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NURSING LEADERSHIP IN DISASTERS

A scoping review with special references to competencies



ABSTRACT

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Nursing leadership in disasters-A scoping review with special references to competencies
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The aim of this thesis was to map available evidence from literature to get an overview of what is known of role of nurses in leadership during disasters. A scoping review method was used to investigate existing literature. The objective was to identify key arguments on importance of nurses' leadership role in disasters, to identify competencies essential in disaster nursing leadership and to observe what literature says about needs of field of future disaster nursing leadership. Scoping review consisted total of 17 articles published between 2014-2019. The analysis of included articles was conducted with inductive content analysis method.

Key findings in nurses' role in disaster leadership fell in four categories. Nurses provide skills in leadership and knowledge in care during disasters and health care is dependent on nurses because nurses are usually largest professional group in health care. Nurses are expected to take role in leadership during disasters because nurses are trusted, it benefits the population and leadership is assumed to be part of nursing. Unpredictability and frequency of disasters puts health care leadership in pivotal demand, and therefore nurses are expected to take role in leadership.

With core competencies for nurses' in disaster leadership the results were clear: There is no consensus on what the main competencies for disaster nursing leaders are and there is vast paucity in literature concerning disaster leadership competencies. Even so, several articles listed numerous skills, abilities and characteristics essential to nurse in leadership role during disaster, which were then closer investigated in this thesis.

Three main categories were found describing future needs for disaster nursing leadership: Field of study and strong scientific background needs to be developed. Education and evidence-based competencies needs to be developed and recognition and acknowledgement of nurses as leaders needs to be increased.

With this thesis, the importance of nurses' leadership skills and training was highlighted and evidence in nursing leadership during disasters was emphasized. The information this thesis provides may be used as basic information for persons working in leader roles in disaster and as part of educational purposes.

Keywords: Disaster nursing leadership competencies, nursing leadership, disasters, competencies

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1 INTRODUCTION

Estimated one in five countries faces disaster every year. Natural hazards have been primary type of disaster in last ten years affecting over 2 billion people. Estimated 201,5 million people in 134 countries are in need for humanitarian assistance because of ongoing and new crises. No country is immune to disasters' causes on health. (Development Initiatives, 2018.)

Disasters cause both direct ill-health and disrupts the systems providing health care. Since disasters cause massive consequences to health, extensive efforts to save lives and reduce suffering are therefore required from health care. (Development Initiatives, 2018; World Health Organization [WHO], 2007.) Nurses work in front line providing wide range of health services in disaster settings with limited resources, serve as first responders, care providers, coordinators of services and providers of information and, at the same time, are usually comprehensive primary health care providers in most countries (WHO, 2007). Significance of nurses during disasters is obvious since nurses are typically and consistently involved in disaster response by being the largest group of human resources of health care providers in disasters (WHO, 2018).

Disasters require special attention because of their uncertain, sudden and disintegrating nature. When a disaster strikes, normal day-to-day activities of health care are being challenged by rush of casualties, lack of attending staff and possible damage to facilities. In such incident, the health care professionals find themselves working in new paradigm with new aim to restore health care services that meets the new demands of community. In these cases, new health teams are often formed quickly without proper resources designated for leadership. A health team leader in disaster situations needs to make time-critical decisions based in uncertain data. That is why a style of leadership is being different to the collaborative multi-disciplinary approach most often seen in health care. Therefore, carefully considered and well enhanced leadership is crucial as part of disaster preparedness. (Filmer & Ranse, 2013.) Therefore, disaster health care delivery and systems can only be successful when nurses have essential and necessary disaster competencies and abilities to respond (World Health Organization & International Council of Nurses [WHO & ICN], 2009).

Despite numerous examples of nurses providing leadership for disaster response, only few research studies exist in nursing leadership in disaster context (Knebel, Toomey & Libby, 2012). Although literature is slight, general recognition of importance of nurses' involvement in disaster settings and management seems apparent. Several parties, including the World Health Organization's and International Council of Nurses' (2009), have developed their own sets of competencies in order to find what is essential to nurse leader in disaster. However, according to several international studies, nurses are lacking in knowledge in disaster management and preparedness and these competencies are not met (Nilsson et al., 2016). It is also suggested that there has not been proper training for many nurses who have worked in leading role in disaster situation (Filmer & Ranse, 2013). Education in disaster management, leadership and response is needed both in nursing programs and in post-graduate programs. (Nilsson et al., 2016).

Because disasters may happen everywhere (WHO, 2007), their nature tend to be more and more international (Veenema, Griffin, Gable, MacIntyre, Simons, Couig, Walsh, Lavin, Dobalian & Larson, 2016) and nurses are having special role in health care (WHO, 2018), there is no question why disaster leadership would not be essential to nurses. With this thesis existing literature was investigated in order to get an overview of what is known of role of nurses in leadership during disasters giving special attention to what are these core disaster nursing leadership competencies.

2 DISASTERS, NURSING AND LEADERSHIP

United Nations (UN, 2016) defines disaster as “a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts”. World Health Organization’s (2018) definition for disaster is in line with UN’s: “Disaster is a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources”.

The International Federation of Red Cross and Red Crescent Societies (IFRC, 2018) definition follows WHO’s definition. IFRC sees disaster as “a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community’s or society’s ability to cope using its own resources”. IFRC also adds to definition that disasters are often caused by natural reasons but can also have human origins.

Centre for Research on the Epidemiology of Disasters (CRED, 2018) has typed disasters into two categories: natural hazards or technological and man-made hazards. Natural hazards occur naturally as geophysical (e.g. tsunamis, earthquakes, volcanic activity), hydrological (e.g. floods or avalanches), climatological (e.g. drought or extreme temperatures), meteorological (e.g. storms or cyclones) or biological (e.g. disease epidemics) phenomena. Man-made or technological disasters takes place close to human settlements and are caused by human (e.g. conflicts, displaced populations, industrial accidents).

According to World Disasters Report 2018, natural hazards have been primary type of disaster in last ten years affecting over 2 billion people. Most often disasters were caused by weather related hazards such as floods, storms, drought and extreme temperatures. Most of the people affected have been in Asia. (IFRC, 2018.) In addition, according to Global Humanitarian Assistance Report 2018, estimated 201,5 million people in 134 countries are in need for humanitarian assistance because of ongoing and new crises. Most

countries in need for humanitarian assistance were affected by multiple type of crisis including both conflicts and disasters associated with natural hazards. (Development Initiatives, 2018.)

In literature, terms of emergency and disaster are often used simultaneously and together but definitions vary by the source. By WHO's (2018) definition emergency is term describing a state, "state of emergency". This means that emergency is managerial term, it is demanded to be declared by authority. The UN has (2016) defined emergency as interchangeable term to disaster, but it may be also used related to hazardous events that do not disrupt the functioning of the society or community as disasters do. For clarification, the term 'disaster' is used in this thesis to refer to all situations which would fulfil characteristics of both emergency and disaster. These are situations which affects large populations' health and where nurses are in front line taking care of people.

2.1 Disaster nursing

The role of nurses as key players in disaster situations becomes from nurses' broad care-giving skills, adaptability and creativity, wide range of skills applied to disaster settings and leadership skills nurses have. As Kalanlar (2018) puts it "Disaster nursing can be defined as systematic usage of nursing knowledge and skills in disasters, and development of practices designed to reduce disaster damages to health and eliminate its life-threatening hazards". Nurses' role evolves from technical skills and knowledge of epidemiology, cultural-familiar structures and psychosocial issues with nurses' strategic role cooperating with broad health and social disciplines. (ICN & WHO, 2009.)

Disasters cause massive consequences to health and require massive efforts from health care in saving lives and reducing suffering. Nurses are consistently involved in emergency care after disasters and, in most cases, constitutes the largest group of human resources of health care providers after disaster. Therefore, nurses are obvious part of disaster response and management. Nurses work in front line providing wide range of health services in emergency response by providing curative, promotive, preventive, supportive and rehabilitative care of groups, families and individuals. Nurses often work in difficult situations with limited resources, serve as first responders, care providers, coordinators

of services and providers of information and, at the same time, are usually comprehensive primary health care providers in most countries. Therefore, disaster health care delivery and systems can only be successful when nurses have essential and necessary disaster competencies and abilities to respond. (WHO, 2007; WHO & ICN, 2009.)

The ICN has set up a framework to create coherent plan to describe core competencies for nurses in disaster settings and to underline the importance of nurses in disaster situations (ICN & WHO, 2009). Despite WHO and ICN given framework for disaster nursing established already in 2009, numerous institutions including hospitals, professional organizations, governments and non-governmental organizations have developed their own standards of core competencies in disaster nursing. Discontinuousness in field of disaster nursing is recognized in study of Daily, Padjen and Birnbaum (2010). Conclusion was that hundreds of competencies have been developed but universal acceptance and application of these in order to develop framework is lacking.

If there are multiple different versions of competencies for disaster nursing in general, the situation is even more fluctuating for nursing leadership competencies in disasters. Literature about nurse leader competencies in disasters seems scarce and for example the ICN's framework for disaster nursing is not mentioning leadership skills as core competency on its own for nurses in disasters. There has been attempts to develop core leadership competencies and one is done by Veenema, Losinski, Newton and Seal (2017a). Although, because lack of studies, minimally available literature and absence of evidence-based standards, no consensus about this topic was possible to be drawn according to these researchers. Standardized and evidence-based models for these competencies were not found.

Also, need for proper education to disaster nursing has been noted by several parties. Nurses are playing key role in disasters and should be prepared to respond effectively. Both governmental and professional organizations have developed competencies for disaster health care professionals, but further effort is needed in universal frameworks and developing standardized terminology. (Daily et al., 2010.)

2.2 Leadership and disaster nursing leadership competencies

Management and leadership are overlapping terms which are used concurrently, but they describe different aspects of phenomenon. Liphadzi, Aigbavboa and Thwala (2017) looked for literature to find how these terms are seen to differ in theoretical perspective. Their summary was that leadership is seen as subclass of management. They are both important for executive performance. Planning and structuring parts of the work are seen to be elements of management, but leaders bring motivation and vision to the work. Briefly, leadership brings vision to the work and management outlines the order. Definition of leadership varies, but many authors and scholars tend to agree that leadership involves the ability to motivate, influence and enable others towards the goals important to the group. Key aspects of the role of leader includes influencing group activities and manage change. Most theories of leadership have been adopted to health care from business settings and leadership theory is continuing to change over time. (Al-Sawai, 2013.) Various leadership styles can be implemented in nursing practice and it is important for healthcare professionals to be aware of different relevant leadership theories and styles in order to become better and effective leaders (Giltinane, 2013).

The idea of leadership has evolved through decades, starting from “great man theory” in which leadership was seen as inborn quality of individual (Emmerling, Canboy, Serlavos & Batista-Foguet, 2015). Even nowadays, there are still some ideas of personal traits that are seen different with leaders from followers. Grimm (2010) identified these traits as ability to prioritize, courage, ethical fitness and confidence and sense of purpose. The unconscious social motives of achievement, power and affiliation are needs and concerns that are linked to leadership. The leadership behavior is seen to be driven by forces outside of conscious awareness. Need of power and need of achievement have both been linked to effective leadership. (Emmerling et al., 2015.) Anyhow, it is proposed that although some are thought to be “natural leaders”, given necessary skills and knowledge, anyone can be a good leader and leadership skills can be taught (Giltinane, 2013).

Definition of leadership is also situated to the context in which action takes place. This means that leadership in disasters is context needing its own definition. Disasters puts leaders into special context in which situations may be life-threatening and requirement of rapid action in poor security situations is essential. Incomplete amount of information

to support decision-making, fast and new situations and tension between operation objectives, political relationships and human rights may be present. Under these situations, most successful approaches to leadership are those that are best adapted to make quick decisions under pressure on basis of limited information. In addition, during disasters these needs to be often prioritized between practical, political and ethical imperatives which requires special knowledge and abilities from the leader. (Clarke, 2013.)

In this thesis, term of leadership was selected to be used over management since it describes more broadly leader's influence on work as management tends to describe practical order of steps needs to be taken in order to achieve certain goals. For example, in literature disaster management is quite clearly and in high mutual agreement described to involve phases of preparedness, mitigation, response and recovery all of which involves certain acts to respond effectively to disasters (e.g.: Thobaity, Plummer & Williams, 2017). Names of these phases may vary depending on the source, but main elements stay similar since they describe what leader needs to do in order to respond to disaster. Disaster leadership, in other hand, is more conceptual and it describes what nurse leader brings to work. Therefore, disaster nursing leadership was selected to be used in this thesis to describe leader's role in disaster response. With disaster nursing leadership competencies core knowledge and abilities of nurse leader in disaster settings are described in this thesis.

As previously noted, disaster health care can only be successful when nurses have necessary disaster competencies and abilities to respond (WHO & ICN, 2009). The term 'competency' is internationally applied concept in nursing used to reference a practitioner's ability to provide care (Garside & Nhemachena, 2013), and it is closely linked to leadership in nursing. Variability in use of term competency exists widely (Garside & Nhemachena, 2013; Cowan, Norman & Coopamah 2005; Fukada, 2018), but nursing competency is often used to describe core abilities required for accomplish one's role as a nurse (Fukada, 2018). Therefore, nursing competency is combination of knowledge, skills, performance, attitudes and values nurse needs to apply in care (Cowan et al., 2005). Nursing leadership competencies represent these core abilities when nurses works in leader role. Competencies are under interest especially in education and in research, because they are commonly assumed to be something that can be improved by

training and education and they can be used to measure the effectiveness. (Jennings, Scalzi, Rodgerse & Keane, 2007.)

3 AIMS, OBJECTIVES AND RESEARCH QUESTIONS

The aim of this thesis was to map literature to get an overview of what is known of role of nurses in leadership during disasters by giving special reference to leadership competencies. A scoping review method was used to investigate literature. The objective was to identify key arguments on importance of nurses' leadership role in disasters, to identify key competencies in disaster nursing leadership and to observe literature about future needs of field of disaster nursing leadership.

Three research questions were formed:

- 1) What is the role of nurses in leading and in leadership during disasters?
- 2) What competencies are seen important for nurse leader during disaster?
- 3) How disaster nursing leadership should be improved according to literature?

First two research questions are answering directly to components relevant to this thesis. First question aims to answer also to question if nurses are needed in leadership roles during disasters in order to disclose nurses' significance in disaster leadership. Second research question aims to find answer on what is important for nurse leaders in disasters, which competencies are substantial to perform as nurse leader during disaster. Last question was added in order to find what literature sees important to apply or improve in nursing leadership during disasters.

