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Areas of nursing competence in acute wound care: A focus group study

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ABSTRACT

Background: Wound care is an essential part of registered nurses' work. However, previous studies have indicated that registered nurses have limited competence in this area. Studies have also highlighted the lack of consistent and standardised areas of competence for registered nurses providing wound care.

Aim: To identify general areas of competence for registered nurses providing acute wound care during their transition from student to healthcare professional.

Methods: Focus group interviews were used to collect the data (N = 20). Separate focus groups were held for participants representing the following professions: (i) registered nurses; (ii) authorised wound care nurses; (iii) nurse educators; and (iv) physicians. The data were analysed using two-step inductive-deductive content analysis.

Findings: The two main competence areas for registered nurses who provide care for patients with acute wounds were: (i) knowledge, skills, and performance in aetiology and care; and (ii) wound management and assessment. These competence areas were divided into more detailed subcategories. The desired values and attitudes were as follows: respect for autonomy and privacy; holistic care; professionalism and courage; and economics related to wound care.

Discussion: Registered nurses play an essential role in the care and prevention of wounds. Nursing education on acute wound care could focus on the identified competence areas to cover the core competences for providing evidence-based, best-quality care for patients with acute wounds.

Conclusions: With consistent and structured competence areas, it would be possible to develop and improve wound care education and training at the undergraduate and postgraduate level.

Summary of relevance

Problem or issue

- Consistent and standardised areas of competence for registered nurses providing wound care are lacking.

What is already known

- Registered nurses and graduating nursing students have limited competence in wound care.

What this paper adds

- The basic competence that can be expected of registered nurses involved in acute wound care combines knowledge, skills, performance, values and attitudes. Clinical competence in acute wound care consists of knowledge, skills and performance in aetiology and care, alongside wound management and assessment.

1. Introduction

Wound care is an important clinical nursing activity that involves multiple tasks, from changing dressings to educating patients, in addition to preventing wounds (Kielo et al., 2019a). Pa-

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tients who are suffering from wounds receive care in many different healthcare settings, from acute care to care homes for older people. Wounds are usually considered to be either acute or chronic. Examples of acute wounds include surgical wounds, traumatic wounds, and burn injuries (Li, Chen & Krisner, 2007). Chronic wounds, on the other hand, can include leg ulcers and pressure ulcers (Krisner, 2016). Although all wounds can be considered to be acute at first, they are classed as chronic if they do not heal within four to six weeks (Gottrup, Apelqvist & Price, 2010); therefore, even wounds that are typically acute can become chronic. Chronic wounds are a particular concern in healthcare systems around the world, with a prevalence of approximately 2.2 per 1,000 people (Martinengo et al., 2019). To prevent a wound becoming chronic, it is necessary to invest in wound care as early as possible.

Registered nurses play an essential role in wound care and prevention, but previous studies have suggested that competence in this area is limited among registered nurses and graduating nursing students (Kielo, Salminen, & Stolt, 2018 & Kielo et al., 2019b; Welsh, 2018). Research has also shown that nursing students felt that they did not receive enough education about wound care during their studies (Kielo et al., 2019b) and that when they graduated, they did not feel confident in providing wound care (Stephen-Haynes, 2013). Furthermore, most of the previous studies on wound care competence among registered andnursing students focused on pressure ulcers, so there is limited empirical evidence of nursing students' competence in acute wound care or general wound care (Kielo et al., 2020).

In clinical nursing, competence is connected with professional standards in healthcare, patient safety and quality of care (WHO, 2010). Traditionally, the concept of competence covered knowledge and skills, but today it should be seen from a more holistic perspective as something that encompasses other elements, such as attitude (Fukada, 2018). A poor attitude can cause negligence in some nursing tasks; for example, acute care is often prioritised over care of chronic conditions, such as chronic wounds (Suhonen et al., 2018). In this study, competence is defined as a combination of knowledge, performance, skills, values and attitudes (Cowan, Norman & Coopamah, 2005). The study focuses on registered nurses at the graduation stage and on areas of competence for providing evidence-based acute wound care after graduation. It aims to provide new knowledge about the competence areas that are needed by registered nurses in acute wound care.

Wound care should be based on the newest and highest-quality evidence available (Brölmann et al., 2012). There are several international care guidelines for the multi-professional community on the care of acute and chronic wounds (e.g., Norman et al., 2017). However, these care guidelines often focus on the evidence relating to certain interventions and recommendations, rather than defining the competence requirements and realms of the different healthcare professionals involved in wound care. Furthermore, the studies have indicated that evidence-based interventions in wound care are often underused (Gray et al., 2018). In addition, although common learning goals and competence requirements for wound care have been implemented for postgraduate nurse education (e.g., Eskes et al., 2014; Pokorná, Holloway, Strohal & Verheyen-Cronau, 2017; Probst, Holloway, Rowan & Pokorná, 2019), wound care curricula are often fragmented and inconsistent in undergraduate nurse education. With consistent competence requirements and learning goals in nursing education, it would be possible to improve registered nurses' wound care competence (Gottrup, 2012). However, according to a recent study (Kielo et al., 2019a), there is a lack of consistency in the requirements for wound care competence at the graduation stage.

