

ORIGINAL ARTICLE

Indicators of Nurse Leadership in Disaster Management: A Qualitative study

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ABSTRACT

Introduction: Nurses play critical roles in disaster management and are required to demonstrate leadership by dealing with disaster events effectively. This study aimed to identify the nurse leadership indicators at each phase of disaster management. **Methods:** A qualitative descriptive study was conducted in two phases between November 2017 -January 2018 at two regional hospitals and one central hospital in Yogyakarta. The first phase involved semi-structured in-depth interviews with seven emergency nurses, and the second was a focus group discussions with five nurses' managers or lecturers. Participants were selected using a purposive sampling technique. Data Analyze used a modified version framework method. **Results:** We found 49 indicators of nurse leadership in disaster management. We grouped indicators into two major groups: common indicators (27 indicators) and specific indicators (22 indicators). Four themes were obtained according to the disaster management phases: nurse leadership in the mitigation phase, the preparedness phase, the response phase, and the recovery/rehabilitation phase. Each theme contains three main sub-themes (3Cs): character, competence, and the central role of the leader. **Conclusion:** Using the International Council of Nurses (ICN) framework's disaster phase as a conceptual basis, 49 nurse leadership indicators were identified as potential information for future items candidates of the instrument for measuring nurse leadership in disaster management.

Malaysian Journal of Medicine and Health Sciences (2023) 19(6):62-68. doi:10.47836/mjmhs.19.6.9

Keywords: Disaster management, Leadership, Nurse's role

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INTRODUCTION

A disaster disrupts communities or societies' functions and an environment that exceeds their capacity to handle it, and most disasters are caused by vulnerabilities (1–3). The efforts of managing the disaster impact require cooperation from various sectors. One is the cooperation of capable health professionals in disaster management (4). As health professionals, nurses hold essential roles in disaster situations through their abilities to adapt, perform creativity, demonstrate leadership, and have practical skills for handling various disasters (4,5). The 2009 International Council of Nurses (ICN) framework describes disaster nursing competencies as consisting of four main classifications; mitigation competence, preparedness competence, response competence, and recovery/rehabilitation competence. The latest

core competencies in the disaster nursing version 2.0 framework 2019 are divided into three nurse competency levels. Nevertheless, the two frameworks do not define the Nurse's leadership role in each phase (6).

Nurses are required to be leaders in critical and emergencies (7,8). Nurses, as leaders, play an essential role in decision-making, managing chaos, setting priorities, and maximizing available resources to save lives (9,10). According to a review of 343 articles, no article focused on the nurse leadership competencies in disasters (11). Veenema et al. (12) explored the leadership competencies of nurses and hospital administration staff in disasters. They found eight emerging leadership clusters: personality traits, leadership characteristics, problem-solving and decision-making, human resource management, understanding organizational culture, disaster management, and knowledge. However, the study was not compiled based on disaster phases.

Nurse leadership development is a new topic in disaster management (8,9), and there is no specific instrument

to measure nurse leadership in disaster management (11). This condition is unfortunate because it is hard to evaluate consistent and quality decision-making during disasters (13). Moreover, leadership is standard for the nursing professional to contribute to patient safety and quality of care. It is significant for the Nurse's ability to decrease disaster impact, improve disaster response capacity, and formulate nursing policies and education in future emergencies (8,9,12–14). Hence, this study is essential to identify nurse leadership indicators in every phase of disaster management and as a fundamental future to develop an instrument for evaluating nurse leadership in disaster management (15).

MATERIALS AND METHODS

Study Design

A qualitative descriptive study approach analyzed nurses' leadership skills during disaster management phases.

Study Setting and Period

The research was conducted in two phases between November 2017 and January 2018. In the first phase, the researcher conducted in-depth interviews with participants at different types of hospitals(16): two were regional hospitals, and one was a central hospital. The second phase conducted a focus group discussion (FGD) on nurse managers and lecturers at a central-level hospital in January 2018.