4 RESEARCH METHODS AND THESIS PROCESS DESCRIPTION

Scoping review method was selected in this thesis. Scoping review is tool used to determine the coverage or scope of literature on a given topic and to give an overview of its focus. Compared to systematic review, which aims to produce international evidence and synthesize the results by using systematic and explicit methods to create evidence on some particular question, scoping review aims to examine emerging evidence that may be addressed to more precise systematic review. Scoping reviews reports evidence that inform and address practice in the field while systematic reviews are the pillar of evidence-based healthcare. With scoping review, it is possible to map and identify available evidence and it is used to reconnaissance and to clarify definitions and conceptual boundaries of a topic. Scoping reviews may also be used to summarize research findings and to identify research gaps and to identify key factors related to certain concept. Scoping reviews are especially useful in bringing together literature with emerging evidence and addressing questions beyond of those directly linked to experience or effectiveness of an intervention. (Munn et al., 2018)

Scoping review method was used to map existing literature for evidence on nursing leadership in disasters. Since there seems not to be clear consensus on roles of nurses as leaders in disasters and studies of this topic vary, a scoping review method is flexible enough to map existing knowledge on this topic. Joanna Briggs Institutes' protocol for scoping reviews (2017) was used to proceed with review. It is used as protocol to define the methods and objectives of the research and details for scoping reviews (Peters, Godfrey, McInerney, Parker, & Baldini Soares, 2015).

4.1 Identifying research questions

Research question and key words were identified by using Joanna Briggs Institute's guidelines for the PCC tool which is developed for especially for scoping reviews. Background for the PCC is in the PICO tool commonly used in systematic reviews. The PCC mnemonic stands for 'Population, Concept and Context' and it is tool especially used in scoping reviews to create congruence between the title, objectives, questions and

inclusion criteria. By dividing research questions into categories of ‘population, concept and context’, adequate research questions are created, and suitable search terms are selected. (Aromataris & Munn, 2017.)

Firstly, key words were identified from ‘participants, concept and context’ categories by dividing each category to main terms. Main terms were searched from previous studies found with initial search for this thesis. Specific subject terms were then searched based on these key terms by using U.S. Medical Subject Headings (MeSH) official terminology search engine which is widely used in medical research and study (U.S. National Library of Medicine, 2019). These MeSH terms were then used in literature search and search was conducted with Boolean Operators. Boolean operators are linking terms used to either broaden or narrowing the search results (EBSCO Industries, 2019). In this thesis, each PCC category’s (Population, Concept, Context) MeSH-terms were combined with Boolean AND-operator and MeSH-terms inside each category were combined with Boolean OR-operator (described in Table 1).

The PCC process in this thesis included following reasoning: Key participants or population in this scoping review are nurses. Nurses who are influencing in the role of leader or manager in disaster settings. Action in interest is acts and practices of leading and competencies nurses require in leading position during disasters. Therefore, concept includes leadership roles of nurses, nurse or nursing leadership and core competencies of nurses in leading position. Context is in disaster settings.

Overlapping terms of ‘disaster and emergency’ and ‘leadership and management’ were used because of previously described incongruence in terminology. Search word ‘competencies’ was selected because it was seen to give broader answer to research question compared to search words like ‘skills’ or ‘abilities’. Competency is hypernym to broad range of abilities and skills and vice versa, abilities and skills are seen to include in competency. Aim was to get as comprehensive results as possible. The anticipated outcome is that nursing leadership has important role during disasters and some characteristics and factors can be recapitulated from literature that could be summarized. In Table 1 selection of terms, keywords and MeSH-terms are being tabulated through PCC categorization. Also, an example of used Boolean search sentence is given.

TABLE 1. Selection of terms, key words and MeSH terms from population, concept and context of thesis and example of Boolean search sentence

PCC	Term	Keywords	MeSH
Population	Nurses	nurse, nurses, nursing	Nurse, Nurses, Nursing, Disaster nursing, Emergency nursing
Concept	Leading role of nurses	leadership, management,	Leadership, Management,
	Nurse or nursing leadership	nursing leadership, leadership	Emergency management, Administration,
	Core competencies of nurses in leading position	competencies	Competency, Competence, Crisis management, Disaster planning
Context	Disaster settings	disaster,	Disaster,
	Emergency settings	emergency	Disasters, Emergency, Emergencies, Natural disasters, Mass Casualty Incidents, Crisis
Example of Boolean search sentence	(nurse OR nurses OR nursing OR disaster nursing OR emergency nursing) AND (leadership OR management OR emergency management OR administration OR competence OR competency OR crisis management OR disaster planning) AND (disaster OR disasters OR emergency OR emergencies OR natural disasters OR mass casualty incidents OR crisis)		

4.2 Data collection

Databases for scoping review literature search were following: Academic Search Elite (EBSCO), The Cumulative Index for Nursing and Allied Health (CINAHL), ProQuest Health Research Premium Collection, PubMed, Science Direct, WHO Global Health Library, Sage and Cochrane databases.

Inclusion criteria of scoping review should include characteristics of participants, core concept, context (PCC) and types of studies. In scoping review, the sources of information are broader compared to systematic literature review or other literature review methods and it may include any existing literature of the topic. In scoping reviews, the sources of information can be left “open” in order to get broad view of existing literature since scoping reviews should include both published and unpublished (grey literature) material and reviews in order to be as comprehensive as possible. (Aromataris & Munn, 2017.)

Inclusion and exclusion criteria for scoping review are explained in Table 2. In scoping review all publications can be included since it aims to give broad overview of existing literature of the topic.

TABLE 2. Inclusion and exclusion criteria to literature search

Inclusion criteria	Exclusion criteria
Related to leadership role of nurses during disasters	Papers with no mention about leadership role of nurses during disasters
In the disaster management and leadership contexts	Outside the disaster management and leadership contexts
All publications	
Published in English	Other languages
Published between 2014-2019	Publications outside of the study period
Full text access	No access to full text

Joanna Briggs institute’s (2017) three step strategy for reviews was used to this scoping review. It includes initial limited search, second actual search and third, additional studies search. Initial search includes search from at least two relevant databases in order to

generate analysis of text words in titles and abstracts and search for index words. In second search all identified key words are being used and search is conducted through all selected databases. On third phase, the reference lists of selected studies are being investigated and additional studies are being searched. (Aromataris & Munn, 2017.)

4.3 Search outcomes and selecting articles

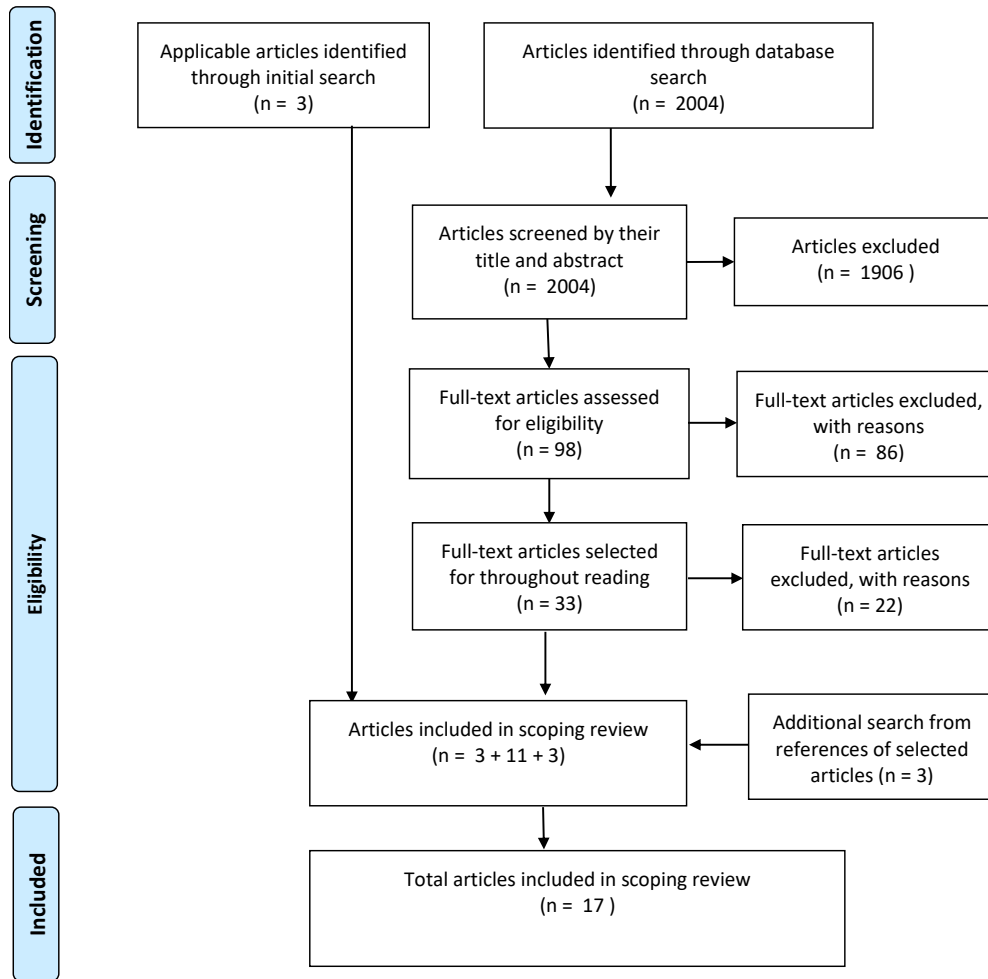


FIGURE 1. PRISMA diagram for article selection

On Figure 1 literature selection progress is clarified with PRISMA diagram. Firstly, through initial search 3 articles were thoroughly examined and found eligible for this review. Secondly, actual literature search was conducted from 8 databases and it end up with 11 articles were found to answer directly to research question and were included in data analysis. Thirdly, from additional search from reference lists of selected studies 3 additional studies were found eligible to be included in data analysis.

Total of 17 articles were selected to literature review and content analysis. Since scoping reviews can and should include both published and unpublished material and the sources of information can be broader compared to systematic literature review, scoping review may include any existing literature of the topic (Aromataris & Munn, 2017). With this freedom of sources, articles selected included 10 qualitative studies with interviews, systematic literature reviews and scoping reviews, 3 quantitative studies with statistical analysis methods, 2 mixed method studies and one policy analysis, one nursing book article and one review article. 11 of articles were published in USA. Other sources were Australia/Iran, Usa/Turkey, Australia, United Kingdom and international/Brazil. Description of included studies are attached to appendices. Initial search results and included studies are described in Appendix 1, actual literature search results and included studies in Appendix 2 and additional search studies in Appendix 3.

Initial search

Initial limited search was conducted from Cinahl and Proquest databases in order to find possible key search terms and to screen if scoping literature review would be possible to conduct with this topic. With search words “disaster”, “nursing” and “leadership” there were 14 possible articles found relevant to this topic. Out of these there were 7 articles with full access which were found to be relevant and possible to be used in this thesis. These articles were starting point of this thesis and were used in background information part. Later, out of these initial articles found, 3 articles were selected to be included in scoping review. These included one book article with literature review, two research articles and nursing publication author article.

Actual literature search

After deciding search strategy and search terms, actual literature search was conducted. On Table 3 articles and hits found are being summarized. Total of 2004 articles (EBSCO, n=1066; Sage, n=166; Proquest, n= 396; PubMed, n= 100; Cinahl, n= 98; Science Direct, n = 101; Who Global Health Library, n= 1; Cochrane, n= 76) were screened from 8 databases through their titles and abstracts, and 98 were selected for further reading.

Ultimately the number of articles reduced to 33 articles for the following reasons: articles did not answer to research questions, articles did not domain disaster situations or articles did not fulfill inclusion and exclusion criteria. On throughout reading, only 11 articles were fulfilling the inclusion criteria.

TABLE 3. Scoping review literature search

Database	EBSCO	Sage	Proquest	PubMed	Cinahl	Science Direct	WHO Global Health Library	Cochrane	Total
Number of articles found									
1. search	1066	166	87769	402	98	5951	1	76	95529
2. search (titles and abstracts only)	/	/	3338	100	/	101	/	/	4946
3. search (titles and abstracts only and peer reviewed)	/	/	2005	/	/	/	/	/	3613
4. search (titles and abstracts only, peer reviewed - without 'emergency', 'emergencies' and 'emergency nursing')	/	/	396	/	/	/	/	/	2004
Chosen articles based on title and abstract	21	4	28	17	11	16	0	1	98
Chosen articles based on text	2	0	7	7	2	14	0	1	33

The search was started from EBSCO database from full text with all earlier mentioned search terms in Boolean search with exclusion criteria mentioned. This first line of search gave 1066 results which were screened and based on title and abstract 21 articles were selected. Selected articles were closely read, and 2 articles were found fitting to this review.

From Sage database with similar search strategy 166 results were found. After screening titles and abstracts, 4 articles were more closely read but none were selected fitting for this review. At this point of review, it was noticed that majority of the results were encompassing other topics than direct disaster nursing or disaster leadership. Most of the results focused on emergency department's practices and guidelines. Also lack of agreed terminology on disaster nursing and disaster leadership was clearly seen. English words' "disaster", "emergency" and "crisis" polysemy also ended up with results focusing on other topics, such as management of "respiratory crisis", "mental crisis", "opioid emergency", "Ebola emergency" et cetera. Part of the results also were concentrating on empowering communities on disaster preparedness, especially to hurricanes in USA.

After searches from EBSCO and Sage databases third selected database was Proquest which gave 87769 results with original MesH word search phases and limiters. With

additional searches by limiting search to only titles and abstracts (3338 results) and choosing only peer reviewed articles (2005 results), and selecting only articles released in last 3 years (1317 results) a decision was made to fourth search to rule out MeSH terms “emergency”, “emergencies” and “emergency nursing”. These terms kept giving results concerning emergency room or emergency department nursing practices in different settings or with different clinical cases. These results did not include leadership related topics in disaster settings and were therefore ruled out on continuing search. With fifth search on selected MeSH terms with following search sentence:

(Nurse OR Nurses OR Nursing OR Disaster nursing) AND (Leadership OR Management OR Emergency management OR Administration OR Competency OR Competence OR Crisis management OR Disaster planning) AND (Disaster OR Disasters OR Natural disasters OR Mass Casualty Incidents OR Crisis)

Search in Proquest was limited to titles and abstracts, from peer reviewed articles, in order to get more controllable and informative results (396 results). Out of these 28 were selected by title and abstract and with further reading 7 articles out of these were screened to fit in this review.