This study aimed to identify general areas of competence for registered nurses providing acute wound care during their transition from student to graduate healthcare professional. The goal was to provide new knowledge about competence requirements for registered nurses who were providing acute wound care, so that this knowledge can be used as a frame in wound care education in nursing studies at the bachelor level. The research question of this study was: What are the required general areas of competence for registered nurses providing acute wound care?

2. Methods

2.1. Design

In this study, a qualitative design was used and the research method was focus-group interviews (Jayasekara, 2012).

2.2. Data collection

The data were collected in October and November 2020 from four focus groups: (i) registered nurses; (ii) authorised wound care nurses; (iii) nurse educators; and (iv) physicians. The participants in the focus groups were healthcare professionals who were experienced in wound care, and they were based in various cities and geographical areas in Finland. The participants were recruited using purposive sampling, with the aim of recruiting five–eight participants for each group and 20–40 participants in total (Jayasekara, 2012). The corresponding author was already in contact with certain organisations and told them about the study and its goals. For example, she attended meetings in different organisations, at which she recruited potential participants. After that, she emailed the professionals who had expressed an interest in participating in the study in order to discuss the time and date of the focus groups. The focus groups were scheduled in consultation with the study participants in order to find a time that was suitable for as many participants in the same groups as possible.

The four focus-group interviews were conducted separately online using Microsoft Teams or Zoom. Online interviews were chosen due to the COVID-19 pandemic and related restrictions were in place, which advised remote working during the data collection period. In total, 20 professionals agreed to participate in the study, of whom six were registered nurses, six were authorised wound care nurses, two were nurse educators, and six were physicians. The group of registered nurses consisted of general registered nurses whose job descriptions included the care of acute wounds. The authorised wound care nurses were registered nurses who had received an authorisation from the Finnish Wound Care Society, which is comparable to, for example, tissue viability nurses in the United Kingdom. The nurse educators were teachers or lecturers in nurse education at the bachelor level, and they all taught wound care in undergraduate nurse education. Finally, the physicians represented different specialisations and were treating patients with acute wounds. The participants represented their own views and gave their honest opinions regarding the areas of wound care competence for registered nurses providing acute wound care. The focus group interviews were recorded with the permission of participants.

The interviews were based on a semi-structured interview frame (Table 1), which was a modified version of the frame used in another study (Kielo et al., 2019a). The frame was based on the definition of competence proposed by Cowan et al. (2005): knowledge, performance, skills, values and attitudes. For each of these competence attributes, prompts related to acute wound care were included. During the interviews, the moderator (the corresponding author) asked the five main questions and gave prompts related to each main question. Before moving on to the next main question, the moderator asked if there was anything else the participants wanted to say or discuss in relation to the topic. The focus

Table 1
Semi-structured interview frame.

1	What should registered nurses know about acute wounds in general? (knowledge) • Surgical wounds • Burn injuries and frostbites • Traumatic wounds
2	What should registered nurses know about acute wound management? (performance) • Wound care products • Asepsis and environment
3	How should registered nurses care for acute wounds? (skills) • Cleansing and debridement • Documentation • Pain management • Infections • Patient education
4	How should registered nurses act when caring acute wounds? (values) • Ethics in wound care • Holistic care
5	How should registered nurses deal with acute wounds and patients with acute wounds? (attitudes) • Attitudes towards acute wound care

group interviews took approximately one hour each (range 23–65 minutes, mean 49 minutes). No field notes were made during the interviews, because the interviews were being recorded and it was difficult to observe non-verbal expressions in the online format. All recordings were transcribed by a professional transcriber.

2.3. Analysis

The data from each interview were analysed by the corresponding author using two-step inductive-deductive analysis. The first step was inductive analysis, in accordance with Elo and Kyngäs (2008), which included (i) open coding; (ii) creating categories; and (iii) abstraction of the data. First, all four focus group interviews were analysed separately using NVivo 12.6.0 (QSR International Pty Ltd.) software. In this step, the data were analysed using open coding (i), in which the participants' answers and comments representing competence were coded on the basis of similarities found in the data from each interview. Some of the answers were coded more than once. The codes created nodes, which, on the basis of their content, were organised into categories (ii) representing different areas of wound care. After that, the nodes were analysed and combined with other nodes if they were similar or were considered to belong inside another node. Finally, the categories that had been created were abstracted (iii) by competence area and each main category and sub-category within the competence area.

