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Title: The voice of paediatric oncology nurses: A longitudinal diary study of professional development

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ABSTRACT

Purpose: There exists a very limited amount of study results on professional development of paediatric oncology nurses. This study seeks to increase the understanding of the factors associated with the professional development of paediatric oncology nurses through the continuous education programme from the paediatric nurses' perspective.

Method: The descriptive, qualitative study used the text of participants' electronic diaries as data during a two-year continuing professional education programme in 2016-2018. The sample consisted of 17 paediatric oncology nurses who were working in three different university hospitals. The data were analysed with the inductive content analysis method.

Results: Professional development is linked to a strong knowledge base in nursing, which involves the use of nursing methods and up-to-date nursing practices. Professional development is also linked to the use of medical knowledge, which manifests as a deep understanding of cancers and their treatment.

Conclusions: Research results show that a strong knowledge base in nursing alone is not sufficient for the professional development of paediatric oncology nurses. They also need to use their medical knowledge in order to gain an adequately deep understanding of children's cancers and their treatment. Nursing must be organised so that nurses have the opportunity to compare, share, question and argue for the methods they use with their colleagues in their own unit and other hospitals. Further research is needed on the professional development of paediatric oncology nurses and factors affecting it in order for a career development model to be created for this specific yet demanding area of nursing.

Keywords: professional development; paediatric oncology nursing; qualitative research; longitudinal diary study

1. Introduction

In the literature reviewed, the importance for nurses to enhance their professional development while working is widely accepted (Lemondé and Payman, 2015; Hayes, 2016; ICN Biennial Report 2016). Although much is known about the factors related to professional development of nurses in general (Rahimaghaee et al., 2010; Katsikitis et al., 2013), much less has been studied about professional development from the paediatric nurses' point of view. In particular, the paediatric oncology nurses' perspective towards professional development has not yet been studied. This is noteworthy because working with severely sick children and their families is, according to the researchers (Pearson, 2013; Boyle and Bush, 2018), emotionally challenging, stressful and often personally and professionally demanding for nurses. After all, cancers are life-threatening diseases that are distressing and potentially traumatic for children and their families. Due to these facts, continuous support and help from health professionals is greatly needed. In addition, providing specialised care requires nurses' ongoing engagement in professional development in order to provide high-quality nursing care to children and their families. Consequently, this study aims to answer the following question: what factors are associated with professional development from the perspective of paediatric oncology nurses.

2. Background

2.1 What is professional development?

Professional development is sometimes used synonymously with other terms, such as continuing professional development, professional growth and lifelong learning. Continuing professional development, professional development and professional growth are interchangeably used terms for the same concept. However, lifelong learning is a broader concept, which can be considered as an underpinning philosophy for all personal learning and development. (Laal, 2012; Alsop, 2013; ICN Biennial Report 2016.) Professional development can be defined as the pursuit of knowledge and skills that help nurses achieve career advancement and enhance their personal effectiveness at work. It enables nurses to acquire competence relevant for person-centred, safe and effective care. In other words, the idea of professional development is to advance ourselves as practitioners in nursing. It assumes that all nurses are committed and motivated to develop professionally throughout their working career towards an advanced level of nursing practice (Jasper and Mooney, 2013a; Hayes, 2016; Manley et al., 2018). In fact, ongoing professional development is an obligatory component of a nurse's licence to practice nursing in many countries worldwide and, furthermore, it

is a critical part of building nurses' capabilities (Ross et al., 2013; RCN Competencies 2018). As Alsop (2013) underlines, professional development in health care is unquestionably a professional responsibility. Researchers (Jasper and Mooney, 2013b; Hayes, 2016) state that professional practice and professional development are interdependent, meaning that practice will not develop until nurses develop as professionals. As the demands on the workload and the skills requirements of paediatric nurses are unlikely to be reduced, it is important to accommodate professional development within the context of everyday nursing practice.