Population and Sample of Study

Participants for the in-depth interview were emergency nurses from two regional hospitals and one central hospital. The inclusion criteria were: minimum education in diploma-4 of nursing (bachelor of applied science in nursing) and at least five years of experience in disaster management involvement. FGD participants were manager nurses who were either lecturers or nurse managers, with the inclusion criteria: minimum of a post-graduate degree in the nursing field or any fields in the health area, experience in the leadership and disaster field, and teaching experience of five years. Participants were selected through a purposive sampling approach.

Data Collection Procedure

We identified the prospective participants based on the inclusion and exclusion criteria.

In-depth interviews

There were seven nurse participants involved in the in-depth interviews. A semi-structured interview guideline consists of 5 questions: one opening question and four questions focused on the International Council of Nurses (ICN) framework's disaster phase (5). Each interview took 40 to 60 minutes.

Focus group discussion

Five nurses participated in the FGD. Four were from a

central hospital, and one was a nursing lecturer from the Faculty of Medicine at a local state university. The moderator of the FGD is a nursing graduate certified as a Training of Trainer (ToT). Six stages of FGD: introduction, opening questions, introductory questions, main topics with specific questions according to disaster management phases, closing questions, and post-discussion. The duration of the FGD was 90 minutes (17,18). During the in-depth interviews and FGD, conversations were recorded using a digital MP3 audio recorder (ONN W7). The researcher and researcher assistants wrote participants' answers in field notes to anticipate data loss (17–19).

Data Analysis

In-depth interviews and FGD data were analyzed separately using a modified framework method version (20). Then both are put together as a final analysis. Five stages of data analysis: accustoming to the data collected, recognizing a thematic framework, indexing the transcripts built upon a thematic framework: charting the data, and mapping and interpreting. The ongoing analysis was conducted for each participant to check data saturation (19). Themes were classified deductively (theory-driven) according to the disaster management phase. Data analysis still assesses data inductively (data-driven) to find coding patterns to form categories as indicators and subthemes.

Ethical consideration

This study received ethical approval on November 13, 2017 from the appropriate Ethics Committee at a state university with reference number: KE/FK/1204/EC/2017. Additionally, the researcher acquired research permission from each hospital.

RESULTS

Respondent's Characteristics

Seven nurses participated in the in-depth interviews (Table I). In the in-depth interviews, there were four male and three female respondents. The age range of the respondents ranged from 34 to 54 years. The majority of respondents are nursing graduates. Their work experience ranged from 8 to 28 years, with experience in disaster management ranging from 12 to 24 years; some respondents have attended disaster or leadership training. In the FGD were four male and three female respondents from the central hospital and Universitas Gadjah Mada (Table II). The age range for response ranged from 47 to 53 years. All participants had a master's degree in public health or nursing. Work experience ranges from 24 to 30 years, 24 years of disaster experience, and the respondent has attended disaster or leadership training.

Indicators for Nurses' Leadership in Disaster Management

We identified 49 indicators of nurse leadership in disaster

Table I: Respondent's Characteristics of In-depth Interviews (n=7)

| | Sex | Age | Education | Level of hospital | Length of work (years) | Experience in disaster (years) | Disaster drill experience (f) | Leadership training experience (f) |
|----|--------|-----|------------------------|-------------------|------------------------|--------------------------------|-------------------------------|------------------------------------|
| 11 | Male | 34 | Bachelor of Nursing | Regional Hospital | 8 | 12 | 4 | - |
| 12 | Female | 54 | Bachelor of Nursing | Central Hospital | 28 | 24 | 7 | 5 |
| 13 | Female | 38 | Diploma - 4 of Nursing | Regional Hospital | 18 | 12 | 5 | 3 |
| 14 | Male | 47 | Bachelor of Nursing | Central Hospital | 20 | 24 | 7 | 3 |
| 15 | Male | 47 | Bachelor of Nursing | Regional Hospital | 26 | 12 | 7 | 5 |
| 16 | Male | 39 | Diploma - 4 of Nursing | Regional Hospital | 21 | 12 | 5 | 5 |
| 17 | Female | 43 | Bachelor of Nursing | Regional Hospital | 20 | 12 | 5 | 5 |