In the deductive analysis step, a five-step framework analysis: (i) familiarisation; (ii) developing a thematic framework; (iii) indexing and sorting; (iv) data summary and display; and (v) mapping and interpretation (Ward, Furber, Tierney & Swallow, 2013) was used. The competence areas created in the inductive analysis were analysed using these five steps against the definition of competence by Cowan et al. (2005). At first, the attributes of competence were familiarised (i), and the concept of competence was developed into two themes: knowledge, skills and performance; and values and attitudes (ii). After that, the competence areas were indexed and sorted into two themes (iii): The knowledge, skills and performance competence was divided into aetiology and care; and wound management and assessment. The values and attitudes competence was divided into the following competence areas: respect for autonomy and privacy; holistic care; professionalism and courage; and economics related to wound care. (Fig. 1.) Finally, the data were summarised, linked (iv) and mapped onto the inductive analysis (v): The knowledge, skills and performance related to each sub-category were classified as either plus (+) or minus (–), where + means "required" and – means "not required." For example, knowledge was required for every subcategory, but skills in performing a certain competence were not always needed; providing surgical care for burn injuries was the surgeon's responsibility, for instance, but nurses still needed to know the basics of this care.

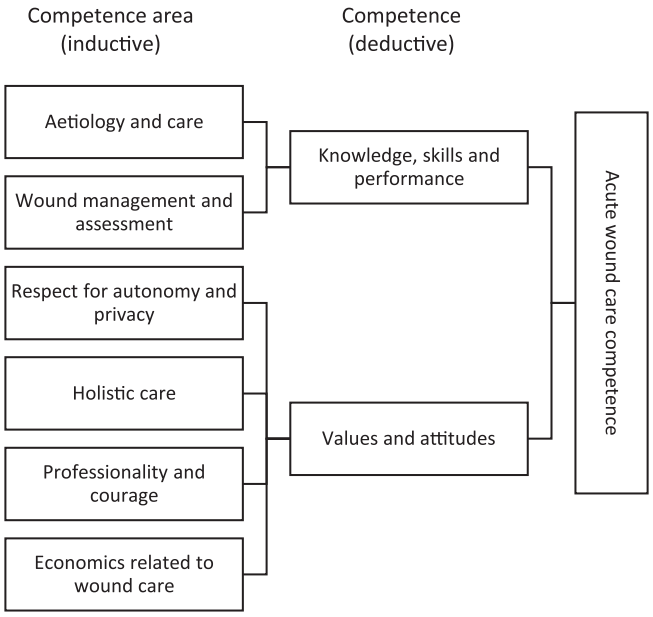

Fig. 1. Competence areas in acute wound care for registered nurses according to the two-step analysis of focus group interviews.

There were no contradictions among the groups in terms of the competence areas identified. However, some groups mentioned more competencies than others and placed more emphasis on certain areas. The analysis trees (competence areas, main categories and subcategories) of the interviews were sent to the focus group participants to check that the corresponding author had captured the participants' ideas and thoughts accurately when analysing the data. Four participants commented on the analysis.

2.4. Ethical considerations

This study was conducted according to the guidelines of The Finnish National Board on Research Integrity (TENK, 2012). Ethical approval for human sciences research was received from the university ethics committee (18/2020), and permission to conduct the research was received from the organisations involved. Participation was voluntary, and participants were given both written and oral information about the study, including the confidentiality and anonymity of the study and the ways in which the results would be used. Each focus group interview session began with information about the study. The participants either signed an informed consent form and sent it to the corresponding author or gave their oral consent to participate in the study before the interviews started. The oral consents were recorded. The participants remained anonymous and were told that they could withdraw from the study at any point without giving a reason. The participants were also informed that the data would be processed

and protected in line with the European Union General Data Privacy Regulation (EU 2016/679).

3. Results

On the basis of the analysis, registered nurses' competence in acute wounds and wound care was divided into (i) knowledge, skills and performance, and (ii) values and attitudes (Fig. 1). The knowledge, skills and performance competence area was divided into the following competencies: aetiology and care; and wound management and assessment. The aetiology and care competence areas were divided further into main categories according to the most common types of acute wounds: surgical wounds, traumatic wounds, burn injuries and frostbite. These main categories were divided into more specific sub-categories based on the care and first aid for each wound type. (Fig. 2) The wound management and assessment competence area was divided into nine main categories: asepsis; the wound healing process; wound cleansing; infection; pain; the protection and bandaging of wounds; documentation; patient education; and co-operation. These main categories were divided into more specific sub-categories. (Fig. 3) Furthermore, all the sub-categories were annotated to indicate whether a registered nurse was expected to have knowledge of, have skills in and/or be able to perform the specific competency (Figs. 2 and 3). Finally, values and attitudes were divided into the following competencies: respect for autonomy and privacy; holistic care; professionalism and courage; and economics related to wound care (Fig. 1). These competence areas were not divided into more specific categories.