2.2 Why paediatric oncology nurses' professional development is essential to study?

The job description of paediatric oncology nurses is broad: their duties and responsibilities are demanding and not necessarily always clear. First, paediatric nurses provide holistic family-centred care for children with life-limiting illnesses. At the same time, they need to be sensitive to children's growth and developmental needs and provide adequate help for children and support for parents (O'Quinn and Giambra, 2014). Second, paediatric nurses are supposed to create a relationship of trust and care with patients and families, which provides an opportunity for nurses to realise the unique emotional, social and physical needs of a patient and their family. In fact, paediatric nurses have been reported to be in tune with the child and family and serve as advocates within the system (Hines and Gaughan, 2014). On the other hand, due to varying crisis periods, such as the time of first diagnosis, relapse or the terminal stage, nurses experience communication difficulties with children and their families during long hospital stays (Citak et al., 2013). Finally, paediatric oncology has become a highly specialised area where becoming an expert takes years of experience. For example in one survey 286 nurses who work at cancer centres in the UK described themselves as scared and nervous when first administering chemotherapy to children/young people or adults (Gibson et al., 2013).

Enskär (2012) emphasises that when paediatric oncology nurses are given opportunities for continuous education and reflection, and have a feeling of satisfaction at being able to fulfil the needs of a child and their family, it enhances their possibility to become experts and maintain expert competence. This is concurrent with Adwan's (2014) views, where the paediatric oncology nurses' opportunities for ongoing professional development is essential in order to ensure the delivery of high-quality care for children and their families across an often exhausting and distressing cancer trajectory. The latest studies indicate that working in the paediatric oncology department causes significant emotional distress for health providers. For this reason there need to be improvements in

the health system, as well as training for professionals to cope with the emotional stress associated with patient care (Conte, 2014; Boyle and Bush, 2018). Based on the findings in the literature, it is essential to understand the factors associated with the professional development of paediatric oncology nurses from their viewpoint, and then conceptualise professional development in clear and consistent terms.

3. Purpose

The purpose of this paper is to describe how nurses perceive their professional development in paediatric oncology nursing by answering the question regarding the factors associated with professional development during the two-year training period. The rationale was that a deeper insight into the various aspects of professional development in paediatric oncology nursing from the nurses' perspective would be gained in this. Furthermore, the objective was to conceptualise the phenomenon under the study.

4. Methodology

4.1 A longitudinal diary study

The study adopted a qualitative, longitudinal approach to investigate the described experiences of professional development of paediatric oncology nurses (n=17) who participated in the two-year continuing professional education programme that was arranged to be completed while maintaining an employment relationship. The aim of the training was to reinforce the participants' clinical skills, family counselling and paediatric oncology nursing competence. **Blended learning was applied as a pedagogical approach in the education, which refers to combining face-to-face learning with online learning experience. The content was created within the expert group including participants from the fields of nursing and medicine, and pedagogy of continuing education in nursing.** During the training, the participants kept an electronic diary where they were asked to write about personal experiences, observations, feelings and perceptions of their professional development. Electronic written diaries were selected for optimal data collection, and the data were collected from September 2016 until April 2018, altogether 20 months. In total, 304 pages of diaries with 1.5-line spacing and a 12-font comprised the data.

Blended learning environment is based on the assumption that the inherent benefits of face-to-face interaction maybe enhanced by using on-line methods. It promotes a student-centred learning and

encourages increased student interaction. In addition, by providing students with more control over their learning, blended learning can also help in improving a critical thinking. It gives students more autonomy to choose their learning practices

4.2 Demographics of the participants

Seventeen (n=17) registered nurses from three different university hospitals in Finland participated in this study. The participants' median age was 39 (range 29-49), and all were female. All of them had a bachelor's degree and they provided direct care to children with cancer. The average experience as a paediatric oncology nurse was 12 years (median 11, range 6-22).