PubMed search included same search words and sentences as Proquest search with limiting publication to last 5 years. From all text search (402 results) limitation was then done to search from titles and abstract (100 results). From these articles 17 was chosen by abstract and title and with further reading 7 articles matched the purposes of this review.

Cinahl search was conducted as previously explained with same limitations. Search was done from all text (98 results). By abstracts and titles 11 articles were selected, and out of these 2 articles was seen to fit this review with further reading.

In Science Direct there is limitation for Boolean phrases to include maximum of 8 terms. In this database the search sentence was therefore following:

(Nurse OR Nursing) AND (Leadership OR Management OR Competency)
AND (Disaster OR Disasters OR Mass Casualty Incidents OR Crisis)

Science Direct database gave 5951 results in first line of search from all text and in second search from titles and abstracts result was 101. Based on inspection of title and abstract 16 articles were selected and with further inspection 14 out of these were selected to fit in this review.

WHO Global Health Library gave only one possible article but based on its abstract, it was excluded from the review. Cochrane database gave 76 articles from which one article was screened to fit in this review based on its abstract and text.

These selected 33 articles from 8 databases were thoroughly screened and read for their eligibility. 11 articles were found to answer to research questions and included in data analysis. Selected articles are listed in Appendix 2.

Additional search from reference lists

On third round of search, three additional articles were found from reference lists of previously included studies. These three articles were added to data analysis. Same inclusion and exclusion criteria were followed as in actual literature search. Selected articles are listed in Appendix 3.

4.4 Data analysis

Inductive content analysis was used to process the results. Content analysis method is a method used in qualitative research. It is a technique for research for making inferences from texts to the contexts of their use which are replicable and valid. Content analysis aims to provide objective and systematic means to valid inferences from data when describing a specific phenomenon. In inductive content analysis method, conclusions are developed from collected data by uniting new information together into theories. (Bengtsson, 2016.)

Analysis schedule described by Bengtsson (2016) was followed during the process of content analysis of this thesis. Each included study was thoroughly read and answers to research questions were highlighted from articles. This information was further categorized under meaning unit, condensed meaning unit, code and category by each research question.

On Table 4 is an example of categorization process used in this thesis. Each research question was categorized by following method: Meaning units were searched by reading thoroughly the selected articles. These meaning units are sentences or paragraphs related to each other answering the research question. Each unit were firstly abridged into condensed meaning units and further labelled with a code which facilitates the identification of concepts around data. By coding the meaning units, the data was assembled into patterns which are called categories. Categories are identified themes from codes. Categories were used to the analysis and results of this thesis. This categorization of contents divided by each research question is included in Appendix 4, 5 and 6.

TABLE 4. Categorization process

MEANING UNIT	CONDENSED MEANING UNIT	CODE	CATEGORY
Meaning unit is sentence or paragraph related to research question found directly from selected articles.	Meaning units found from selected articles were further compressed into condensed meaning units.	Condensed meaning units were labelled with codes which facilitates the identification of concepts around data.	Categories were identified from codes and they were used in analysis and results of this thesis. Codes included in each category are being listed in brackets after category.

On Table 5 main categories for each research question are presented in order to make it easier to follow each category when they are being adduced in results chapter. It was possible to draw four categories for first research question answering to role of nurses in disaster leadership. Second research question needed to be split in two parts; firstly, analysis was done for literature's reasoning on why there is no consensus on disaster nursing leadership competencies, and, secondly, analysis was done for essential

individual skills and characteristics literature still named for nurse leader in disasters. For third research question three categories were found to answer future needs for disaster nursing leadership. Articles supporting each category are mentioned in brackets in Table 5 after each category. Numbering of articles can be found from descriptions of selected articles, see Appendices 1-3.

TABLE 5. Categories for each research question

<p>Categories for research question 1: What is the role of nurses in leading and in leadership during disasters?</p> <ul style="list-style-type: none"> • Nurses have skills in leadership and knowledge in care. (2, 4, 5, 6, 7, 14) • The number of nurses is high in health care and health care is dependent on nurses. (2, 5, 9, 13, 16) • Nurses are expected to take leadership role because it benefits the population, there is high trust in nurses and nursing leadership is seen as core component of nursing. (1, 3, 6, 7, 11) • Frequency and unpredictability of disasters is increasing which puts need for health care leadership in pivotal demand. (1, 2, 4, 5, 9)
<p>Categories for research question 2: What competencies are seen important for nurse leader during disaster?</p> <p>Analysis in reasoning why there is lack of agreement in core competencies:</p> <ul style="list-style-type: none"> • There is lack of acknowledgement, professional and scientific interest of this topic and field of study. (1, 4, 5, 7, 11, 12, 17) • There is no consensus on policy, science, terminology, structure or competencies of disaster nursing leadership. (1, 5, 8, 9, 12, 14) <p>Analysis in essential skills, abilities and characteristics for nurse leaders in disasters:</p> <ul style="list-style-type: none"> • Coordination, co-operation and team player skills (2, 5, 10, 14) • Communication, information processing and presenting skills (2, 3, 7, 17) • Decision-making skills (10, 14, 17) • Personal traits as leader and ability to adapt (1, 2, 10, 14, 17) • Critical thinking and understanding interdependencies (2, 9, 10, 11, 14) • Vision, ethics, values and commitment (1, 3, 7, 17) • Humanity and emotional intelligence (2, 14, 17) • Motivation to lead and being role-model (2, 10, 14)
<p>Categories for research question 3: How disaster nursing leadership should be improved according to literature?</p> <ul style="list-style-type: none"> • Field of study and strong scientific background needs to be developed (1, 14, 17) • Education and evidence-based competencies needs to be developed (1, 5, 17) • Recognition and acknowledgement of nurses as leaders needs to be increased (1, 5, 6, 10, 18)

5 RESULTS

First research question, “What is the role of nurses in leading and in leadership during disasters?”, aimed to reveal what literature says about nurses’ role in leadership during disasters and reveal whether nurses are seen important or needed in leadership roles. Categorization of first research question ended up in four categories. As a summary from findings, it can be said that nurses are having a role in disaster leadership because nurses have skills in leadership and knowledge in care. The number of nurses is high in health care and therefore health care is dependent on nurses during disasters. Nurses are also expected to take leadership role because it benefits the population, there is high trust in nurses and nursing leadership is seen as core component of nursing. Nurses in leadership are needed because frequency and unpredictability of disasters is increasing which puts need for health care leadership in pivotal demand.

Second research question aimed to find key characteristics, competencies and skills for nurse leader in disasters with research question: “What competencies are seen important for nurse leader during disaster?”. Since first research question gave answers to question why nurses are needed in leadership roles during disasters, second research question aimed to find out what is then needed when being in leadership role as nurse during disaster.

Results for second research question were rather clear: There is no consensus on what the main competencies for disaster nursing leaders are and there is vast paucity in literature concerning disaster leadership competencies. Analysis in reasoning why there is lack of agreement in core competencies for disaster nursing leadership fell in two categories. According to this literature review’s articles, there is lack of acknowledgement, professional and scientific interest of this topic and field of study. There is also no consensus on policy, science, terminology, structure or competencies of disaster nursing leadership.

That said, several articles listed numerous skills, abilities and characteristics nurse would need in leadership role during disaster. In order to get idea of what these core competencies in disaster nursing leadership could be, literature was closer investigated

through these individual skills, abilities and characteristics. Analysis in essential skills, abilities and characteristics for nurse leaders in disasters fell in 8 categories. According to this review's literature nurse leaders are needing vast variety of different skills including coordination, co-operation and team player skills and communication, information processing and presenting skills. Nurse leaders also need decision-making skills and they are needing to have certain personal traits as leader and ability to adapt to different situations. Critical thinking and understanding interdependencies was put in high demand among vision, ethics, values and commitment. Nurse leaders are expected to work with skills in humanity and emotional intelligence and they are needing to have high motivation to lead and they need to act as role-models to others.

Third research question was set to find what literature finds necessary to apply or improve in nursing leadership during disasters with research question: "How disaster nursing leadership should be improved according to literature?". Three main categories were found describing future needs for disaster nursing leadership. Literature on this scoping review was rather clear on need for developing evidence-based and scientific background for disaster nursing leadership, developing education and general recognition for nurses as leaders.

References for each category mentioned before can be found from categorization in Table 5 in previous chapter. In following, all three research questions' results are further explained by each category. Argumentation behind each category are being introduced by referencing to this scoping review's articles.

5.1 Nurses' role in leadership during disasters

On following, argumentation on nurses' role in leadership during disasters are being introduced by each found category answering the first research question.

Nurses have skills in leadership and knowledge in care

Overall it was clearly seen from the literature that nurses are needed, nurses are there during disasters and nurses are playing their role in disaster management and leadership. Firstly, nurses provide comprehensive leadership in multiple levels. Edmonson, Sumagaysay, Cueman, and Chappel (2016) and Veenema et al. (2017b) point out that nurses play key role in leadership in home and community level where they live, in at scenes of disasters and places of employment as nurses are the largest health care workforce and in regional, national and international levels. Samuel, Quinn, Griffin, White and Fitzpatrick (2018) argue that nurses' provided leadership is essential in any organization experiencing disaster and leadership is component of nurse role.

Edmonson et al. (2016) and Veenema et al. (2017b) point out that historically, several large-scale disasters have risen the need for understanding crisis and disaster leadership. Nurses have served as leaders during wars, epidemics and disasters as long as nursing has been. By having better understanding on how disasters are led and how conflicts are managed, more lives will be saved. Regardless of the type of disaster, effective leadership is critical – and regardless of disaster, nurses are there serving as leaders in all levels of society.

Roberta, Adelman and Tener (2017) pointed out that since a disaster may occur at any place at any time, nurses with disaster managing skills are needed. Nurses' role in leadership includes planning and preparedness to large scale disaster events and managing clinical challenges disasters bring. Nurses need knowledge and understanding of these large-scale events. Because of their knowledge and experiment, planning, supervision and coordination of care are nurses' responsibilities.

By VanDevanter, Raveis, Kovner, McCollum and Keller (2017) nursing leadership was found essential in enabling nurses to carry out their roles during disaster. Information sharing, providing support and coordination of care were reported as important helping staff nurses to carry out their work after hurricane event. By leaders providing support, nurses were able to carry on in their task during uncertain situation. Also, Pourvakshoori, Norouzi, Ahmadi, Hosseini and Khankeh (2017) are arguing on behalf of the crucial active role nurses are having in disaster management and leadership. They point out that

team leadership, problem-solving skills, clinical care delivery, communication and resource management are parts of nurses' role in disasters. Nurses provide leadership and have special knowledge in care.

The number of nurses is high in health care and health care is dependent on nurses

Nurses are usually the largest group of health care professionals and health care is seen dependent on nurses during disasters. Veenema et al. (2017b) describe nurses as “the clinical backbone and safety net of the health care system, providing leadership for staff and clinical care for disaster victims during emergencies”. They also point out that nurses are recognized worldwide as profession who deliver the majority of healthcare and therefore are the key in improving health outcomes during disasters. Bayraktar and Yıldırım (2016) highlight the critical role nurses have in providing care during disasters and improving recovery phase after disasters because of their large number among multidisciplinary health care teams.

Edmonson et al. (2016) are agreeing in this and add that nurses provide order in chaos with their vision, influence and experience and are therefore essential in disaster leadership. Also, Kalanlar (2018) is arguing that because nurses are the largest occupational group among health care in the world, nurses are therefore considered to have the biggest potential in active role during disasters. In 2016 study Veenema et al. are arguing that the effectiveness of health care and health care system's response to disaster are dependent on surge capacity of nurses simply because nurses are the largest in numbers of healthcare providers. Roberta et al. (2017) add that nurses are there during disasters and they work side by side with other professionals during all phases and across all disasters. They also argue that there is obvious role for nurses in every disaster phase including preparedness, mitigation, response and recovery and therefore healthcare need nurses' leadership skills in coordination and strengthening resiliency of affected communities.

Nurses are needed in leadership roles during disasters because it benefits the affected populations. Since nurses are providing care and leadership in multiple levels and in all

phases of disasters, nurses reduce deaths and increases the health of populations. (Loke & Fun, 2014.)

Nurses are expected to take leadership role because it benefits the population, there is high trust in nurses and nursing leadership is seen as core component of nursing

Because of what is expected from nurses, nurses are having role in disaster leadership. Leadership and management role are also seen to be part of nursing, a nursing competent. As Veenema et al. (2016) put it: “It is pointed out that nurses must be prepared to disasters because of what they do and who they are.”. Nurses are seen to bring broad range of leadership and skills to disaster settings and all nurses who take part in indirect or direct patient care are included as disaster leaders (Veenema et al., 2017b).

Veenema et al. (2016) highlight that “Nurses must be prepared to respond to any disaster or public health emergency.” and that worldwide nurses are often recognized to play essential role in disaster response. Thobaity et al. (2016) argue that “all nurses must have core competencies in terms of skills, knowledge, leadership and ability to provide holistic care to affected populations” and that all nurses should be able to provide managerial and supervision skills. Furthermore, Prosdocimi, Menegat and Witt (2018) are arguing that several activities of leadership directed towards individuals, families and communities have been defined for nurses including serving as first responders, coordinators, providers, promoters, counselors and supervisors during disasters.

Because of caring role that nurses provide, trust in nurses is high also during disasters. Pourvakshoori et al. (2017) argue that nurses’ caring role leads communities to trust in nurses and therefore nurses are expected to take role in disasters. In Veenema et al. (2016) nurses were argued being consistently ranked as trusted source of health information. Since far-reaching trust of communities, nurses have extensive influence during disasters.

Nurses are expected to be prepared and have adequate skills to act as managers for their colleagues, other professionals and volunteers (Thobaity et al., 2016; Hugelius & Adolfsson, 2019). They collaborate daily with broad range of healthcare professionals to substantially improve population health outcomes and resiliency of communities to

disasters. There is need for “recognition of the broad range of leadership and other skills that nurses bring to disasters. Such a workforce would include all licensed nurses who provide care to individuals, families, and communities, and their efforts would be grounded in a culture of preparedness that would enhance national disaster preparedness and response as well as community resiliency.” (Veenema et al., 2016.)