3.1. Knowledge, skills and performance

3.1.1. Aetiology and care

In the aetiology and care competence area, the participants stated that it was essential that a registered nurse has a basic competence in the most common types of acute wounds, including the aetiology behind the wound and the basic care and first aid procedures of each of these wounds. The authorised wound care nurses, registered nurses and physicians emphasised the need to know when to use a sterile or clean technique in dressing changing when caring for surgical wounds. They also stated that nurses should know what a "normal" surgical wound should look like. The nurse educators also discussed wound drains and protecting and bandaging surgical wounds. The physicians also mentioned the follow-up on and removal of sutures and staples, meaning that a nurse should know when it is safe to remove the suture and staples. In traumatic wound care, all groups highlighted the importance of properly cleaning the wound and identifying the cause of the wound. The groups also discussed understanding the need for antibiotics or a tetanus booster in traumatic wound care. In burn injuries and frostbite, the participants highlighted first aid and knowledge of the injury grades. The physicians also highlighted the importance of understanding the urgency of the matter, especially in frostbite care, in case the injury could be treated with thrombolysis. (Fig. 2)

> *"To know how long a surgical wound should be cared for using a sterile technique"* – Authorised wound care nurse

> *"To find out the mechanism and cause of the injury [for traumatic wounds]. Was it a blunt or sharp object that caused the wound, and what kind of force or energy caused the wound?"* – Physician

> *"To know the first aid of both burn injuries and frostbites; to know what should be done at first."* – Nurse Educator

> *"To know how the patient can move with the wound. For example, suppose the patient has undergone abdominal surgery. In that case, it is essential to educate the patient during wound care on how to get out of bed safely so that there won't be any stretching in the wound area. All these small details should be remembered when caring for the patient."* – Registered nurse

3.1.2. Wound management and assessment

In the wound management and assessment competence area, participants discussed competencies needed to manage and assess acute wounds. In asepsis, the authorised wound care nurses, nurse educators and physicians emphasised the use of personal protective equipment, especially face masks and the correct use of gloves to protect both the patient and nurse. The aseptic order and planning of the work were also discussed, and the care and handling of instruments to prevent infections. The registered nurses, nurse educators and physicians highlighted the cleanliness of the care environment, and the physicians emphasised the principals of aseptic technique. The authorised wound care nurses, registered nurses and physicians all highlighted the wound healing process, meaning that a nurse needs to understand the process in order to assess whether the wound is healing or not. The physicians stated that it is essential to be able to differentiate an inflammation phase from a wound infection, and to know the factors that affect wound healing. According to the authorised wound care nurses, a registered nurse should also know when a wound becomes chronic because then the underlying causes for delayed wound healing should be identified (Fig. 3)

> *"To have a basic understanding of wound healing phases. To understand the inflammation phase and to distinguish the wound healing phases from the signs of an infection."* – Physician

> *"To understand the caring order; if a patient, for example, has multiple wounds, like surgical wounds, the nurse needs to know in which order the wounds are being cared of."* – Nurse educator

In wound management, the authorised wound care nurses, registered nurses and physicians emphasised the proper cleaning of wounds, including understanding the importance of cleaning and knowing the different methods. In infections, all groups mentioned competence in recognising the signs of an infection because the infection can delay the wound healing and spread to the deeper tissues. The registered nurses and physicians also stated the importance of using the correct technique when taking a bacterial sample from a wound, and knowing when to take a sample. The nurse educators and physicians mentioned the care of an infected wound, like what type of products should be used for infected wounds. The proper management of wound pain was emphasised by all the groups. In addition, the registered nurses stated that it was essential to identify abnormal wound pain, and the physicians highlighted finding the cause of the pain. (Fig. 3)

> *"It is essential to know and understand when to suspect a wound infection. And to know that the bacterial sample should not be taken unless one suspects a wound infection. […] And it is good to know that if there is a bacteria in the wound, it does not mean that the wound is infected. "* – Physician

The authorised wound care nurses, nurse educators and physicians also said that registered nurses should know the generic names of the wound dressings, not only the brand names. In addition, they, and the registered nurses, highlighted the importance of understanding the functions of different wound care products, as nurses need to rationalise their dressing choices. The authorised wound care nurses also stressed that a wound assessment should be conducted every time a dressing is changed and pointed out that negative pressure wound care therapy is a basic compe-