4.3 Data analysis

The diary data were analysed using inductive content analysis procedures, as outlined by Elo and Kyngäs (2008). Inductive approach is applied when there are either no previous or only a limited number of studies dealing with the phenomenon. First, one of the researchers read the electronic diaries through three times to obtain a sense of the whole data. Second, as many meaningful sentences as necessary were identified to describe all aspects of the content. After this, the researcher divided meaningful sentences into codes and then into subcategories, which were grouped together with similar concepts. This abstraction process was continued until all categories were saturated. At this point, the analysis of data led to the extraction of two main categories with three subcategories. Then the researcher went through the preliminary analysis, with another author making necessary corrections to the analysis. In the third phase, two other authors joined in and checked the main categories and subcategories. Finally, categories were renamed using content-characteristic expressions.

5. Ethical consideration

Permission for conducting the study was granted from each university hospital. Furthermore, all participants provided their written informed consent for the use of their diary as research data. The electronic diary data were stored in a closed online learning environment. In order to ensure anonymity, participant numbers have been used instead of names when reporting the findings.

6. Findings

Two categories are associated with the professional development of paediatric oncology nurses: a strong knowledge base in nursing and use of medical knowledge. The first category is divided into two subcategories: use of nursing methods and up-to-date nursing work. The second category includes one subcategory: deep understanding of cancers and their treatment. (Figure 1)