Frequency and unpredictability of disasters is increasing which puts need for health care leadership in pivotal demand

Many of the included articles kept the argument that disasters are increasing in numbers as a fact. Also, unpredictability of disasters was seen to put disasters in need for special attention in field of nursing. Edmonson et al. (2016) point out that globalization, technology and population crises have increased. Veenema et al. (2016 and 2017b) point out that the number, scale and complexity of disasters are all increasing because of climate change, ongoing human conflicts and emerging infectious diseases and health care needs to be ready to tackle problems these disasters provide. Bayraktar & Yıldırım (2016) are even describing disasters as continuous part of life because of they can happen anywhere and because their frequency is nowadays high.

Roberta et al. (2017) highlight especially the need for nurses’ role in leadership and management in ever increasing risk of disasters that:

“Nurses’ role in disaster preparedness, mitigation, response and recovery is increasingly important hence disasters increase in frequency and response becomes more international. Therefore, nurses’ role in care but also in management is increasing and knowledgeable leaders are needed.”

They also point out response to these disasters is likely to become more international because of complex nature of disasters. Edmonson et al. (2016) are bringing the same point up: future emergencies are most probably having ability to quickly escalate in scale and scope beyond their origins and this puts health care leadership in pivotal demand. Because the number of unpredicted disasters is likely to increase, Roberta et al. (2017)

also point out that even though every nurse cannot be trained as disaster nurse specialist, disaster managing, and leadership skills are needed everywhere.

5.2 Disaster nursing leadership competencies

On following, argumentation on disaster nursing competencies are being introduced by each found category answering the second research question. Firstly, argumentation found from literature explaining the lack of agreement in core competencies are introduced, then individual skills and abilities literature listed are being argued and grouped into competencies.

Lack of agreement in core competencies for disaster nursing leadership

First reasoning why there is no consensus on disaster nursing leadership competencies was lack of acknowledgement and lack of professional and scientific interest. Although as previously mentioned, nurses have served as leaders in disasters for long time, disaster nursing is relatively new field of study and it is still trying to gain ground. As Roberta et al. (2017) put it:

“Competencies provide a framework to define disaster nurse’s role and standards for practice across whole disaster cycle. By noticing the importance of disaster nursing as a specialty and field of study and by finding a consensus on competencies needed in disaster nursing, leadership, policy, scientific rigor and practice to disasters will improve.”

But, by admitting that competency-based leadership and education were relatively new concepts in field of study ten years ago, this mindset cannot stay stated as justification to lack foundations in research and professional training today (Veenema et al., 2016).

Studies have shown that both nurses and nursing students are feeling inadequately prepared to respond in disasters (Veenema et al., 2017b; Pourvakhshoori et al., 2017; Prosdociami Menegat & Witt, 2018). Scientific interest has been lacking in developing

disaster nursing competences since focus on disaster research has remained broadly based and systematic aspect to disaster nursing study has lacked. Nurses' role in scientific field and especially in disaster research needs to be strengthened. (Veenema et al., 2016; Thobaity et al., 2017).

Second reasoning to incongruent competencies for disaster nursing leadership was that no agreement in policy, science, terminology, structure or competencies exists today around the topic. Since disaster settings are unique in their demands, disasters also require special competencies in leadership, such as decision making in highly uncertain situations, ethical allocation of scarce resources and decision making of health system event management situations (e.g. evacuation). Currently there is vast paucity in disaster nursing leadership competencies literature. Veenema et al. (2017b) point out in their article that there have not been any articles which would properly address crisis nursing leadership competencies. They also point out that nursing leadership in disasters is relatively new field of study and there is serious need for nursing leadership competencies to be developed.

Since crises have become more pervasive, crisis leadership has become a necessary competency many employees require (Samuel et al., 2018). As Hutton, Veenema and Gebbie (2016) point out, several different organizations have developed their own disaster nursing competencies in order to promote awareness of nurses' important role during disasters and to promote leadership. But, since no standardized terminology or definitions exists, no clear mutual understanding or agreement of disaster nursing competencies exists either and competencies vary by depending on the source. There is also lack of evidence and study about which of the competencies are most appropriate in disaster nursing and wide inconsistency in structure, validity and terminology exists (Thobaity et al., 2017).

There is wide lack of understanding of what knowledge, abilities, skills and competencies are required to appropriate disaster preparedness and response (Bayraktar & Yıldırım, 2016). Many intentions to identify core competencies are based in weak scientific background (Thobaity et al., 2017; Veenema et al., 2016) and large variety in adoption and usage of competencies exists. It is especially noticeable that although general disaster nursing competencies have been developed, exceptionally vast paucity exists in studies

and literature concerning nursing leadership competencies in disasters. (Veenema et al., 2017b).

While it is acknowledged that nurses need education in disaster management field, there is lack of concurrence on how nurses will achieve disaster competency. Identifying appropriate disaster nursing competencies stays as challenge to education systems and employees. As Veenema et al. (2016) put it: “To date, there is no single set of disaster practice competencies accepted for curriculum guidance, either in nursing or in other health professions.” and Veenema et al. (2017b) continue: “Currently, disaster nursing leadership competencies are absent from the published literature.”.

Competencies for disaster nursing leadership

Since no congruence in core competencies for disaster nursing leadership could be found from literature, it was then investigated what literature says about skills, abilities and characteristics nurse leader should have during disasters. These eight categories can be then named to competencies in this thesis as they are now categorized to sets of skills, characteristics and abilities. These essentials of nurse leaders in disasters fell in eight categories: 1) Coordination, co-operation and team player skills, 2) Communication, information processing and presenting skills, 3) Decision-making skills, 4) Personal traits as leader and ability to adapt, 5) Critical thinking and understanding interdependencies, 6) Vision, ethics, values and commitment, 7) Humanity and emotional intelligence and 8) Motivation to lead and being role-model.

1) Coordination, co-operation and team player skills

Coordination, co-operation and team player skills were widely recognized as essential skills for nurse leader in disasters. Understanding principles of good communication was seen fundamental for nurse when leading through a crisis by Edmonson et al. (2016). Nurse leaders’ credibility and truthfulness are perceived through skills to communicate in timely manner and with appropriate content of messages. Timely communication dispels rumors in times of uncertainty. Nurse leaders are assumed to provide various

forms of coordination and co-operational skills including ability to work within the system, preventing risks to self and others and prioritizing patients and planning the use of resources (Veeneema et al., 2017a).

Coordination and co-operation with other stakeholders are part of nurse leaders' tasks. Ability to build bridges and maintain partnerships are essential to good leader in disasters. (Edmonson et al., 2016.) Ability to lead others including both volunteers and professionals at both operational and strategic levels is challenge nurses must face during disasters. Unpredictability, uncertainty and dynamic process are characterizing disaster settings and by being able to build robust disaster response with all stakeholders, sustainable disaster response is possible. (Hugelius & Adolfsson, 2019.)

2) Communication, information processing and presenting skills

Nurse leader's core task are mentioned to be maintaining safety and meeting basic needs of health care staff and patients during disaster. To be successful leader and to take care of patient safety, good coordination, communication and team player skills are needed. (Samuel et al., 2018; Edmonson et al., 2016.)

Nurse leaders are expected to have talent in communication and information skills with both disaster victims and other professionals. Communication has been key component to disaster nursing leadership in various studies. (Veenema et al., 2016.) Nurse leaders are expected to stay true to facts, share information and make information more understandable. Even media relations should be part of nurse leaders' education. (Edmonson et al., 2016.)

In Pourvakshroori's et al. (2017) study communication skills of nurse leader during disaster was put in high demand:

“Both newer and more experienced nurses described the importance of support from nursing leadership and other leaders in enabling staff nurses to fulfill their roles during the evacuation: I got good direction from the people I needed to get direction from, I felt good in terms of my ability to

take care of the patient, to take the patient out . . . my nurse manager was right there.”

Also, in Thobaity's et al. (2017) broad scoping review core competencies for disaster nurses were examined and communication and planning skills were highlighted as key abilities.

3) Decision-making skills

Nature of disasters puts leaders' decision-making skills in special attention. To be able to do quick but wise decisions and assessments are key to save lives in disasters. To understand that disasters may demand specific methods which are not necessarily similar to normal conditions, is key to promote health and survival of large number of people. (Hugelius & Adolfsson, 2019.) Highly ambiguous situations with ethical allocation and scarce resources puts decision-making in high demand (Veenema et al., 2016). Samuel et al. (2018) argue that decision-making skills out of pertinent information is one fundamental behavior for effective crisis leader. Potentiality to assess scattered information accurately and quickly has been important indicator to effective leader. Confidence and ease in crisis-related decision-making makes crisis leadership effective during disasters.

4) Personal traits as leader and ability to adapt

Several articles listed numerous characteristics or personal traits which are perceived to be beneficial to effective disaster nursing leaders. This included positivity, decisiveness, calmness, professionalism, being focused, confidence, self-efficacy, compassion, courage, assurance and endurance. Disaster nurses needs to be prepared and adequately skilled with personal suitability to effectively act as leaders to volunteers and other professionals and to be able to operate in demanding disaster situations where health and lives of others are insecure (Hugelius & Adolfsson, 2019). Personal traits, professional development and tools for sustaining leadership are identified having great impact in nurses' ability to perform leader roles (Samuel et al., 2015).

Veenema et al. (2016) list demonstrating autonomy, physical strength, stamina, adaptability, decisive and calm manner, emotional intelligence and analytical skills among being highly visible and easily accessible as characteristics that are required from nurses in disaster leadership roles. Nurse leaders' calm demeanor has calming effect on others and with compassion, courage and endurance nurses can be competent leaders (Edmonson et al., 2016).

Disasters are characterized with uncertainty. High self-confidence and maintaining high level of effort even during these events have been set as gauges of effective leaders (Samuel et al., 2018). Psycho-emotional stress management and emotional self-control have also been listed as substantial personal abilities to work in disaster settings (Veenema et al., 2016).

Adaptation, improvisation and flexibility are traits mentioned several times in literature (Hugelius & Adolfsson, 2019; Veenema et al., 2017b; Veenema et al., 2016). Ability to adapt is essential because disasters themselves bring unpredicted situations but also because the role of nurses may be different during disasters compared to normal context. Balancing personal needs, moral obligations and motives and the needs of affected people is part of professional adaptation. (Hugelius & Adolfsson, 2019.)

5) Critical thinking and understanding interdependencies

Nurses in disaster leadership role needs to be skilled critical thinkers (Edmonson et al., 2016.; Bayraktar & Yıldırım, 2016.). Critical thinking includes ability to see, interpret, analyze and explain situations with critical eye and understand importance of relationships. Ability to find clarity and perspective from scattered but factual information is important. (Edmonson et al., 2016.) Thinking globally and understanding interdependencies of large structures and systems is something innate that effective crisis leaders tend to have. (Samuel et al., 2018.)

Specific skills and knowledge to operate in disaster organization structure is also demanded because leadership involves understanding and working under command and

control structures (Edmonson et al., 2016; Hugelius & Adolfsson, 2019). Leaders need to be able to produce seamless flow of information between stakeholders under strict time constraints by following demanding protocols and guidelines (Samuel et al., 2018). Understanding “the system” is in a way part of being effective leader. Articulation and integration of organizations and health services is domain of leadership role. (Prosdocimi Menegat & Witt, 2018.)

6) Vision, ethics, values and commitment

Nurses are expected to provide vision in their leadership job by bringing order to chaos with their experience (Edmonson et al., 2016). Also, special ethical and value-based requirements are directed towards nurse leaders in disaster situations. Nurses are expected to have ethical commitment and ability to observe ethics during disasters (Veenema et al., 2016; Thobaity et al., 2017). Willingness to serve others is part of disaster nursing (Hugelius & Adolfsson, 2019). Disasters put nurse leaders into position in which ability to ethical allocation with scarce resources is needed (Veenema et al., 2016) and nurses’ personal needs and family concerns need to be balanced with moral obligations, altruistic motives and the needs of affected people (Hugelius & Adolfsson, 2019).

Values of caring, commitment, collaboration and communication are seen essential in guiding nurse leaders during crises (Veenema et al., 2016). In Pourvakshoori et al. (2017), nurses in disasters were reported to feel professional obligation and responsibility that stretches beyond their own needs, they acknowledged the importance of commitment and responsibility nurses’ profession carries within.

7) Humanity and emotional intelligence

Nurses’ ability to humanity and emotional intelligence are put in high value during disasters. Nurse leaders in disaster situations are awaited to understand and handle the human dimension of crisis. They are expected to show empathy to how people react to uncertainty, loss and challenges and show strength in spite of the anxiety triggered by disaster. (Edmonson et al., 2016.) Effective nurse leaders during crisis tend to be

emotionally intelligent. With emotional intelligence and socio-political skills, nurse leaders are able to plan, make decision and implement strategies successfully. (Veenema et al., 2017b; Samuel et al., 2018.)

8) Motivation to lead and being role-model

Nurse leaders are serving as role models for others (Hugelius & Adolfsson, 2019) and by providing direction during uncertain times, they act as inspiration to people and to people they work with (Edmonson et al., 2016). In order to do this, nurse leaders need genuine motivation to lead others. Leaders' feel of self-efficacy and degree of motivation to lead are impacting on how well leadership role is taken during a crisis. (Samuel et al., 2018.)

5.3 Future needs of disaster nursing leadership

On following, argumentation on future needs of disaster nursing leadership are being introduced by each found category answering the third research question.

Field of study and strong scientific background needs to be developed

Disaster leadership research has primarily been conducted in other sectors, such as in aviation industry, rather than in health care (Samuel et al., 2018). Focus in disaster nursing research has been broadly based and no systematic addressing in literature has existed (Veenema et al., 2016). Many times, focus has been more on strategic components rather in understanding core competencies disaster leadership needs. Often crisis leadership research has been conceptual or based in case studies. There is lack in understanding on how leaders respond to disasters effectively, how to identify capabilities of leaders prior to their being in disaster management role. (Samuel et al., 2018.)

Disaster nursing leadership needs recognition as field of study and more scientific background needs to be developed. Special attention should be given to systematic identification of gaps and essential topics in disaster nursing research (Veenema et al.,

2017b). Research work is needed in identifying the most effective nursing practices in disasters (Veenema et al., 2017b) and in exploration of crisis leadership efficacy and core disaster management leadership abilities (Samuel et al., 2018). Number of nurses in scientific scene (e.g. doctorally prepared nurse scientists) is needed to be increased especially in disaster nursing research (Veenema et al., 2017b).