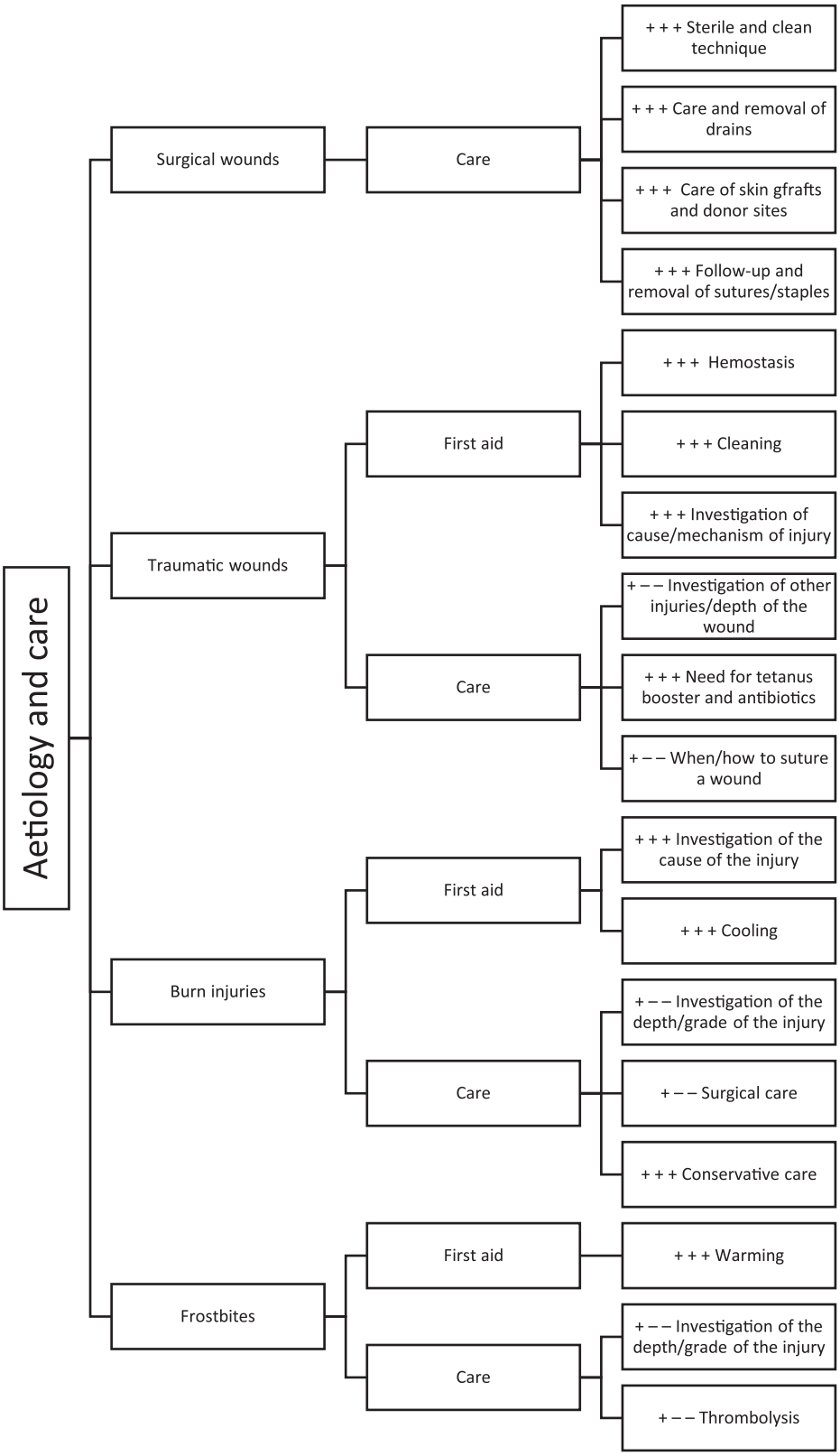

Fig. 2. Main categories and sub-categories of the "Aetiology and care" competence area. 1st +/–: knowledge, 2nd+/–: skills, 3rd+/–: performance, +: required, –: not required.