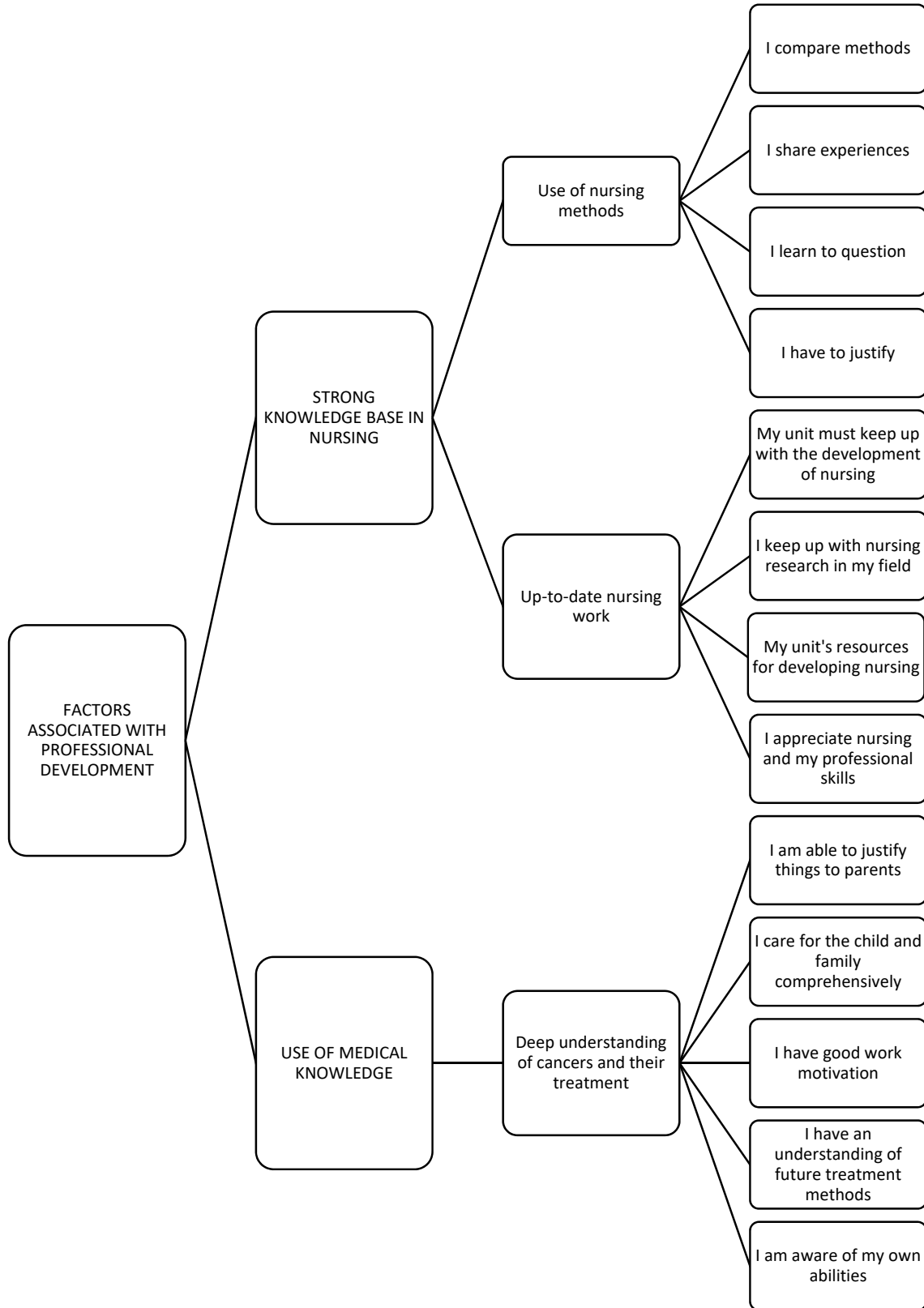


Figure 1 Factors associated with professional development.

6.1 Strong knowledge base in nursing

A strong knowledge base in nursing includes active utilisation of nursing methods and up-to-date nursing work. The respondents compared nursing methods used by different departments and shared their experiences about challenging situations in nursing. This forced them to justify their practices to others as well as question their own. The respondents described how nursing must be up to date. This means that their own unit must stay abreast of the development of nursing. The respondents also stated that every nurse must actively keep up with nursing research in their own field. Keeping nursing work up to date requires sufficient resources to be allocated to development. The nurse respondents considered appreciation for one's own work and professional skill to be important for professional development.

Use of nursing methods

During the training, the respondents actively compared nursing practices and methods used in different hospitals amongst themselves. By comparing their work and methods with others, they were also forced to question and justify their own practices. They wanted to change or modernise the methods in use. Table 1 lists the methods, practices and elements picked out from the respondents' diaries that were considered to be the most important points of comparison.

Table 1 Most important points of comparison

POINTS OF COMPARISON AT A PAEDIATRIC ONCOLOGY DEPARTMENT
<p>INFRASTRUCTURE</p> <ul style="list-style-type: none"> - number of patient rooms, number of patients in rooms - shower facilities, toilet facilities - children's play areas, parents' facilities - nurses' workspaces
<p>STRUCTURE AND NUMBER OF PERSONNEL</p> <ul style="list-style-type: none"> - number and role of nurses - number and role of specialist nurses/nurse practitioners - number and role of special employees
<p>VISITING PRACTICES</p> <ul style="list-style-type: none"> - parents staying overnight at the department - visits by siblings
<p>ORGANISATION OF NURSING WORK</p> <ul style="list-style-type: none"> - implementation of the primary nurse model - reporting methods in different work shifts - organisation of care for a child in need of demanding care
<p>NURSING METHODS</p> <ul style="list-style-type: none"> - infection prevention practices - injection administration technique - paediatric oral care methods and practices
<p>DEVELOPMENT OF NURSING</p> <ul style="list-style-type: none"> - continuing education practices for nurses - resources, roles, responsibility and practices related to the development of nursing

One of the elements compared was the reporting practices used by nurses. Particularly the practice of reporting used at one department inspired a great deal of discussion and opinions among the respondents. The comparison and discussion on the topic prompted several of the nurse respondents to consider renewing the reporting method used at their own unit, as described by one of the respondents:

'After hearing about X's experiences, I became interested in silent reporting. It could also be a good fit for our department. Our working hours are often prolonged during shift changes because of long oral reporting procedures, and the commotion in the office is immensely loud when many people give their report at the same time in a small space. I hope that we can at least test silent reporting at our department.' (R11)

Silent reporting is a one type of exchange information of the patient among nurses Patient information in silent reporting is transferred in a written form, and consequently, the nurses who start a new shift familiarize themselves independently to their patients by reading the electronic form of report of the previous shift nurse.