Education and evidence-based competencies needs to be developed

Nurses readiness to disasters is a pressing concern globally. This puts disaster nursing education in vital need (Veenema et al., 2017b). Educational programs vary and they are not consistent or comprehensive since disaster education resources and guidance is inadequate. Educational programs vary and many of them are not evidence-based. Many of training programs targets to tackle specific disasters rather than providing comprehensive information about disaster leadership. (Veenema et al., 2016; Knebel et al., 2012; Veenema et al., 2017b.)

There is lack in disaster competencies research and even bigger paucity in disaster leadership research that would fulfil signs of strong scientific background. As Veenema et al. (2017a) puts-it:

“Results from the literature search were limited, and few articles were directly related to the specific search. Three articles that were reviewed addressed disaster competencies; no articles were found to focus on nursing or nursing leadership disaster competencies. ... Lastly, and including the largest category found, many articles were editorial or anecdotal in nature, rather than substantiated in tested literature or using quantitative techniques. ... Although disaster nursing leadership is relatively new in developing as a distinctive field, it is alarming that not a single article could be found that addressed all inclusion criteria of nursing leadership competencies during disasters.”

Literature sees it is obvious that competency-driven and evidence-based disaster nursing education is needed, but, this information has not been acknowledged by leading

organizations providing nursing education. There is especially need for developing competencies for nurses in disaster leadership roles to prepare them in disasters. (Veenema et al., 2017b). By developing competencies, it would be ensured that every nurse has fundamental abilities to respond and keep patients and others safe (Veenema et al., 2016).

While various agencies, schools and organizations have developed their own disaster preparedness programs, formal systems have been absent in consistent education for nurses. In addition, these developed programs often vary greatly and are not evidence-based. Future research needs to concentrate on building consensus and identifying competencies essential to comprehensive disaster nursing leadership. Further on, these validated competencies should then be used as foundation to education of nurses in disaster leadership positions. (Veenema et al. 2016.)

Recognition and acknowledgement of nurses as leaders needs to be increased

Although, as it is previously argued, nurses are there, nurses are needed, and nurses provide leadership during disasters, recognition and acknowledgement of nurses as leaders lack. Firstly, nurses themselves are feeling inadequately prepared to disasters (Veenema et al. 2016; VanDevanter et al., 2017). Unprepared nurses have potential to limit the effectiveness of disaster responses and limit impact of health outcomes in affected populations and therefore the role of the nurses cannot be underestimated (Veenema et al., 2017b).

Overall efforts to prepare nurses for disaster preparedness and response have been highly episodic and nurses are often not recognized when planning national policy disaster frameworks. By placing nurses in leadership roles in command and control functions of disaster response, coordination and decision-making regarding health care and patients, direct population effects can be reached. (Veenema et al., 2016.) The need for investing in preparing nurses to leadership and management should be essential (Hugelius & Adolfsson 2019). Inability to identify nurses' status and roles among the absence of integrated leadership structures are factors directly influencing in nurses' insufficient and

ambiguous knowledge and roles under disaster conditions (Beiranvand, Zarea, Sheini-Jaberi & Nikbakht-Nasrabadi, 2014).

6 DISCUSSION

This thesis aimed to map available evidence from literature to get an overview of what is known of roles of nurses in leadership during disasters. With scoping review method, key arguments on importance of nurses' leadership role in disasters were identified, competencies essential in disaster nursing leadership were identified and literature's arguments on future need for disaster nursing leadership were revealed.

Are nurses needed in disaster leadership?

As defined in background chapter, disasters are causing serious disruption in operation of a community and society by exposing them to human, material, environmental and economic losses (UN, 2016) and by surpassing the ability of affected community to cope with their own (WHO 2018). Disasters affects in health of populations and health care needs nurses to cope with rush of casualties during special situations like disasters. Nurses are known to be key players in disasters (Kalanlar, 2018) and nurses work in front line providing wide range of health services in emergency response by providing curative, promotive, preventive, supportive and rehabilitative care of groups, families and individuals (WHO 2017).

Disasters puts leadership into pivotal need by putting leaders into special context with possible life-threatening situations and need for rapid actions (Clarke, 2013). Although, effective disaster management demands effective leadership, and nurses are there 'en masse' during disasters, nurses not automatically noticed as leaders and they are lacking in knowledge to respond (Veenema et al., 2017b; Pourvakhshoori et al., 2017; Prosdocimi Menegat & Witt, 2018). This thesis supported this reasoning, but also investigated and highlighted the importance of nurses' involvement in disasters and especially in leader roles.

In this scoping review, the literature saw obvious need for nurses in disasters and highlighted their role in disaster leadership. Argumentation on nurses providing leadership in disasters was reasoned with noting that nurses have skills in leadership and

have high knowledge in care (Edmonson et al. 2016; Veenema et al. 2017; Samuel et al. 2018; Pourvakshoori et al. 2017). Health care is also dependent on nurses and nurses are assumed to step out and take role in leadership during disasters (Edmonson et al. 2016; Veenema et al. 2016 & 2017b). Basically, health care is partly dependent on nurses simply because nurses form usually the largest group of professionals, but also because nurses bring significant proficiency with them (Bayraktar & Yıldırım, 2016; Veenema et al. 2017; Kalanlar, 2018). And, since frequency and unpredictability of disasters is likely to increase, healthcare is going to need strong and effective leading and therefore healthcare cannot afford to left nurses aside in leadership (Roberta et al., 2017).

The reason why nurses are not automatically expected to serve in leader positions was not revealed with this scoping review. This is anyhow complicated matter because on the other hand nurses are even expected to take role in leading disaster management and nurses are put in high value by both health care and people, but at the same time they are not seen as obvious leaders. Traditional expectations for nurses were also appearing in literature of this scoping review. Nurse leaders are expected to be able to provide what may be seen as “hard” approach of determined and unflappable leaders, but at the same time they are awaited to bring “soft” approach with humane, caring and healing stance to sensitively deal human dimensions in disasters.

What are the core competencies for effective disaster nursing leadership?

It was argued in background chapter that health care in disasters can only be successful when nurses have necessary disaster competencies and abilities to respond (WHO & ICN, 2009). But literature seemed to be incongruent in which are these core competencies. What nurse leaders needs to apply or have in order to effectively respond to disasters and take leadership role? As mentioned before in this thesis, several parties including the ICN and WHO among numerous individual organizations have developed their own sets of competencies for disaster nursing, but no universal application and acceptance of these exists (Daily, Padjen and Birnbaum 2010). Especially competencies needed in disaster nursing leadership are lacking because of absence of evidence-based standards (Veenema et al., 2017a). This thesis had similar results and was not possible to draw any conclusion of previously agreed core competencies for disaster nursing leadership.

With this thesis, reasoning on why there is no agreement on core competencies for nurse leaders in disasters was then investigated. According to literature of this review, there is lack of general acknowledgement and interest to the topic in both scientific and professional fields (Veenema et al. 2016; Thobaity et al. 2017). There has been no systematic approach to disaster nursing leadership research and literature suggest that interest in disaster nursing leadership is lacking (Veenema et al. 2016). Nurses are not feeling prepared to disasters and at the same time their role in disaster research scene seems not to be strong (Veenema et al., 2016; Pourvakshoori et al., 2017; Prosdocimi Menegat & Witt, 2018).

Another reason literature in this scoping review gave for incongruence in disaster leadership competencies was fact that high disagreement prevails in terminology, structure, science and policy around the topic. Although, the ICN has developed general competencies for disaster nursing and these are taken partly as background to some educational programs and policy frameworks, confusion in agreement of disaster nursing leadership competencies reigns (Bayraktar & Yıldırım, 2016; Hutton et al., 2016; Thobaity et al., 2017). The result is, again, that numerous organizations develop their own sets of competencies because nor scientific or professional stakeholders have consensus on what these competencies should be (Hutton et al., 2016).

Although no consensus on core competencies for disaster nursing leadership seems to exist, several individual skills, abilities and characteristics were listed in this scoping review's articles. These were then closer investigated since the aim of this thesis was to reveal what disaster nursing leadership needs. These sets of skills were analyzed, categorized and combined to sets competencies. These included previously mentioned eight categories including wide variety of skills and abilities from coordination and cooperation skills to emotional intelligence and ethics. To master all these skills, nurses definitely need attention to education and training.

Future needs of disaster nursing leadership

With this thesis, it was possible peek into literature to see what is known of disaster nursing leadership. By looking into literature with scoping review method, more open questions and needs for development were revealed. This thesis managed to point out several developmental and research needs disaster nursing leadership requires in order to respond effectively to disasters. Main results remained that disaster nursing leadership as field of study is needing developing strong scientific background in order to develop evidence-based competencies to support education. This need attention to topic, because recognition and acknowledging nurses as leaders is ground point.

It is highly worth noticing that although disasters are increasing in numbers, extent and complexity, and are therefore causing serious threat to health of populations, health care research in disaster contexts is, for some reason, lacking. There is noted need for nurses during disaster management but many articles, personal experience stories, notes and editorials say nothing about leadership. Many times, these articles do not even mention nurses as leaders. Nurse leadership role is not noted, not even among nurses' own publications. For example, not single article for this scoping review was found from Cinahl database which is especially concentrated in nursing journals. Leadership research has long roots in science and in health care, but void in disaster leadership remains.

One possible reason for lack of disaster nursing leadership research may be disaster contexts itself. Disasters are large scale safety crises introducing numerous complex factors and outcomes are therefore difficult to predict or asset, define and measure (Samuel et al., 2018). Disasters have potential to affect profoundly in all levels of social systems and multidimensional occurrences with technological, natural and human causes. Giarratano, Savage, Barcelona-de Mendoza and Harville (2014) argues that primary difference in disaster research to standard research stands in this context of disasters where context really affects everything. These contextual differences should be recognized and investigated in order to get access to profound source of information.

WHO and ICN have both recommended disaster nursing to be as part of all nursing education programs. Despite this, disaster nursing competencies vary and there is no consensus on what baccalaureate nurses should master in their level. Also, gaps are likely

to remain in nurses' ability to participate in different phases of disasters. There has been demonstrated lack of disaster preparedness content in nursing curricula. Failure to implement evidence-based disaster nursing in baccalaureate nursing studies can cause serious impact in nurses' ability to participate during disasters. By educating nursing students with disaster preparedness, nation's preparedness to public health emergencies will rise. (Siemon, Hackwith, & Monson, 2019.)

This thesis adduced inconsistency of agreements on scientific and professional field of disaster nursing leadership. Especially incongruence in core competences of disaster nursing leadership was glaring. It is interesting that literature is keen on listing numerous skills and abilities which are said to be fundamental to nurses in leader positions during disasters but at the same time literature pointed out how huge gap exists in consensus of core competencies. Providers of disaster nursing education, policymakers and scientific field seemed to be scattered and incoherent. Collaboration with stakeholders needs to be reinforced.

How to make field of disaster nursing leadership worth noticing in future then? Probably it is at least partly matter of values because nurses' provision to disasters seems obvious. Leaving nurses aside in leadership during disasters sounds wasted potential that health care cannot afford. What is sure in all cases, is that disasters are going to happen. It is also certain that nurses are going to take responsibility in these situations because they are in front-line when saving human lives. The situation where nurses would not react when disaster strikes, would be intolerable to healthcare.

7 ETHICS, RELIABILITY AND VALIDITY

With scoping review, it is possible to examine the range or extent of research activity and identify gaps in existing literature (Levac, Colquhoun & O'Brien 2010). This research was conducted by following Joanna Briggs Institute's guidance to scoping reviews. It was clear already in the begin that nursing leadership in disasters is a topic with only scarce literature. Scoping review method is flexible enough to study phenomena that is not unambiguous and was therefore seen suitable for this topic. This method gives opportunity to scope what is known at this moment about certain topic in both grey literature and in research. In order to increase reliability of this review, steps of scoping review process were explained with high details. Use of the PCC tool, Prisma diagram and inductive content analysis method were selected to support this entity. Contents were furthermore clarified by using charts insofar as they were seen to increase understandability of process or contents.

When identifying relevant studies to scoping reviews, comprehensiveness and breadth are important. Therefore, relevant questions must be clearly defined, and they are broad enough in nature as they are meant to seek to provide coverage or breadth of topic in interest. (Levac, Colquhoun & O'Brien 2010.) Although fewer research questions would have been enough, three research questions were selected for this thesis to give broader overview of the topic. The research questions were left broad enough to get more comprehensive answers since the aim was to investigate what literature says about disaster nursing leadership. Answers to these questions were found from literature. In order to decrease bias, content analysis was clearly explained and added in appendices of this thesis. To support each argument, results were then written by referencing to each source as bias free as possible.

Criteria for including and excluding articles was followed as planned. There were few exceptions because of limitations of search engines of databases. These exceptions were explained and adduced when explaining the search process. Only articles in English were selected. Using only one language can lower the validity if there would be literature about this topic in other languages. The MeSH terms were searched and selected to increase

applicable hits from databases. The search strategy was written as detailed as possible to increase reliability.

In scoping reviews, authors do not usually assess the quality of included articles or studies, because literature included to study may include both published and grey literature (Levac, Colquhoun & O'Brien 2010). With flexibility that scoping reviews give, articles selected included journal articles, nursing book article, other literature reviews, policy analysis and scientific studies with various study methods. The amount of 17 articles were included. Only few articles were exclusively concentrating on disaster nursing leadership and mainly articles were broader views on disaster nursing. These were anyhow seen to be sufficient for this scoping review since they gave answers to research questions. If only those articles exclusively concentrating disaster nursing leadership would have been selected, no scoping review would have been possible to conduct.

Majority of the selected articles were published in the USA. One of the reasons might be that the USA has faced several major disasters and challenges to health care such as 9/11 terrorist attacks and hurricane events that may have triggered health care to find ways to respond. In the USA, there is broader spectrum of publications in nursing, compared to Europe for example, but paucity of literature in other continents' publications is to be noted. Also, same authors had written several articles and therefore extent of sources is limited.

Although it is not imperative, it is suggested to involve teams in conducting scoping reviews to increase transparency and reliability of study (Levac, Colquhoun & O'Brien 2010). This thesis was written by only one author which can reduce reliability and credibility since decision making process with study was done only by one person.