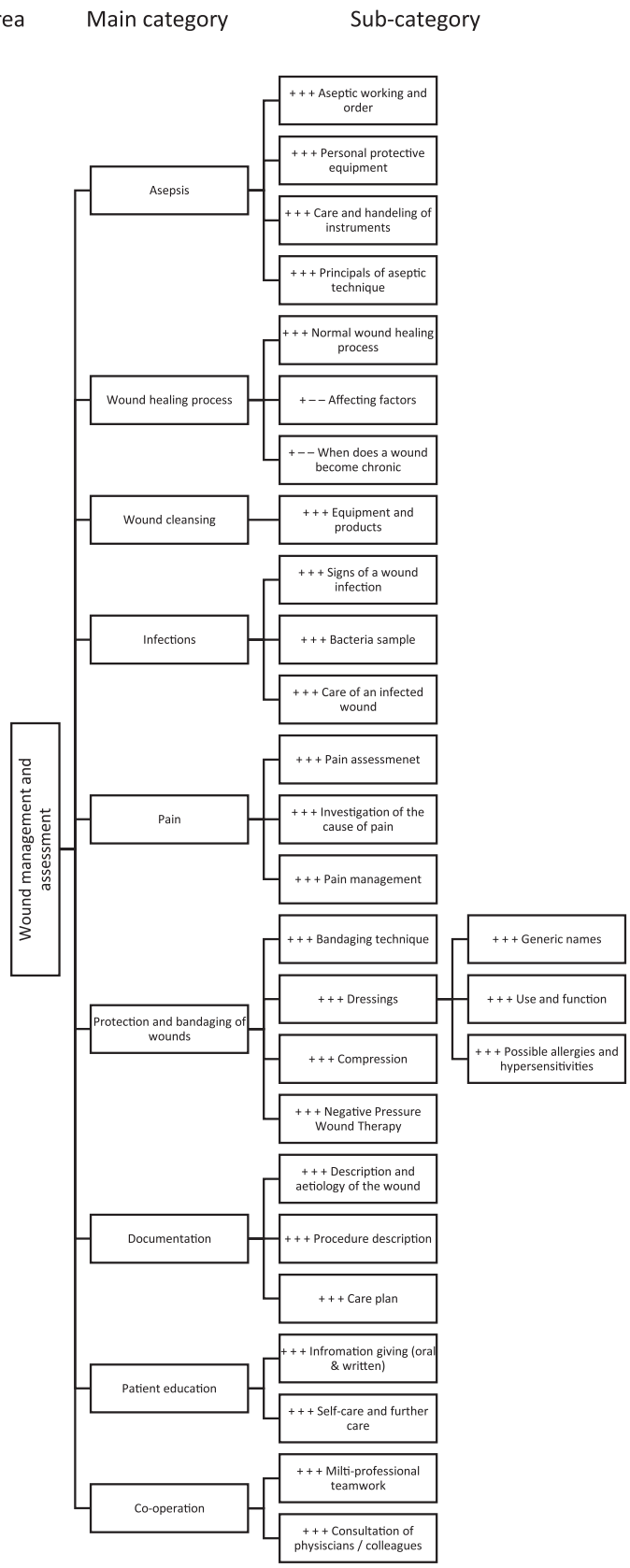

Fig. 3. Main categories and sub-categories of the "Wound management and assessment" competence area. 1st +/–: knowledge, 2nd+/–: skills, 3rd+/–: performance, +: required, –: not required.

tence for registered nurses caring for patients with various types of wounds. The authorised wound care nurses and physicians also highlighted the competence of bandaging wounds, especially when bandaging, for example, fingers. In terms of documentation, giving a proper description of the wound was emphasised, along with giving a detailed description of the care provided and the care plan. In patient education, the authorised wound care nurses, registered nurses and physicians highlighted the importance of giving written and oral instructions, and providing contact details for patients to use if needed. The nurse educators also emphasised the need to give patients proper instructions for self-care upon discharge. The physicians added lifestyle counselling and motivating the patient. Consultation competence was emphasised by the authorised wound care nurses, registered nurses and physicians as wound care is multi-professional work, and nurses need to know when to consult, for example, a physician. (Fig. 3)

> *"To know what kind of wound products can be used together. Or which products are meant to be used together and which products should definitely not be used together. And also to know what kind of combinations are useless."* – Registered nurse

> *"When bandaging wounds, it is essential to have competence in bandaging the extremities, like hands, so that the patient can, if possible, use their fingers."* – Authorised wound care nurse

> *"It is not enough to document that the wound is being cared for as instructed. This kind of documentation is still seen in some places, unfortunately."* – Nurse educator

3.1.3. Values and attitudes

In values and attitudes competence area, all the groups highlighted the need for holistic wound, where a nurse takes into account any other health problems a patient has, as well as their circumstances and lifestyle. They also emphasised that registered nurses need to respect the patient's autonomy and privacy; for example, patients should have the autonomy to decide what kind of wound dressing they want to use. They stated that nurses should also support the patient's own commitment to care. In addition, the authorised wound care nurses, nurse educators and physicians said that nurses providing wound care should have courage and curiosity, meaning that they should show interest in wound care and not be afraid of wounds. The registered nurses and physicians discussed the economics related to wound care, and the potential costs for patients as some patients might have to pay the dressings on their own. The registered nurses also mentioned equality in care and, alongside the nurse educators and physicians, they highlighted the need for professionalism when dealing with patients with wounds, for example when caring for a patient with substance use disorder. (Fig. 1)

> *"Open mind and interested and keen to find out things. Positive attitude."* – Authorised wound care nurse

> *"And they must need to know whether to use a ten-euro dressing or a hundred-euro dressing, especially if the patient or client has to pay for the dressing. It matters a lot."* – Registered nurse

> *"Nurses should not be afraid of wounds. A nurse must be able to touch wounds and patients, otherwise one cannot provide wound care."* – Physician

4. Discussion

4.1. Results

This study identified the general competence areas required for graduating registered nurses who provide care for patients with acute wounds. Based on the four focus-group interviews and the inductive content analysis, two main competence areas were identified under knowledge, skills and performance: aetiology and care; and wound management and assessment. These competence areas were divided into more specific main categories and subcategories. In addition, four competence areas were identified under values and attitudes: respect for autonomy and privacy; holistic care; professionalism and courage; and economics related to wound care. The competence areas identified, especially wound management and assessment, were somewhat consistent with a previously published study (Kielo et al., 2019a) that identified the competence areas for chronic wound care. This can be explained by the experience of the topical management and assessment of different types of wounds being fairly similar, regardless of the aetiology of the wound. Finally, the competence areas identified were deductively organised into two main competences according to Cowan et al. (2005): knowledge, skills and performance; and values and attitudes. This also followed the categorisation in the previous study (Kielo et al., 2019a), given that knowledge, skills and performance create a clinical competence in something. Values and attitudes are part of competence, but because they are more general they can be examined as their own area of competence.