There was animated discussion about the adoption of ventrogluteal injection. This injection technique evoked a great many thoughts and opinions among the respondents, and a great number of diary entries were written about the topic. The respondents considered the benefits and disadvantages of the technique and weighed whether it should be adopted at their own department and on what grounds. Some of the respondents were on guard about how this new type of injection administration method would be received at their own unit.

'The day started with a lecture on ventrogluteal injection, held by nurses from a paediatric oncology department that favours this method. They argued that this type of injection is not particularly painful for the patient; the place for administering the injection is easy to find, and it is more likely to enter the muscle in comparison to an injection to a gluteal muscle. It also causes less tissue irritation. At our department, we don't inject into this particular muscle. At present, we favour injecting into the thigh. I feel that we need to discuss ventrogluteal injection again at our department and contemplate whether we should reconsider adopting it.' (R7)

The third example of a comparison of nursing practices and their use concerned the use of laser in paediatric oral care. Nurses had been trained to use the method in question as part of an expansion of their role. Gaining information about the method and sharing experiences among the respondents inspired contemplation about whether the method should also be used in other departments.

'The presentation by X on paediatric oral care and particularly the use of laser inspired a great deal of

discussion in our department, and the matter is now also advancing in practice and we will soon have the opportunity to use laser in oral care in our department. An example of a concrete benefit related to this training.’ (R2)

According to the diary entries, the respondents considered sharing, comparing and questioning existing practices to be very useful. These led to evaluation of the use of nursing methods and possibly them being changed or renewed, which in turn was linked to a strong knowledge base in nursing.

‘We have noticed that there are a great many differences between university hospitals in terms of their practices. Things can be done correctly in many ways. However, it was good to take a moment to stop and consider our own operations and whether we should change something or whether something we are doing well could be adopted somewhere else.’ (R8)

Professional development was strengthened by visits to another hospital’s paediatric oncology department. Visiting the physical facilities was considered to be very important, as it allowed the respondents to compare the concrete facilities with the corresponding facilities in their own department. It also provided a natural opportunity for posing questions about various practices to the personnel. According to the respondents, it was also important that the visit to the department allowed them to familiarise themselves with various written guides distributed to families as well as written materials intended for personnel undergoing orientation to their work duties.

‘The visit to the department was very interesting. There was such a flood of questions that the nurse didn’t have the time to answer them all. We immediately noticed that there are many differences in practices, which made me consider whether we could do things differently or share some of our good practices with others. We could definitely have talked about these things longer. (R11)

Up-to-date nursing work

In their diaries, the respondents described how it is necessary for their unit to keep abreast of the development of nursing. According to them, this requires individual nurses to be willing and motivated to actively follow the research in the field. On the other hand, they were concerned about whether the resources reserved for development efforts were adequate, and whether the roles of nurses at different levels and the division of responsibility between them in relation to development

efforts is sufficiently clear. The respondents recognised that they work at a university hospital, and the nursing in university hospitals should show the way in development to other hospitals and paediatric units.

'In my opinion, keeping abreast of the times and following the latest research results are essential parts of a nurse's work role. It even started to annoy me a bit that some people thought that we don't have to participate in things like this in addition to our basic work. And we supposedly don't even have the time for it. I'm sure that there are times when we are too busy to attend regular events, but we can also find the time if we just have motivation. And no one can refuse to follow new guidelines and practices that are specifically based on research data.' (R5)

On the other hand, the respondents were uncertain whether the acquisition and implementation of research knowledge on nursing was the responsibility of nurses or nurse practitioners, who have more extensive education.