I1-I7: In-depth interviews participants

Table II: Respondent's Characteristics Focus Group Discussion (n=5)

| | Sex | Age | Education | Institution | Length of Work (years) | Experience in disaster (years) | Disaster drill experience (f) | Leadership training experience (f) |
|-----|--------|-----|-------------------------|-------------------------|------------------------|--------------------------------|-------------------------------|------------------------------------|
| GD1 | Male | 47 | Master of Nursing | Central Hospital | 24 | 24 | 2 | 1 |
| GD2 | Female | 53 | Master of Public Health | Central Hospital | 29 | 24 | 2 | 3 |
| GD3 | Female | 48 | Master of Nursing | Central Hospital | 26 | 24 | 2 | 3 |
| GD4 | Female | 47 | Master of Public Health | Central Hospital | 25 | 24 | 4 | 3 |
| GD5 | Male | 52 | Master of Nursing | Universitas Gadjah Mada | 30 | 24 | 4 | 1 |

GD1-GD5: Focus group discussions participants

management. We divided them into two groups based on similar indicators in each theme; common leadership indicators (27) and specific leadership indicators (22). The themes were derived from the disaster management phases: nurse leadership in the mitigation phase, preparedness phase, response phase, and recovery/rehabilitation phase. Each theme encompasses the three sub-themes, known as the 3Cs: character, competence, and the central role of the leader (Table III).

The three sub-themes (3Cs): of character, competence, and the leader's central role help understand nurses' leadership roles in each disaster management phase. Leader character is related to the personal qualities needed to lead in a disaster. In the common indicator, seven character traits apply to all phases, while two indicators: empathy and responsiveness, are specific. Competence includes skills, abilities, and knowledge that a nurse leader must have that is needed to deal with disaster situations. Fourteen common indicators apply to all themes, with additional specific indicators added for each theme. Meanwhile, the central role of the leader refers to the critical role or function played by the nurse leader in disaster management. Six central roles apply to all themes. Several additional roles as specific indicators only exist in one or two themes (Table III).

Two major group indicators

Common Indicators

Common indicators were nurse leadership indicators found in all four themes consisting of 27 indicators in three sub-themes (3Cs; character, competence,

and the leader's central role). This indicator emerged because participants repeatedly mentioned it during the mitigation, preparation, response, and recovery/rehabilitation phases.

One of the three sub-themes (3Cs): characters mentioned repeatedly is the leader's fundamental trait. All participants said that nurse leaders in disaster situations must have leader's traits including assertive, aware, authoritative, responsible, honest, calm, and dedicated.

"...the personal characteristic (nurse leader) should be assertive, bold in deciding how our preparation planning goes carefully ..." (P-1, 28/11/2017).

"The nurse leader during disaster occurs in chaos, it is important to have authority ... if (nurse leader) is authoritative then he/she will be respected..., so it is easier, if he/she gives employees directions, they will follow him/her" (P-6, 12/1/2018).

One of the three sub-themes (3Cs): Competence, one of the competencies mentioned by all participants is knowledge which is the first competency nurses must have.

"Like before, the first thing you have to do is prepare individually. As an implementing nurse, you have to understand, in terms of qualified knowledge, how to act if you don't know what to do" (P-4, 12/27/2017).

"Care leadership must have disaster knowledge when something must have been prepared from the start to plan a disaster service in a hospital" (GD5, 18/1/2018).