In the competence area of aetiology and care, the basic care for each type of acute wound was highlighted by the participants. They stated that a registered nurse should be able to perform the basic care procedures on surgical wounds in addition to traumatic wounds, burn injuries and frostbite. In relation to the last three wound types, registered nurses are also expected to have the competence to give first aid. For example, when cleaning a traumatic wound properly in the first place, later wound infections can be prevented. Administering basic care and first aid to patients with acute wounds has also been highlighted in international clinical practice guidelines, such as those on preventing and treating surgical site infections (NICE, 2020) and on the care of burns (EBA, 2017). However, these guidelines do not define the nurses' role and competence requirements in acute wound care. According to a previous study (Kielo et al., 2019b), graduating nursing students have self-assessed their own competence in providing care for surgical wounds as quite good, but their competence in providing care for burn injuries was assessed as poor. This indicates that the students might have received more teaching on surgical wound care than other types of wound care. However, as stated in the introduction, previous research on registered nurses' general competence in acute wounds is scarce, because most of the studies on professional competence have focused on chronic wound care (Kielo et al., 2020).

In the wound management and assessment competence, asepsis and the protection and bandaging of wounds were highlighted by the groups. Protection and bandaging wounds are usually nurses' responsibilities, and by providing an ideal healing environment and protection to the wound, delays in wound healing can be prevented. In addition, it was emphasised that a nurse should understand the normal healing process and its phases, while being able to recognise possible problems, such as infections. Understanding the normal healing process might also help nurses identify possible hard-to-heal wounds in an earlier stage and to prevent wounds from becoming chronic. According to a previous study (Moran & Byrne, 2018), some of the largest gaps in nurses' knowledge were in wound healing and identifying signs of infection in surgical wounds. In addition, another study has suggested that clinical practice guidelines are not always followed when preventing infections at the surgical site (Lin et al., 2019). Previous studies have also indicated that graduating nursing students (Stephen-Haynes, 2013) and tissue viability nurses (Blackburn, Ousey & Stephenson, 2019) lack confidence when selecting a suitable wound dressing. These shortcomings indicate

that more education is needed in acute wound care, especially in asepsis, wound healing and wound dressings.

Values and attitudes in acute wound care were divided into respect for autonomy and privacy, holistic care, professionalism and courage, and economics related to wound care. These areas of competence were also somewhat consistent with those identified by a previous study in chronic wound care (Kielo et al., 2019a), which indicates that the required values and attitudes are much the same whether one is providing care for acute or chronic wounds. All the groups highlighted the need for holistic and comprehensive care when caring for a patient with a wound as holistic perspective to the care focus on the patient as a whole, not only on the wound. Other much discussed topics included respecting patients' autonomy and having a professional attitude towards wounds and patients. In wound care, autonomy can, for example, mean that the patient can choose what kind of dressings they prefer to use. Holistic wound care and patients' autonomy have also been highlighted in the literature – especially in the context of person-centred care, which aims to improve not only clinical outcomes, such as wound healing, but also the patient's quality of life and level of satisfaction (Gethin, Probst, Stryja, Christiansen & Price, 2020). In practice, the focus is on the patient as a whole, not on the wound in isolation, and staff work with patients to tailor the care to their needs (Lindsay et al., 2017). Person-centred and holistic wound care are discussed in the context of chronic wound care, but they also need to be considered in acute wound care as acute wounds can also be caused by diseases like mental health disorders. Furthermore, the cost of care was discussed in some of the groups, especially the potential costs for patients. In Finland, for example, most patients who receive home care must pay for their wound dressings for the first three months. However, in some municipalities, they receive the dressings free of charge from the beginning, making the situation unequal for patients and challenging for healthcare professionals. Still, the true costs of acute wound care are unclear, as most of the studies that have estimated them have focused on chronic wounds (e.g., Phillips et al., 2020).

Finally, professionalism and courage were expected from nurses caring for patients with acute wounds. Professionalism, for example, can be seen as neutral and calm acting when caring for patients in different situations, like patients who have self-inflicted wounds. Although that may seem obvious, some previous studies have indicated that nurses' attitudes towards wound care are not always desirable (e.g., Lotfi, Aghazadeh, Asgarpour & Nobakht, 2019). However, the studies assessing nurses' attitudes towards wound care have tended to focus on pressure ulcer prevention, so it would be useful to conduct studies assessing nurses' attitudes towards acute wounds or wounds in general. Reasons for undesirable attitudes can be related to heavy workload and lack of education (Etafa et al., 2018). Studies have indicated that attitudes and knowledge are often interlinked (Lotfi et al., 2019), which suggests that with sufficient education, nurses' attitudes could be improved. Finally, the participants highlighted the need for courage in caring for wounds. They stated that nurses should not be afraid of wounds or wound care, for example, large or heavily bleeding wounds. However, multiple elements and factors affect courage, and it is a quality that can be developed through experience and learning (Hannah et al., 2007).