Synthesis of material found to answer research questions is critical in scoping reviews. Qualitative content analysis approaches are beneficial when conducting scoping reviews in order to make sense of extracted data from various sources. (Levac, Colquhoun & O'Brien 2010.) In this thesis, content analysis method was used by following Bengtsson (2016) guidance. Content analysis was conducted with four stages by creating meaning units, condensed meaning units, codes and categories answering for each research question. Main categories were quite clearly represented in texts while going through the

articles. Anyhow, creating categories was the most demanding part in content analysis process when categories needed to be broad enough to cover all aspects of data but being informative, descriptive and limited enough at the same time. In content analysis and especially with categorization process, more than one reviewer would have increased validity of this thesis since some other may have categorized subjects differently. Also, author not being native English writer, may be seen as reliability decreasing matter in diction and choosing the words for categories.

Thesis was conducted by following Diaconia University of Applied Sciences' instructions to master theses and under guidance of thesis group which included instructors from both Arcada and Diaconia University of Applied Sciences. Written form of thesis follows Diaconia University of Applied Sciences' guidance on theses. Author did not have competing interests and did not get any financial support for the work.

8 CONCLUSIONS AND IMPLICATIONS

This thesis gave an overview of what literature says about disaster nursing leadership while concentrating especially to disaster nursing leadership competences. The main result was that this topic is understudied and underacknowledged. Results were limited and articles clearly concentrating on this topic are lacking. Only limited number of articles were found concentrating on this topic.

With this thesis importance of disaster nursing leadership is reasoned in three points of view: why are nurses needed in leadership during disasters, what is needed in order to provide proper leadership in disaster contexts and what needs to be developed in future on this field. Especially this thesis concentrated on what literature says about main competencies for disaster nursing leadership.

This thesis brought up obvious and serious needs for future research of disaster nursing leadership. Nurses are needed in disasters but argumentation on why and how nurses can provide leadership is lacking and varying in literature and in scientific field. It is to be noted that according to results of this review, it is conflicting that nurses are expected to take role in leadership during disasters, but at the same time nurses are not noted as leaders. Nurses are not feeling themselves prepared to take responsibility in leadership (Nilsson et al., 2016) and they are lacking in proper education of disaster leadership (Filmer & Ranse, 2013). This means that education needs to be developed to give nurses readiness to take role and respond to disasters.

Although literature did not give answer to core competencies in disaster nursing leadership, it still listed numerous skills, abilities and characteristics essential to nurse leader in disaster. On this thesis, these abilities and skills were closer investigated to get an overview of what these core competencies for disaster nursing leadership could be. These essentials of nurse leaders in disasters fell in eight quite vast categories. These are all quite demanding competencies and need practice to expertise.

In Finland education in nursing leadership and management is offered by few universities and universities of applied sciences. Bachelor's degree studies in nursing are usually

including only one course of leadership and management studies which is often unattached to other courses or practical training. Management and leadership topics are often seen to fit better in master's degree studies, but these studies vary in large scale by their contents and concentration chosen by university. In paramedic studies, training leadership skills is better included in each study units even in bachelor's level. Probably paramedics are assumed to take more independent role in care than registered nurses who mainly work in medical doctor-lead facilities?

Disaster nursing is especially minor field and education in this topic is offered only in few specially concentrated master level studies or independent courses. What makes this issue difficult is unpredictability of disasters since no one can tell when and where a disaster will happen. And health care must be able to respond and take care of the patients without paralyzing under chaos a disaster brings. Since education in Finland is limited, it could be asked then what is the odds that those few trained nurses will be just there?

There was no literature included in this thesis concentrating on Finland but presumably nurses are not feeling adequately prepared to take leadership roles with this limited education they are getting. Finland has been saved this far from large scale disasters and health hazards thanks to its' geological location, but that does not make Finland immune to disasters. Therefore, preparation by training and education is essential. Nursing leadership in general and in disaster contexts should be more included and accessible to every registered nurse as part of disaster preparedness in every hospital and health care facilities.

It is alarming that literature and research on disaster nursing leadership is lacking. In international level, research and co-operation should be developed since disasters are not taking country borders into account when striking. Nurses are often left outside in policymaking and disaster response planning (WHO, 2007). By advocating nurses in disaster planning better in international, national and local level, more comprehensive view on disaster preparedness would be reached.

Disaster nursing leadership is wide and understudied topic and therefore variety of themes for future research could be set. In international level organizations (such as the ICN and the WHO) there is especially need for work towards standardizing and developing

consensus on core competencies in disaster nursing leadership. This would give stable background for national level and educational institutes to develop their programs and courses to face the needs of leadership in disaster contexts.

Nurses' preparedness for disasters and disaster leadership could be theme for further research in Finland since today we cannot really say how well nurses are prepared to take this role. Also, nurses' educational needs on this area would be important to investigate. One possible theme for research could also be which kind leadership education universities of applied sciences are providing at this moment and how well these courses will prepare bachelor level nurses in taking leadership role.

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APPENDIX 1. Description of initial search results

1) Initial search									
	Author(s)	Title	Year of publication	Source and country	Aims/purpose	Methods	Sample	Findings/Conclusions	Key findings relating to the review question
1	Veenema, T., Griffin, A., Gable, A., MacIntyre, L., Simons, N., Couig, M., Walsh, J., Lavin, R., Dobalian, A., Larson, E.	Nurses as Leaders in Disaster Preparedness and Response-A Call to Action	2016	Journal of Nursing Scholarship, United Kingdom	To develop a vision for the future of disaster nursing, identify barriers and facilitators to achieving the vision, and develop recommendations for nursing practice, education, policy, and research.	Qualitative study, semistructured interviews (conference calls, a daylong workshop), thematic analysis.	14 interviews, 70 workshop participants	“A vision for the future of disaster nursing, and identified current barriers and opportunities to advance professional disaster nursing. A broad array of recommendations for nursing practice, education, policy, and research and implementation challenges are summarized.”	Points out nurses role during disaster generally. Nurses role as leaders needs to be enhanced during disasters. No mentions about leadership competencies etc.
2	Edmonson, C., Sumagaysay, D., Cueman, M., Chappell, S.	Crisis Management : The Nurse Leader's Role	2016	Nurse leader, American Organization of Nurse Executives, USA	To increase the understanding of nurses' role in crisis leadership.	Nursing book article	None	Key topics/characteristics seen important for nurse crisis leader are being discussed.	Underlines the need for strong nursing leadership, development and educational matters in disaster nursing.
3	Thobaity, A., Plummer, V., Williams, B.	What are the most common domains of the core competencies of disaster nursing? A scoping review	2017	International Emergency Nursing Journal, Australia	Scoping review was conducted to identify the most common domains of the core competencies in disaster nursing.	Qualitative study, scoping review, thematic analysis	12 selected studies	“A summary of key core competencies for disaster nursing in general across the studies included: communication, planning, decontamination and safety, the incident command system and ethics.”	Gives core competencies of nurses in disaster settings. Underlines also the needs of management/leadership side of this area.

APPENDIX 2. Description of actual literature search results

2) Actual literature search									
	Author(s)	Title	Year of publication	Source and country	Aims/purpose	Methods	Sample	Findings/Conclusions	Key findings relating to the review question
4	Roberta, P., Adelman, D., & Tener, G.	Society for the advancement of disaster nursing: Exploring the path to excellence	2017	Disaster Medicine and Public Health Preparedness, USA	To discuss about disaster nursing in USA in context of variety of disasters occurring in the country.	Policy analysis of current status and policies of disaster nursing.	None	“Highlights the need for defining disaster nursing and standards for disaster nursing.”	Article highlights need for professional acknowledgement and development of competencies and organizations for disaster nursing to increase its credibility as nursing specialty.
5	Veenema, T., Lavin, R., Griffin, A., Gable, A., Couig, M. & Dobalian, A.	Call to action: The case for advancing disaster nursing education in the united states	2017	Journal of Nursing Scholarship, USA	The purpose of this article is to articulate a compelling mandate for advancement of disaster nursing education in USA.	Qualitative study, semi-structured interviews, thematic analysis	8 participants.	National disaster nursing experts gives consensus recommendations for advancing disaster nursing education in US.	Underlines the need for disaster nursing education but also to disaster nursing leadership education.
6	VanDevanter, N., Raveis, V., Kovner, C., McCollum, M., & Keller, R.	Challenges and resources for nurses participating in a hurricane sandy hospital evacuation.	2017	Journal of Nursing Scholarship	Purpose was to to explore, from the nurses’ perspective, what the challenges and resources were to carrying out their responsibilities, and what the implications are for nursing	Mixed-methods study, qualitative interviews and quantitative online survey, thematic analysis and statistical analysis	16 participants	Lessons learned in weather related emergency situation in hospital setting.	Nurse leaders role and strong communication helps nurses to fulfil their job and success during disaster.

					education and preparation for disaster				
7	Pourvakhshoori, N., Norouzi, K., Ahmadi, F., Hosseini, M., & Khankeh, H.	Nurse in limbo: A qualitative study of nursing in disasters in Iranian context.	2017	PLoS One	The aim of this study was to explore the experiences and perceptions of disaster nurses regarding their provision of disaster health care services.	Qualitative study, semi-structured interviews, inductive qualitative content analysis	15 participants	“Five main categories emerged from the experiences and perceptions of nurses who were involved in disasters: afraid of probability of recurrence, necessity of providing healthcare services for an unknown period of time, challenge of what to prioritize, nurses' own conflicting emotions, and their concern for their own families.”	Argues well about nurses' role in disasters and gives examples of nurse leaders skills/characteristics in disasters.
8	Hutton, A., Veenema, T. G., & Gebbie, K.	Review of the international council of nurses (ICN) framework of disaster nursing competencies	2016	Prehospital and Disaster Medicine, USA	To review ICN Framework of disaster nursing competencies	Review article, included qualitative questionnaire survey about ICN Framework for disaster nursing competencies, thematic analysis	20 participants	“The ICN competencies were held in high value and widely used. Anyhow there were some developmental needs such as including psychosocial elements into competencies.”	Reasoning for disaster nursing competencies, no direct link to leadership except mentioning that disaster nursing competencies are developed to promote nurse leadership in disasters.
9	Bayraktar, N., & Yıldırım, M.	Senior undergraduate nursing students' perceptions of disaster preparedness: A descriptive study	2016	Disaster Medicine and Public Health Preparedness, USA	Study aimed to determine the disaster preparedness of a senior class of undergraduate	Descriptive quantitative study, questionnaire, descriptive statistics analysis	73 participants	“Senior student nurses stated correct competencies for nurses in disaster settings, but at the same time low percentage showed good preparedness to disasters.”	Majority of nursing students pointed out that nurse leadership, manager and coordinator competencies are competencies nurses should have in

					nursing students.				disasters. Decision-makers, critical thinking, autonomy, and planning were also seen crucial.
10	Hugelius, K., & Adolfsson, A.	The HOPE model for disaster nursing - A systematic literature review	2019	International Emergency Nursing, USA	Aims to bring clearance and cohesion to varying terminology and understanding on what disaster nursing actually is. Developed HOPE model to describe the core element in and essence of disaster nursing in the response phase.	Qualitative, systematic literature review, thematic synthesis analysis	15 papers	“The HOPE model describes the core element in and the essence of disaster nursing in the response phase of a sudden-onset disaster. ‘HOPE’ stands for Holistic health assessment and promotion; Organization and management of immediate response; Professional adaptation; Endurance and recovery. The model can be applied to all sudden-onset disasters and provide guidance on the content, essence and context of disaster nursing. This review and the model can contribute by preparing nurses for deployment in disasters, contribute to disaster nursing education, and serve as a basis for further research and evidence development.”	In order to bring clearance and cohesion to varying terminology and understanding on what disaster nursing actually is, Hugelius & Adolfsson (2019) made summary out of studies which aimed to explain disaster nursing. In this study, the leadership has risen as crucial part of disaster nursing and reasoning for need for leadership has been given.
11	Prosdocimi Menegat, R., & Witt, R.	Primary health care nurses' competencies in rural disasters caused by floods	2018	Rural and Remote Health, International/Brazil	Objective was to identify primary health care nurses' competencies	A descriptive, exploratory and qualitative	20 participants	“Thirty competencies were identified and classified in the domains of leadership and management, teamwork,	Interviewed nurses brought out several points in leadership and management needed in disaster situation.

					when responding to hydrological disasters in rural areas in Brazil.	study, semi-structured interviews, Critical Incidents Technique analysis		health care, being community-oriented, communication, psychological support, health surveillance and education.”	Leadership was clearly mentioned as needed in disaster.
12	Thobaity, A., Williams, B., & Plummer, V.	A new scale for disaster nursing core competencies: Development and psychometric testing	2016	Australasian Emergency Nursing Journal, Australia	Objective is to develop a valid, reliable scale that identifies and explores core competencies of disaster nursing, nurses’ roles in disaster management and barriers to developing disaster nursing in the KSA.	Scoping review and quantitative study, questionnaire, statistical analyses	200 questionnaires	“This study has demonstrated a newly developed scale that has strong psychometric properties, providing preliminary evidence of its reliability and validity to assess nurses’ roles and core competencies and identifying barriers to developing disaster nursing core competencies in the KSA.”	Few points for nurse leaders role in disasters
13	Kalanlar, B.	Effects of disaster nursing education on nursing students’ knowledge and preparedness for disasters.	2018	International Journal of Disaster Risk Reduction, USA/Turkey	The aim of this research is to determine the effects of implementing a scenario-based training module on ‘Disaster Nursing and Management’ on students’ awareness, knowledge and preparedness	Quasi-experimental design pretest-posttest with control group method, questionnaire, statistical analysis methods	75 participants in the control and 75 participants in the treatment group	Disaster nursing education improves nurses' preparedness to disasters	Underlines need for nurses in disasters and disaster management, underlines the need for disaster nursing education

					for disasters.				
14	Samuel, P., Quinn Griffin, M. T., White, M., & Fitzpatrick, J. J.	Crisis leadership efficacy of Nurse Practitioners.	2015	The Journal for Nurse Practitioners, USA	The purpose of this research was to examine the selfperceived crisis leadership efficacy of NPs in the acute care setting.	A quantitative descriptive design, questionnaire (C- LEAD), descriptive statistical analysis	105 participants	“This study revealed that there is a significant relationship between NPs’ level of crisis leadership efficacy and their familiarity with departmental preparedness in preventing and responding to patient emergencies. IT is important to develop higher levels of crisis leadership efficacy among clinical leaders. The C-LEAD scale can be used to identify the capabilities of a clinical leader (such as an NP) prior to a crisis situation.”	Several important notes about nursing leadership in disasters

APPENDIX 3. Description of additional literature search results

3) Additional search									
	Author(s)	Title	Year of publication	Source and country	Aims/purpose	Methods	Sample	Findings/Conclusions	Key findings relating to the review question
15	Loke, A. & Fung, O.	Nurses' competencies in disaster nursing: Implications for curriculum development and public health.	2014	International Journal of Environmental Research and Public Health, USA/Hong Kong	The purpose of this study was to explore Hong Kong nurses' perceptions of competencies required for disaster nursing.	Qualitative study, interviews and written inquiry, thematic analysis	45 participants	"Nurses' perceived disaster nursing competencies reported by nurses were grossly inadequate, demonstrating the needs to develop a comprehensive curriculum for public health."	Leadership skills noted as important competence for disaster nurses.
16	Veenema, T. G., Losinski, S., Newton, S.M., & Seal, S.	The exploration and development of standardized nursing leadership competencies in disasters	2016	Health Emergency and Disaster Nursing, USA	Literature review was conducted to explore research on the subject of nurse leadership competencies during disasters.	Qualitative study, systematic literature review, Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method	22 articles	"Results from the literature search were limited, and few articles were directly related to the specific search. Three articles that were reviewed addressed disaster competencies; no articles were found to focus on nursing or nursing leadership disaster competencies."	Several points for nursing leadership, addresses need for future development for nursing leadership competencies in disasters
17	Beiranvand, K., Sheini-Jaberi, P. & Nikbakht-Nasrabadi A.	Disaster nursing in Iran: Challenges and opportunities	2014	Australasian Emergency Nursing Journal, Australia/Iran	To explore nurses' role in disasters in Iran.	Qualitative study, literature search, integrative narrative analysis	32 articles	Disaster nursing needs to be improved in Iran.	Several good points about nursing leadership's role in disasters.