'When we each have our own areas of responsibility, they should also include searching for new research data and presenting it to others with the help of this type of research club activity. Or would the task fall to the nurse practitioner in our department? However, we did note that we should be allowed to use our working hours for this purpose, so we were left considering whether it would be possible in practice.' (R6)

The nurses described that they had become more aware of the demanding nature of their work. They were proud of having the competence to take care of children who require a demanding level of care. The respondents also described how their appreciation for paediatric oncology nursing was strengthened, and they appreciated both their work and professional skill. As the comparison of practices related to nursing and sharing of experiences continued actively throughout the training, the participants stated that it also increased their appreciation for the work and professional skill of their colleagues and employees at other hospitals.

'I've understood that I'm actually already an expert in my work and can perform my work with a professional level of skill. You become blinded to that in the heat of work and don't really think about how important, precise and demanding our work is. I believe that you only realise that when you

retire or switch to another job. My appreciation for my job has increased. I'm so happy that I've ended up in such an amazing and skilled multidisciplinary working group.' (R8)

The respondents described how they felt that their nursing competence, particularly in family counselling and nursing, had strengthened their professional development. This came as a surprise to some of the respondents, as they thought that their capability to work with families was due to their many years of work experience. However, joint contemplation of challenging situations, families' complex life situations and problems, as well as the responsibility of a child's education during hospital care, provided even an experienced nurse with the opportunity to grow and develop in their profession as a paediatric oncology nurse.

'As a provider of family counselling and nursing, you are always, in a way, a "beginner" and may feel that your skills are inadequate, even if you have many years of experience in it. Talking about the topic and reviewing the basics is always beneficial in order to "maintain a broad view". In addition to family counselling and nursing, it is important to appreciate your own nursing competence, and at least in my case I feel that it has become stronger – in earlier years, I was only an emissary of the physician. Today, I think I appreciate nursing more as its own area of expertise.' (R15)

All in all, the respondents thought that the use of nursing science knowledge to strengthen their knowledge base in paediatric oncology nursing is of paramount importance. The respondents had a new type of perspective into the use of nursing science knowledge and promotion of evidence-based nursing. These have strengthened the professional growth and development of the respondents. Two of the nurses reflected on the development of nursing and their growth as an expert as follows:

'Banish the thought that this is the way we have always done things and how we will do them from now on. Nursing, like everything else, is evolving, and we need to develop and train ourselves. This was my original thought when I entered the advanced training. I knew that I wouldn't gain anything new and revolutionary from the training, but I wanted to start looking for new information actively myself. I hope that my interest in reading studies and articles on nursing science will also remain after the training.' (R10)

'I've noticed in myself and others that we have started to think about our work more deeply, and we have to be able to justify the way we do things, with evidence-based activity as the basis of everything. Oh, what insight we/I have gained!' (R9)

6.2 Use of medical knowledge

The use of medical knowledge helped the nurse respondents gain a deeper understanding of paediatric medical care. This helped them justify the practices related to care and monitoring more extensively and in more detail to children and their families. Furthermore, the respondents thought that an adequate amount of medical knowledge about paediatric cancers helps them care for children and their families more comprehensively. According to the respondents, adequate knowledge of medicine strengthens work motivation, while new information keeps them abreast of the treatment methods of the future. The use of medical knowledge helped the nurse respondents outline what they already know about paediatric cancers and their treatment. Acquiring information helped them recognise the areas in their work related to the treatment of paediatric cancers on which more information is available.

Deep understanding of cancers and their treatment

According to the respondents, the use of medical knowledge and, through it, having a deeper understanding of paediatric cancers and their treatment and monitoring is important in order for them to evolve professionally.

'We gained a great deal of new and useful information about medicine. I thought about how little time I spend considering a child's diagnosis more closely in my everyday work. I often simply carry out the current treatment without considering the origin of the tumour, for example. Perhaps I will consider the child's diagnosis at work in the future and combine the things I have learned in lectures.'
(R14)

Strengthening their understanding of medical information on paediatric oncology treatments helped the respondents perceive the cause and effect significantly better in caring for children. This

understanding helps the nurses justify matters better, more extensively and in a timely manner to children and their families. According to the respondents, the use and understanding of medical knowledge helped them care for children and their parents more comprehensively. A deeper understanding of a child's treatments and the monitoring of the illness was useful in guiding children and families as well as in justifying various practices to parents.

