

“I feel that I do not have enough knowledge to be able to provide good and safe care regarding the area of sleep.”

The results show that most perceived themselves to have as much,

or as little, knowledge as a layperson regarding the area of sleep and believed that this contributed to the feeling of being ill-prepared. Furthermore, the students compared their own knowledge with that of registered nurses they met during their clinical practice; they often found their own level of knowledge and preparedness to be at least as good.

“Reasonably prepared considering what I've seen amongst registered nurses on the ward and how they work with it; then I feel that my skills are good enough, compared to theirs.”

In the interviews, the majority stated that they were prepared to the point that they would be able to ask experienced colleagues and managers on the ward if and when problems arise.

“I feel safe to start working with patients' sleep, knowing that there will be competent colleagues you can turn to and that can answer your questions. And then you can always read the national guidelines and local clinical directives about sleep and sleep-promoting interventions.”

7.2. Planned strategies to address and support patients' sleep (sub-category 2)

Most participants described how they planned to work with sleep and patients' sleep based on a person-centred approach. They highlighted and described the importance of seeing the needs of the individual as a point of departure and said they intended to be flexible and not get caught up in routines that may be controlling. During the interviews, it became clear that their strategy was to ask open questions and plan interventions based on the patient's situation.

“I hope that by being responsive and very willing to listen to the patient's wishes I can do a good job. I plan to work actively in this way and in a good way with patient sleep on this basis.”

Furthermore, the results show that most students in the study intended to use their own experiences in the field, for example, what worked for them when they experienced sleep disturbance and disruptive sleep. They did not consider this to be the correct approach but expressed a degree of resignation. They reasoned that as sleep was not included in their training their only option was to refer to their own experiences.

“I will use what I have learned privately, through my own experiences, yes, what are you supposed to do when you haven't had any input during training?”

Nursing students reported that, due to a lack of education in the field of sleep, their strategies as registered nurses would be at odds with how they really wanted to work. They expressed frustration about having to settle for the status quo when they wanted to do the right thing.

“Because I do not know anything about sleep, I can give a sleeping tablet, it will be my solution, but it does not feel okay or good ...”

8. Ethical considerations

The study was conducted according to the principles of The Helsinki Declaration (Anon., 2014). All informants received information about the research, and signed informed consent was obtained. The results are presented at group level, thus quotes from the interviews were handled confidentially. The study was approved by the Regional Ethical Review Board (Dnr: 2012/846-31/2, 2018/396-32, 2018/896-32).

9. Discussion

The results of this mixed method study show that education regarding the topics, sleep and patients' sleep is limited and, in some

respects, completely absent in the nursing programs studied here. The analysis of both quantitative and qualitative data consistently shows a clear correlation between the syllabus and the students' perceptions. To the best of our knowledge, this study is the first in a Swedish context to address this issue and the findings may contribute to an extended knowledge and understanding in the field.

Our results are confirmed by two similar studies with other aims and different designs. The descriptions of nursing students' knowledge regarding sleep, in McIntosh and MacMillan's study (McIntosh and MacMillan, 2009) are in accordance with our results. They showed that most students felt that they needed more knowledge instead of relying on their own experiences. Unfortunately, not much has happened or been improved in the area for almost ten years. The World Health Organization [WHO] states that sleeping problems should be considered as a threat to public health. Sleep and patients sleep should be included, and given priority, in nursing education to a higher degree than it currently receives (Ye and Smith, 2015).

Several studies (Gellerstedt et al., 2014; Lane and East, 2008; Tranmer et al., 2003; Hultman et al., 2012) show that patients' sleep is negatively affected by hospital care and it is not only physical factors such as a healthcare environment that affect sleep. Radtke et al. (2014) and Gellerstedt et al. (2015) both show that nurses consider sleep to be an important topic but that they have difficulty suggesting evidence-based sleep-promoting interventions. Pilkington (2013) identifies several areas where patients' impaired sleep has consequences, and the present study raises a central question, i.e. How can nurses be expected to work actively with patients' sleep and sleep-promoting interventions when they only receive limited education in the field?

Since these nursing students have been in clinical training for many weeks and in many different departments, they have a picture of how patients' sleep is managed during hospitalization. They described that nursing interventions concerning patients' sleep were limited and the students thought that this was due to lack of time and insufficient knowledge.

They reported that the topic of sleep had not been addressed during their education or, at best, only mentioned in passing. The students who had attended a lecture specifically about sleep were satisfied but noted that there was no focus on developing their knowledge in the field during training. Students' perceptions, answers to quantitative questions during the interviews, and their views on how their training has addressed sleep and patient sleep are not surprising when examining programs and syllabuses as well as intended learning outcomes. As sleep is not found more than three times in two learning outcomes at three universities, one cannot expect the students to address the topic to any great extent.

One positive finding from the present study is that the nursing students have an ambition and willingness to adopt a person-centred approach. Some of the results must be considered worrying because most interviewed students have confidence in their colleagues at the workplace where they start working and an expectation that they will be able to ask questions about sleep. However, studies (Huang et al., 2018; Radtke et al., 2014) show that clinically active nurses generally do not have adequate knowledge about sleep, and that in many departments there is an absence of strategies or guidelines for how to address patients' sleep. It is extremely likely that future nurses will not have anyone to consult regarding sleep-promoting interventions.

10. Conclusion

This study indicates that education about sleep and patients' sleep is insufficient in the nursing programs studied. This may have the consequence that these future nurses use their own experiences instead of evidence-based knowledge in the field. Since patients' sleep is an important topic during hospitalization, and sleep loss has a negative impact, it should be considered, and treated as, an important topic for nurses and nursing care. Sleep should be a topic included in nursing

education and training.

11. Limitations and strengths

In highlighting the strengths and limitations of this study, we have followed Lincoln and Guba (Lincoln and Guba, 1985). The study's credibility was enhanced by using a pre-designed and tested topic guide as well as by having the same person conduct all the interviews. Dependability was established through a detailed explanation regarding the analysis process. Quotations for each sub-category also contribute to the study's dependability. Transferability to other settings may be low; this is due to differences between Bachelor of Science in Nursing in Sweden and other countries. One limitation is that only three universities were included, although these three are among those in Sweden with the greatest number of students in their programs. Through a mixed method approach, collected data have been analysed in two separate ways however, the results have been summarized and the conclusion is based on the overall findings of the study.

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Declaration of Competing Interest

None to declare.

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