APPENDIX 4. Content analysis of question 1: What is the role of nurses in leading and in leadership during disasters?

MEANING UNIT	CONDENSED MEANING UNIT	CODE	CATEGORY (Codes included in each category are being listed in brackets)
<p>“1. Nurses provide leadership during disasters in multiple levels (home, community, emergency/disaster scenes, regionally, national and international levels)</p> <p>2. Nurses are biggest group of health care professionals during disasters</p> <p>3. Nurses have served as leaders during disasters historically for a long time</p> <p>4. Disasters are likely to increase in frequency and they have long term impacts on people’s lives which indicates that nurses are likely to find themselves from leading positions during disasters</p> <p>5. Nurse leaders have special role in vision and in influence in decision making and guidance during disasters</p> <p>6. The effectiveness of health care system’s response to disaster is depended on the capacity of nurses. Nurses role as leaders needs to be enhanced.</p> <p>7. Nurses role in all phases of disasters is increasingly important hence disasters increases in frequency. Therefore nurses’ role as leaders is needed because of their knowledge in care.</p> <p>8. Disasters can occur at any place at any time. This is why specialist nurses with disaster managing skills are needed to serve as leaders and managers.</p> <p>9. Disasters bring broad scale of clinical challenges to health care. Nurses have</p>	<p>1. Leadership in multiple levels</p> <p>2. Nurses are biggest workforce group</p> <p>3. Nurses have always served as leaders</p> <p>4. Disasters are likely to increase</p> <p>5. Nurses have skills in leadership during disasters</p> <p>6. Health care is depended on the capacity of nurses.</p> <p>7. Disasters will increase in frequency.</p> <p>7. Nurses leadership role is needed because of their knowledge in care.</p> <p>8. Disasters can happen anytime. Therefore, nurses’ disaster knowledge and leader skills are needed.</p> <p>9. Nurses participating in leadership advanced population-based outcomes.</p> <p>10. Nurses are there during disasters.</p> <p>11. Nurses has important role in communities.</p> <p>12. Nurses has knowledge and skills in disaster leadership.</p> <p>13. Every nurse working in disaster setting, is considered as leader.</p> <p>14. Leadership is needed to manage disasters.</p> <p>15. Communities’ trust to nurses and their skills.</p> <p>16. Leadership role is seen as core competency of nurse.</p> <p>17. Leadership includes in disaster nursing.</p> <p>18. Nurses are expected to serve as leaders during disasters because of their knowledge.</p>	<p>1. Comprehensive leadership</p> <p>2. Number of nurses</p> <p>3. Nursing leadership</p> <p>4. Number of disasters</p> <p>5. Nursing leadership</p> <p>6. Dependency on nurses</p> <p>7. Number of disasters</p> <p>7. Knowledge in care</p> <p>8. Unpredictability of disasters</p> <p>9. Benefit of populations</p> <p>10. Number of nurses</p> <p>11. Perception of role of nurses</p> <p>12. Nursing leadership skills</p> <p>13. Perception of role of nurses</p> <p>14. Disaster leadership</p> <p>15. Trust in nurses, perception of role of nurses</p> <p>16. Core competency in nursing</p> <p>17. Disaster nursing competency</p> <p>18. Perceived role of nurses</p> <p>19. Core competency in nursing</p> <p>20. Benefit of populations</p> <p>21. Perceived role of nurses</p> <p>22. Number of disasters and unpredictability of disasters</p> <p>23. Number of nurses</p> <p>24. Benefit of populations</p> <p>25. Benefit of populations</p> <p>26. Number of nurses</p>	<p>Comprehensive leadership (1, 14)</p> <p>Number of nurses and dependency on nurses (2, 5, 6, 10, 23, 26)</p> <p>Skills in leadership (3, 5, 12)</p> <p>Number and unpredictability of disasters (4, 7, 8, 22)</p> <p>Knowledge in care (7)</p> <p>Trust in nurses (15)</p> <p>Benefit of populations (9, 20, 24, 25)</p> <p>Perception of role of nurses (11, 13, 15, 18, 21)</p> <p>Nursing competency (16, 17, 19)</p>

<p>great potential to advance population-based outcomes.</p> <p>10. Nurses are working across all disasters, during all phases of disaster and alongside with other members of disaster teams.</p> <p>11. Nurses has a role in care coordination and strengthening resiliency of communities across all phases of disasters.</p> <p>12. Nurses bring broad range of leadership skills and knowledge to disaster situations.</p> <p>13. All nurses who provide indirect or direct care in disasters, are included as disaster leaders.</p> <p>14. Effective leadership is essential to help nurses to carry out their roles during disaster.</p> <p>15. Communities trust to nurses and nurses have expertise in clinical care, problem-solving skills, team leadership, resource management and communication skills during disaster situations.</p> <p>16. Nursing leadership, management and coordinator skills are seen as essential core competencies that nurses should have for disasters.</p> <p>17. Leadership is crucial part of disaster nursing.</p> <p>18. Disasters force health care to work under unusual circumstances and health care worker's roles are different compared to normal situation. Nurses have specific skills in disaster management and leadership. Nurses often have to serve as leader and</p>	<p>19. Leadership is part of nursing.</p> <p>20. Nurses save lives during disasters.</p> <p>21. Employees expect nurses' have leadership skills during disasters.</p> <p>22. Disasters are likely to increase and are unpredicted.</p> <p>23. Because nurses are biggest in numbers, leadership role is predicted to be part of their job during disasters.</p> <p>24. Leadership role of nurses reduces number of deaths.</p> <p>25. Presence of nurses saves lives in significant numbers.</p> <p>26. Because of number of nurses, they are expected to serve as leaders in teams.</p>		
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<p>managers to other professionals and volunteers during disasters.</p> <p>19. All nurses must have core competencies in terms of knowledge, ability and leadership to take care of affected populations during disasters.</p> <p>20. Nurses providing leadership is vital to patient safety during crises.</p> <p>21. Crisis leadership is a fundamental competency required by many employees for nurse practitioners (*Master's degree nurses in US.)</p> <p>22. Increased globalization, population and technology crises can escalate quickly which pushes health care leadership in essentials.</p> <p>23. As nurses are largest group of health care workforce, they are the clinical backbone and safety net to health care systems by providing leadership and clinical care during disasters.</p> <p>24. By providing leadership during disasters, nurses can reduce the death tolls.</p> <p>25. The presence of nurses decreases the casualties and death toll 50-70%.</p> <p>26. Nurses are largest in numbers in disaster teams, so they can be used as leaders of these teams.”</p>			
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APPENDIX 5. Content analysis of question 2: What competencies or skills are seen important for nurse leader during disaster?

MEANING UNIT	CONDENSED MEANING UNIT	CODE	CATEGORY (Codes included in each category are being listed in brackets)
Competencies for disaster nurse leadership:			
<p>“1. Hundreds of core competencies have been developed for disaster nursing management, but they are highly inconsistent in terminology, validity and structure.</p> <p>2. Key to finding consensus in disaster nursing leadership, policy and scientific rigor is by finding consensus on competencies of disaster nursing and by noticing its importance.</p> <p>3. Several organizations have developed their own competencies for disaster nurses in order to promote nurses’ roles in disasters and in leadership during disasters, but no standardized terminology exists.</p> <p>4. There is lack of evidence and proper studies about core competencies for disaster nurses.</p> <p>5. Especially vast paucity exists in literature concerning nursing leadership competencies in disasters.</p> <p>6. Nursing leadership in disasters is relatively new field of study and because of that no consensus on core competencies exists.</p> <p>7. Disaster nursing leadership competencies are absent from published literature.</p> <p>8. Five key competencies identified by one scoping review: communication,</p>	<p>1. Inconsistent terminology, validity and structure in core competencies.</p> <p>2. Need for noticing the importance of disaster nursing leadership.</p> <p>2. Competencies are needed to find consensus on disaster nursing policy, science and leadership.</p> <p>3. Varying sets of competencies exists.</p> <p>3. Inconsistent terminology, validity and structure in core competencies.</p> <p>4. Lack of evidence and studies.</p> <p>5. Paucity in literature of disaster leadership of nurses.</p> <p>6. Competencies are needed to find consensus on disaster nursing policy, science and leadership.</p> <p>7. Paucity in literature of disaster leadership of nurses.</p> <p>8.-11. Coordination and co-operative competencies, understanding the system responding to disaster, disaster management (planning, implementing, evaluating) in all phases of disaster</p>	<p>1. No coherent consensus of competencies</p> <p>2. Lack of acknowledgment</p> <p>3. No coherent consensus of competencies</p> <p>4. Lack of scientific interest</p> <p>5. Lack of professional interest</p> <p>6. Inconsistent policy, science and understanding of nursing leadership</p> <p>7. Lack of scientific interest</p> <p>8. Competencies most probably would include coordination and co-operative competencies, understanding the system responding to disaster, disaster management (planning, implementing, evaluating) in all phases of disaster</p>	<p>No consensus of policy, science, terminology, structure or competencies (1, 3, 6, 8)</p> <p>Lack of acknowledgement (2)</p> <p>Lack of professional and scientific interest (4, 7)</p>

<p>planning, understanding safety, ethics and incident command systems.</p> <p>9. Competencies that included articulation and integration of health services and organizations are seen as important in disaster leadership and management: Understanding health services and mechanisms, collaboration with stakeholders, disaster planning before and after disasters.</p> <p>10. Nurses serve as first responders and coordinators of health services during disasters. Nurses' actions are directed towards individuals, families and communities. Competencies including evaluation and management planning after disasters have been defined for nurses.</p> <p>11. Various forms of communication, the ability to work within an incident management system, management of supplies, preventing and mitigating risks to self and others, using resources effectively, prioritizing patients, use of effective record-keeping, and facilitation of patient transport were seen important for disaster nurses and in disaster nursing leadership.”</p>			
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Essential skills or characteristics of nurse leader in disasters:			
<p>“1. Decision making in highly uncertain situations 2. Ethical allocation with scarce resources 3. Decision making of health system event management situations (e.g. evacuation) 4. Disaster nursing requires unique knowledge base, skills and abilities to respond appropriately to unpredicted or uncertain situations. 5. Personal suitability to act as manager for colleagues, other professionals and volunteers. 6. Collaborating and coordinating with other stakeholders in building sustainable disaster response. 7. Ability to handle managerial processes which are unpredictable, uncertain and dynamic. 8. Ability to make quick but wise assessments and decisions. 9. Ability to act fast to save lives and promote health. 10. Specific skills, knowledge and personal strength. 11. Ability to adapt specific methods which are different from normal conditions to promote survival and health among large number of people in disaster environment. 12. Professional adaptation, including balancing in personal needs, moral obligations, altruistic motives and needs of affected people. 13. Improvisation and flexibility</p>	<p>1. Ability to decision-making in uncertain situations 2. Having high ethical understanding 3. Understanding decision-making of health system’s management 4. Ability to respond appropriately in uncertain and unexpected situations. 5. Personality for acting as manager 6. Having collaborative and coordinating skills 7. Ability to act as manager in uncertain settings. 8. Ability to quick decision-making 9. Ability to act fast 10. Having multiple personal skills, knowledge and strength 11. Ability to adapt in changing settings. 12. Having clear and altruistic moral and motives 12. Willingness to put the needs of others over personal needs 13. Being flexible 14. Ability to improvise 15. Skills in critical thinking 16. Collaborative and coordinating skills 17. Ability to manage ambiguity 18. Having calm, confident and authority projection in all situations 19. Ability to show empathy 20. Understanding the protocols and rules 21. Having clear vision and values 21. Having good communication and coordination skills 22. Understanding human dimensions of disaster</p>	<p>1. Decision-making skills 2. Work by following ethics and values 3. Understanding the system 3. Decision-making skills 4. Ability to remain calm and respond 5. Personal traits as leader 6. Collaborative and coordinating skills 7. Personal traits as leader 8. Decision-making skills 9. Ability to respond quickly 10. Personal traits as leader 11. Ability to adapt 12. Work by following ethics and values 12. Self-sacrifice 13. Flexibility 14. Ability to improvise 15. Critical thinking 16. Collaborative and coordinating skills 17. Ability to adapt 18. Personal traits as leader 19. Capability to empathy 20. Understanding the system 21. Having a vision 21. Work by following ethics and values 22. Being humane 23. Ability to stay positive 23. Socio-political and analytical skills 23. Personal traits as leader 23. Ability to adapt 23. Being humane 24. Collaborative and coordinating skills 25. Having a vision 25. Work by following ethics and values 26. High professionalism 27. Understanding the system 27. Critical thinking skills</p>	<p>Coordination, co-operation and team player skills (6, 16, 24, 34, 44, 46) Vision, ethics and values (2, 12, 19, 21, 22, 25, 33) Decision-making skills (1, 3, 8, 27, 35, 36, 40) Personal traits as leader (decisive, calm, professional, focused, confident, self-efficacy, compassion, courage, assurance and endurance) (4, 5, 7, 9, 10, 18, 23, 27, 29, 41, 42, 45) Critical thinking and understanding the system (3, 15, 20, 27, 30, 35) Ability to follow rules (20, 27, 33, 37) Socio-political and analytical skills (19, 23) Adaptation (11, 13, 14, 17, 23) Humanity and emotional intelligence (23, 38) Positivity (23) Professionalism (26) Multitasking skills (28) Self-sacrifice (willingness to put the needs of others over personal needs and</p>