'We also had a lecture on children's radiation therapy, held by a radiation oncologist. This lecture deepened my knowledge of radiation therapy, and I also learned many new things. I thought this was a good thing, since the radiation oncologist at our hospital always speaks with the parents/children separately in the radiation therapy unit's rooms, and the nurses in our department do not have the opportunity to be present in these discussions. Now I myself gained a great deal of information that I can utilise in the future when dealing with children who are treated with radiation therapy and their families.' (R2)

According to the respondents, possessing an adequate level of medical knowledge about paediatric cancers increases work motivation and gives meaning to work. Furthermore, medical knowledge provided the nurses with an understanding of the types of treatments being developed for paediatric cancers. According to the respondents, gaining this type of knowledge is important, as many parents are well aware of future treatments and want to discuss them with nurses. A deep understanding of paediatric oncology treatments provided the nurses with perspective on what they already know about their own field. This strengthened the professional confidence of the respondents.

'I think of myself as an experienced nurse. This notion has gained strength during these studies, as I've noticed that I do know a lot about paediatric cancers and their treatment.' (R13)

The professional development of paediatric oncology nurses requires a strong knowledge base in nursing, but the respondents state that it is equally important to know how to apply medical knowledge in nursing work. An understanding of paediatric oncology treatments as well as the use of nursing methods and up-to-date nursing work appear to be factors that enable professional development even for experienced paediatric oncology nurses.

7. Discussion

The purpose of the study was to determine what type of factors are linked to the professional development of nurses in paediatric oncology nursing. According to the results, professional development is based on a strong knowledge base in nursing and the use of medical knowledge in nursing. It is obvious that professional development requires a robust nursing knowledge base and its application to work. An adequate level of medical knowledge of paediatric cancers appears to be equally important for professional development. According to studies, the professional development of nurses is affected by various factors. These include having the opportunity to regularly participate in continuing education and having access to nursing databases (Lemondé and Payman, 2015; Bungeroth et al., 2018), participation in the development of interventions and training that support professional development (Viljoen et al., 2017), systematic support at work (Narayanasamy and Penney, 2014) and a work atmosphere that supports development and allows critical thinking (Manley et al., 2018). Previous studies have not identified adequate understanding of medical knowledge concerning one's own field of nursing as a factor linked to professional development.

The strong professional role of nurses was highlighted in this study. In addition to the development of nursing in one's own department, another factor identified as being important to professional development was that individual nurses stay abreast of nursing research. However, this is not concurrent with the qualitative study in which oncology nurses perceive a gap between defined roles and the reality of daily practice. Oncology nurses possess the required knowledge, skills and attitude to provide complex care, and they are committed to professional development, but they experience time constraints as an obstacle to fulfilling their responsibilities and roles (Lemondé and Payman, 2015). Some of the nurses in this study also considered how resources are allocated to the development of nursing to ensure that children and their families can be provided with nursing that is as high-quality and research-based as possible in the future.

The professional development of the nurse respondents was affected by the opportunity to compare their nursing practices and share their experiences with paediatric oncology nurses from other hospitals during the two-year training. At the same time, they were forced to question and justify the methods they used to others. The respondents considered this to be important to their professional development. Actually, reflection, critical decision-making and professional judgement are considered basic elements in professional development (Hayes, 2016; Grant, McKimm and Murphy, 2017, p 13-14). Therefore, it is crucial to reinforce reflection and support critical discussion as part of everyday practice in early education and training of health professionals in order to help

them grow and learn throughout their careers (Grant et al., 2017). In fact, there are multiple studies that indicate a positive correlation between continuing professional education and the improvement of nurses' self-confidence, creating and maintaining a sense of identity, nursing career plans, nursing practice improvement, and intellectual stimulation (Zander & Hutton. 2009; Kopačević et al., 2013). As Ramvi (2015) underlines, there cannot be any real professional development without personal development, and therefore the exploration of a nurse's self-understanding is one way to contribute to professional development.