The number of patients suffering from wounds of various kinds is increasing. Although the prevalence of chronic wounds is rising especially quickly, all wounds can be considered as acute initially (Nicks, Ayello, Woo, Nitzki-George & Sibbald, 2010). This highlights the importance of paying attention to wound care in the acute phase in order to prevent those wounds becoming chronic. The role of registered nurses in wound care is essential, and the competence areas identified in this study could be used to develop their education and training. The findings of this study can be used not only when planning and developing wound care education in undergraduate nursing curricula, but also in postgraduate wound care education that aims to improve registered nurses' competence in clinical practice. This study's findings can also be used to specify and standardise the competence requirements for graduating nursing students or nurses caring for patients with wounds. These competence areas could also help educators to implement consistent and evidence-based competence assessment criteria. In clinical nursing, registered nurses' wound care competence could be mapped and updating education could be targeted. Future research could focus on developing consistent learning goals and competence requirements for nurse education and assessing and improving nurses' competence in acute wound care. The findings of this study suggest that wound care is about more than changing dressings; to provide proper care in this area requires a combination of numerous and diverse competences.

4.2. Strengths, limitations and rigour

A qualitative design was used in this study, so the findings cannot be directly transferred to other contexts or countries. However, in Finland, nurse education at the bachelor level is based on the European Union Directive (2013/55/EC) on the recognition of professional qualifications; therefore, the findings of this study could be applied in the context of other European countries, at least at some level. In addition, as stated in the background section, wound care should be based on the best available evidence, and that evidence is based on international studies and care recommendations. Nevertheless, it is worth noting that nurses' roles and job descriptions might differ in different countries. In Finland, registered nurses graduate at level six of the European Qualification Framework (EQF), but after graduation they can specialise in wound care by studying for 30 ECTS (European Credit Transfer and Accumulation System) or by continuing to master's level (EQF 7). Therefore, job descriptions may differ depending on the professional's level of education. Still, this study identified the basic competence areas for registered nurses at the bachelor level (EQF 6), and these could be utilised when planning the wound care education in bachelor level nurse education.

Twenty healthcare professionals and educators participated in this study. The participants represented different professions, and they all had expertise in wounds and their care. They were recruited using purposeful sampling, which might reduce the credibility of this study. However, purposeful sampling is commonly used in qualitative studies, and certain specialists and experts were sought for the purposes of this study (Holloway & Wheeler, 2010). In addition, the group size was desirable in all the focus groups (Jayasekara, 2012) except one, which had only two participants because it was difficult to find a suitable time for the group to meet. The interviews were held online due to the restrictions in place to prevent the spread of COVID-19. The interviews went according to plan, and the discussion between the participants was diverse. However, the online format might have created some barriers to the discussion being as open and in-depth as a face-to-face discussion (Lo Iacono, Symonds & Brown, 2016), which may reduce the credibility of the study. The analysis of the data was divided into two steps, inductive and deductive, both of which were conducted by the corresponding author. Given that the corresponding author has years of experience in wounds and their care, she might have held some prior assumptions that would reduce the confirmability of the study (Holloway & Wheeler, 2010). On the other hand, the experience may also act as a confirming factor.

Trustworthiness was assessed using member checking, negative case searching and reflexivity, in accordance with Holloway and Wheeler (2010). During the interviews, the moderator confirmed

that she had understood the participants correctly, and she allowed the participants to discuss issues outside the interview frame. After the analysis, the researcher sent each group the analysis tree for their data (Holloway & Wheeler, 2010) and gave them an opportunity to comment on the analysis. Four participants commented: two fully agreed with the analysis, one wanted to highlight one point and asked if it could be made more visible in the analysis, and one wanted to clarify a few points. These comments were taken into account in the analysis. Negative case searching was used to increase the confirmability of the study. The moderator was aware that her expertise in wound care and her involvement in the previous study might have influenced the analysis. This was accounted for by looking for other possibilities in the analysis. In addition, many of the participants' statements were coded under two or more nodes, leaving open the possibility of interpreting the data in other ways. Finally, reflexivity was used throughout the process, from the data collection to the data analysis, to avoid bias related to the researcher. During the interviews, the researcher did not give any direct answers or hints to the participants and did not confirm their answers in any way. In addition, during the analysis, the researcher reflected on her own preconceptions and assumptions to strengthen the confirmability of the study.

5. Conclusion

The care of acute wounds requires graduating registered nurses to have diverse and versatile competences. The competence areas identified for registered nurses providing acute wound care were as follows: aetiology and care; wound management and assessment; respect for autonomy and privacy; holistic care; professionalism and courage; and economics related to wound care. The competence areas that were identified show which competences are expected of every registered nurse after graduation in order for them to perform evidence-based, best quality care for patients with acute wounds.

Ethical statement

This study involved human research. The ethical approval for this study was granted for the study as a scientific research study.

The name of the ethics committee: The Ethics Committee for Human Sciences at the University of Turku, Health Care Division (18/2020).

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Conflict of interest

None.

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