<p>14. Understanding good communication and media relations.</p> <p>15. Skilled critical thinkers.</p> <p>16. Collaborative.</p> <p>17. Ability to manage ambiguity.</p> <p>18. Ability to project calm, confidence and authority in all situations.</p> <p>19. Ability to empathy on how people react to challenges, uncertainty and loss.</p> <p>20. Are able to review, practice and follow crisis readiness plans with nursing staff.</p> <p>21. Crisis leadership includes three main elements: communication, caring relationships and clarity of visions.</p> <p>22. Ability to manage human dimensions of a crisis (needs, emotions and behaviors).</p> <p>23. Effective disaster nursing leadership includes characteristics of autonomy, decisive and calm manner, positive attitude, adaptability, socio-political and analytical skills, emotional intelligence and physical strength and stamina.</p> <p>24. Communication.</p> <p>25. Clarify of vision and values.</p> <p>26. Ability to mix practical experience, skills, knowledge and leadership acumen by being irrespective of authority or hierarchy.</p> <p>27. Critical thinkers and decisive even with limited amount of information.</p> <p>28. Multitaskers who are visible throughout the institutions from front line to board room.</p> <p>29. Decisive, focused and positive attitude.</p> <p>30. Leader's strong ability to critical thinking is needed to interpret, analyse</p>	<p>23. Having positive attitude</p> <p>23. Having calm and decisive habitus</p> <p>23. Ability to adaptability</p> <p>23. Having socio-political and analytical skills</p> <p>23. Having emotional intelligence</p> <p>23. Physical strength and stamina</p> <p>24. Having communication and coordination skills</p> <p>25. Having clear vision and values</p> <p>26. Ability to mix practical experience, skills, knowledge and leadership acumen</p> <p>26. Being irrespective of authority or hierarchy if needed</p> <p>27. Ability to critical thinking</p> <p>27. Being decisive</p> <p>28. Ability to multitask</p> <p>29. Being decisive</p> <p>29. Being focused</p> <p>29. Having positive attitude</p> <p>30. Ability to critical thinking</p> <p>31. Having selfless commitment to work</p> <p>31. Willingness to put the needs of others over personal needs</p> <p>32. Willingness to put the needs of others over personal needs</p> <p>33. Understanding values and ethics</p> <p>34. Having coordination, communication and team player skills</p> <p>35. Ability to critical thinking</p> <p>35. Decision-making skills</p> <p>36. Decision-making skills</p> <p>37. Having coordination, communication and team player skills</p> <p>37. Understanding the protocols and rules</p> <p>38. Ability to emotional intelligence</p>	<p>27. Decision-making skills and personal traits as leader</p> <p>28. Multitasking skills</p> <p>29. Personal traits as leader</p> <p>30. Critical thinking skills</p> <p>31. Commitment</p> <p>32. Self-sacrifice</p> <p>33. Work by following ethics and values</p> <p>34. Team-player skills</p> <p>35. Critical thinking skills</p> <p>36. Decision-making skills</p> <p>37. Understand the system and ability to follow rules</p> <p>38. Emotional intelligence</p> <p>39. Understanding contexts</p> <p>40. Information processing skills</p> <p>40. Decision-making skills</p> <p>41. Personal traits as leader</p> <p>41. Motivation to lead</p> <p>42. Personal traits as leader</p> <p>43. Being role model</p> <p>43. Having disaster management skills</p> <p>44. Coordination, communication and team player skills</p> <p>45. Personal traits as leader</p> <p>46. Coordination, communication and team player skills</p> <p>47. Information processing and presenting skills</p>	<p>having selfless commitment to work) (12, 32)</p> <p>Commitment (to task and to system) (31)</p> <p>Understanding contexts (3, 20, 27, 37, 39)</p> <p>Communication, information processing and presenting skills (staying true to facts, share information and making things understandable) (16, 40, 44, 47)</p> <p>Motivation to lead (41)</p> <p>Role-model (source of inspiration) (43)</p> <p>Disaster management skills (43)</p>
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<p>and explain varying situations during disasters.</p> <p>31. Selfless commitment to work by putting the needs of others over personal needs.</p> <p>32. Ensuring safety and health of others.</p> <p>33. Ability to do value-based decisions to bring order to chaos.</p> <p>34. Good coordination, communication and team player skills.</p> <p>35. Crucial decision making is based on receipt of pertinent information, which is then critically assessed and analyzed.</p> <p>36. Information assessment and decision-making have been identified as two fundamental behaviors that are important for effective crisis leadership.</p> <p>37. Synchronized and seamless flow of information exchange must occur between clinical leaders and pertinent team members under strict time constraints and within stringent protocols and guidelines.</p> <p>38. The research literature suggests that leaders who manage a crisis effectively tend to be emotionally intelligent.</p> <p>39. They also have the innate ability to think globally and understand the interdependencies and patterns of different components of a larger structure or system.</p> <p>40. The important indicator of crisis leadership potential is the aptitude to assess information swiftly and accurately. Also, confidence and ease in making crisis-related decisions are associated with higher leadership efficacy.</p>	<p>39. Ability to understand things in broader context</p> <p>40. Ability to assess information fast and accurately</p> <p>40. Having confidence in decision-making</p> <p>41. Having high self-efficacy</p> <p>41. Being motivated to lead</p> <p>42. Displaying compassion, courage, assurance and endurance while managing crises</p> <p>43. Understand disaster managing and implement a plan</p> <p>43. Serve as inspiration to people</p> <p>44. Having coordination, communication and team player skills</p> <p>45. Having calm demeanor: showing courage, compassion, assurance and endurance</p> <p>46. Having coordination, communication and team player skills</p> <p>46. Ability to make things more understandable</p>		
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<p>41. Crisis leader self-efficacy and motivation to lead in a crisis are both likely to impact the degree to which individuals take on leadership roles in a crisis.</p> <p>42. Nurse leaders display compassion, courage, assurance, and endurance while managing crises.</p> <p>43. Nurse leaders provide direction, implement a plan, and inspire people.</p> <p>44. Understanding the tenets of good communication is essential to leading through a crisis.</p> <p>45. In addition to reassuring characteristic, it is also essential to maintain calm demeanor as disaster leader. Courage, compassion, assurance and endurance are needed to be displayed.</p> <p>46. Nurse leaders add clarity and perspective to factual information so it can be fully understood by anyone. Nurse leaders should coordinate with other credible sources, build bridges, and maintain partnerships with other organizations.”</p>			
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APPENDIX 6. Content analysis of question 3: How disaster nursing leadership should be improved according to literature?

MEANING UNIT	CONDENSED MEANING UNIT	CODE	CATEGORY (Codes included in each category are being listed in brackets)
<p>“1. Results from the literature search were limited, and few articles were directly related to the specific search. Three articles that were reviewed addressed disaster competencies; no articles were found to focus on nursing or nursing leadership disaster competencies. ... Lastly, and including the largest category found, many articles were editorial or anecdotal in nature, rather than substantiated in tested literature or using quantitative techniques.</p> <p>2. Imprecise and inconsistent terminology and structure are evident through the reviewed competency sets. Universal acceptance and application of these competencies are lacking, and none have been validated ... Although disaster nursing leadership is relatively new in developing as a distinctive field, it is alarming that not a single article could be found that addressed all inclusion criteria of nursing leadership competencies during disaster</p> <p>3. The existing evidence is scant and limited in its applicability. It is impossible to expect and evaluate consistent and quality decision making during disaster by nurse executives if there does not exist a strong, tested guide for nursing leadership competencies.</p>	<p>1. Limited literature exists about disaster nursing leadership</p> <p>1. Nature of existing literature does not support evidence-based practices</p> <p>2. Limited literature exists about disaster nursing leadership</p> <p>3. Limited literature exists about disaster nursing leadership</p> <p>3. Nurses can not have support from literature about their leadership role if it does not exist</p> <p>3. Evaluation of nurse leadership is impossible if no consensus on disaster nursing leadership exists</p> <p>4. Future research needs to focus on building consensus on comprehensive disaster nursing leadership</p> <p>4. Educational programs needs to be developed to support nursing leadership</p> <p>5. Further evaluation of agreed disaster nursing leadership competencies is needed in scientific manner</p> <p>6. Lack of acknowledgement of nurses’ role and status and absence of agreed leadership structure are harmful to nurses’ taking role in leadership</p> <p>7. Nature of existing literature does not support evidence-based practices</p> <p>8. Scientific studies of crisis leadership are from other fields of study than from health care</p> <p>9. Nature of existing literature does not support evidence-based practices</p>	<p>1. Developmental and scientific need as field of study</p> <p>2. Developmental and scientific need as field of study</p> <p>3. Increased professional interest in disaster nursing leadership</p> <p>4. Developmental and scientific need as field of study</p> <p>5. Developmental and scientific need as field of study</p> <p>6. Educational needs</p> <p>7. Developmental and scientific need as field of study</p> <p>8. Nurses’ need for recognition and acknowledgement as leaders</p> <p>9. Developmental and scientific need as field of study</p> <p>10. Need for recognition and acknowledgement as field of study</p> <p>11. Developmental and scientific need as field of study</p> <p>12. Nurses’ need for recognition and acknowledgement as leaders 11.</p> <p>Developmental and scientific need as field of study</p> <p>13. Educational needs</p> <p>14. Educational needs</p> <p>15. Nurses’ need for recognition and acknowledgement as leaders</p> <p>16. Educational needs</p> <p>17. Nurses’ need for recognition and acknowledgement as leaders</p>	<p>Field of study needs to be developed and strong scientific background needs to be developed (1, 5, 7, 9, 11)</p> <p>Field of study needs to be recognized and acknowledged (1, 3, 5, 7, 11)</p> <p>Disaster nursing and disaster nursing leadership education needs to be developed (4, 5, 6, 13, 14, 16)</p> <p>Agreed evidence-based competencies needs to be developed in order to be able to develop education (4, 5, 6, 13, 14, 16)</p> <p>Nurses’ need for recognition and acknowledgement as leaders (by themselves, by organizations and by scientific community) (8, 12, 15, 17)</p>

<p>4. Future research needs to focus upon identifying and building consensus around those critical concepts and competencies that are so imperative to comprehensive disaster nursing leadership. Core concepts and competencies identified can then be validated specific to crisis nursing leadership and can be used as the foundation for building disaster nursing leadership educational programs.</p> <p>5. Furthermore, these evidence-based competencies need to be continually re-evaluated and updated, as the field of disaster management is ever evolving. Future research should also include both qualitative study of the behaviors of nurse leaders during disaster events and quantitative evaluations of the impact of crisis nursing leadership decisions upon organizations and patient outcomes.</p> <p>6. It is known that identification of nursing status and role, as well as the absence of an integrated leadership structure, is among the effective factors of ambiguity and insufficiency of nurses' knowledge about acting in critical conditions and playing their ineffective roles under these conditions</p> <p>7. In general, research on crisis leadership has been conceptual or based on various case studies. Not much is known about the details of how leaders respond to a crisis effectively. Very little is also known about how to identify the capabilities of leaders preemptively, that is, prior to their being in a crisis management role</p>	<p>10. Lack of understanding or interest in nurses' leadership role in organizations</p> <p>11. Nature of existing literature does not support evidence-based practices</p> <p>12. Evidence-based education in disaster nursing and disaster nursing leadership does not exist</p> <p>12. Developmental need for education</p> <p>13. Disaster nursing leadership is needed globally, but because of lack of agreed competencies, no proper education exists</p> <p>14. Lack of interest in putting nurses into leadership roles in organizations</p> <p>15. Proper disaster nursing and disaster nursing leadership education across nursing programs is urgent since nurses are expected to respond during disasters</p> <p>16. Nurses needs to acknowledge their need for disaster nursing education and be prepared for disasters</p>		
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<p>8. Research conducted on the topic of leadership in crisis management has primarily been in high reliability sectors, such as the aviation industry, with little research literature in health care.</p> <p>9. The few studies conducted on crisis leadership efficacy have been accomplished outside the realm of the health care setting. There is also minimal research regarding the particulars of how leaders respond during crises and how the competencies of leaders can be evaluated prior to a crisis situation. In general, much of the understanding of crisis leadership has been based on analysis of case studies.</p> <p>10. Further exploration of the topic of crisis leadership efficacy is important to health care organizations and patient safety agencies. Many organizations have focused on the strategic components of crisis management rather than understanding the core crisis management leadership abilities of clinicians and clinical leaders.</p> <p>11. The focus in disaster research remains broadly based, and gaps in the literature have not been systematically addressed. After a thorough review of the disaster nursing literature, specific attention should be given to identifying pertinent gaps and essential areas of emphasis for disaster nursing research.</p> <p>12. Educational programs vary, and they are not consistent or comprehensive since disaster education resources and guidance is inadequate. Educational programs vary and many of them are not evidence-based. Many of training</p>			
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<p>programs targets to tackle specific disasters rather than providing comprehensive information about disaster leadership.</p> <p>13. Globally, disaster nurse readiness is a pressing concern and nurse leaders from many countries have identified disaster nursing education and training as a vital need. Many are facing the challenge of identifying appropriate disaster nursing competencies and implementing effective education and training programs to prepare their nursing workforce.</p> <p>14. The panel strongly endorsed the placement of nursing professionals in leadership roles in management of disaster functions related to command and control, coordination of medical services, and decision-making regarding patient care and population healthcare needs. For example, embed nurse leaders into response operation leadership roles as a distinct part of the decision making and management processes</p> <p>15. It is common for nurses to feel lack of confidence in acting during disasters and they underline need for proper education for nurses. Disaster preparation and leadership are both urgent across all nursing education levels and programs since nurses are expected to respond during emergencies and disasters. Nurses need to understand disaster preparedness in their working places on a personal level but also by being aware of their local community</p>			
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plans and history of disasters in their community.”			
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