Although taking responsibility for the professional development of oneself and others is one of the key competences in paediatric and oncology nursing (RCN Competencies 2012; Ross et al., 2016; RCN competencies 2018), professional development has rarely been mentioned as a priority area for research. Most reports and studies tend to focus on research priorities for pretty specific areas of paediatric and oncology nursing such as needs assessment, resuscitation, pain management, palliative care, survivorship care and research translation in nursing (Eun-Hyun et al., 2013; O'Quinn and Giambra, 2014; Downing et al., 2015; Lunney, 2015; Knobf et al., 2015; Quinn et al., 2017). However, Ramalet et al. (2012) studied paediatric intensive nursing (PICU) research priorities in Australia and New Zealand and discovered that one priority area was related to nurses' professional development needs. Another study on research priorities in children's nursing from Ireland indicated that nurses' role in care delivery, such as factors influencing advocacy and confidence of children's nurses in the clinical area, should be studied more (Brenner et al., 2014). As for general level in nursing, The American National Nursing Staff Development Organization Research Committee identified research priorities for nursing professional development, such as developing instruments for measuring competence development, assessment of critical thinking, and the effect of educational programmes on knowledge and knowledge retention (Harper et al., 2012). Paediatric oncology nurses play an important role in the psychosocial care of families of a child with cancer. Therefore, we cannot ignore professional development as a crucial part of the practitioner's competence to deliver safe and effective care. Thus, further studies are specifically warranted on the paediatric oncology nurses' perspective towards professional development to identify key factors associated in the development process.

Trustworthiness

Writing in a diary regularly over a period of 20 months requires considerable time and effort. However, the participants generated rich data about a complex phenomenon of professional development. Morrell-Scott (2018) highlights that diaries can be a challenge for those maintaining

them, but they also offer a personal insight, which can be useful as a data collection method, as well as being therapeutic for the participant. Indeed, the diary data provided us with valuable information about personal experiences, views, thoughts and feelings from the participants' perspective that cannot be easily observed otherwise. Moreover, in-depth and broad data allowed us to have a look into the nurses' interpretations concerning their professional development that had been collected for a long period of time.

We adopted an investigator triangulation to confirm the consistency of the findings. Practically, this meant that four researchers participated in the analysis process at different phases and discussed the categories that emerged from the data until mutual agreement was achieved. Furthermore, we applied a critical appraisal tool produced by the Joanna Briggs Institute to assess the methodological quality of the study (Lockwood et al., 2015). Therefore, the Critical Appraisal Checklist for Qualitative Research was used, and no deficiencies were observed regarding the methodology of the study (Checklist for Qualitative Research, 2017).

8. Conclusion

The professional development of paediatric oncology nurses requires continuous strengthening of their knowledge base in nursing. The paediatric oncology units at different hospitals should organise regular joint training to provide nurses with the opportunity to reflect on the methods they use and strengthen their medical knowledge of cancers. It is also important to develop a specific indicator to describe the competences required in paediatric oncology nursing. A career model that strengthens the professional development and growth of nurses can be created as a foundation for visible competence.

The study findings will benefit future paediatric nurses, nurse leaders and educators, as we will have a better understanding of nurses' perception of professional development and the factors associated with it. In particular, nurse leaders and educators can use the study results in the planning and implementation of continuing professional education for nurses who are working with severely sick children and their families. Although the findings of this study are not generalisable, they nonetheless partly fill the gap in scientific literature related to professional development in paediatric oncology nursing describing the phenomenon that has suffered from a paucity of research. More importantly, the findings of this study point out directions for future research related to the given area of nursing.

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