Table III: Indicators of Nurse Leadership in Disaster Management

| 2 groups indicators | Common leadership indicators (27 indicators) | Specific leadership indicators (22 indicators) | | | |
|-----------------------------------|--|---|---|---|---|
| 4 themes: Nurse leadership | | Phase 1: Mitigation | Phase 2: Preparedness | Phase 3: Response | Phase 4: Recovery /rehabilitation |
| | | 3 sub-Themes (3Cs) | | | |
| Characters | 1. A fundamental trait of the leader | Common leadership indicators: characters (1-7) | Common leadership indicators: characters (1-7) | Common leadership indicators: characters (1-7) 8. Empathetic* 9. Fast responsiveness | Common leadership indicators: characters (1-7) • Empathetic* |
| | 2. Motivational | | | | |
| 3. Charismatic | | | | | |
| 4. Professional | | | | | |
| 5. Appreciative | | | | | |
| 6. Experienced | | | | | |
| 7. Focused on employee well-being | | | | | |
| Competencies | 1. Knowledge in disaster | Common leadership indicators: competencies (1-14) 15. Knowledge in risk and disaster preparedness 16. Social relationship | Common leadership indicators: competencies (1-14) 15. Disaster simulation/drill exercise skills | Common leadership indicators: competencies (1-14) 15. Knowledge in patient management 16. Proficiency in nursing care* 17. Directing skills | Common leadership indicators: competencies (1-14) • Proficiency in nursing care* |
| | 2. Policy understanding | | | | |
| | 3. Forward-thinking | | | | |
| | 4. Ability to coordinate | | | | |
| | 5. Cooperative skills | | | | |
| | 6. Proficient in information sharing | | | | |
| | 7. Lifelong learner | | | | |
| | 8. Active in disaster-related organization | | | | |
| | 9. Thinking rapidly | | | | |
| | 10. Creativity | | | | |
| | 11. Critical thinking | | | | |
| | 12. Effective communication ability | | | | |
| | 13. Initiative | | | | |
| | 14. Strategic planning capabilities | | | | |
| Central role | 1. Risk assessor: asses disaster risk, the readiness of human resources, facilities, nursing services and logistics, the competence of each human resource, and the readiness of the primary service partner | Common leadership indicators: central role (1-6) 7. Team formation and building 8. Policy dissemination 9. Designer of emergency and disaster competencies | Common leadership indicators: central role (1-6) 7. Resource manager 8. Evaluator: readiness and planning program | Common leadership indicators: central role (1-6) 7. Monitor: developments and needs in the field 8. Managing: resources and patient settings 9. Managing: mass communication | Common leadership indicators: central role (1-6) 7. Managing: resources and recovery service function 8. Monitor post-disaster (patient and resources) 9. Managing: reports and documentation 10. Evaluator: evaluating and follow-up treatment 11. Auditor: verification of documentation and claims. 12. Care planner: discharge planning |
| | 2. Educator: for patient, family, college | | | | |
| | 3. Negotiator | | | | |
| | 4. Information collector: data collection | | | | |
| | 5. Problem solver | | | | |
| | 6. Role model | | | | |

Noted: *: Specific indicators appear in two themes

One of the three sub-themes (3Cs): central role, Several participants revealed that a leader as a behavior role model engaged the employees in problem-solving to reduce future conflict.

“...The leader acts as a role model to go through his job...it makes the employees’ coordination more effective because the leader understands what their employees need” (P-4, 27/12/2017).

“... Nurse gives an example role as a leader... The role model for his employees to participate actively is not just ordering them Do not ignore a problem between employees because it will be a problem in the future. We have to engage them and solve them together. They need to imitate our behavior like that role model” (GD5, 18/1/2018).

Specific indicators

Specific indicators were nurse leadership indicators that only existed in one or two themes (see Table 3). There are 22 particular indicators divided according to three sub-themes (3Cs; character, competence, and the leader’s central role).

This study found that a leader must be empathetic to victims and officers not only in the response phase but also in the recovery phase. The empathetic is one of the three sub-themes (3Cs): Character.

“Yes, empathy for the victim, so we adjust our attitude to the condition of the victim, both from speech and behavior. Fellow colleagues are like that too” (P-6, 12/1/2018).

One specific indicator on the theme of nurse leadership in the preparedness phase (3Cs: competencies) was that most participants explained the nurse leader had received disaster simulation/drill exercise skills like a basic life support (BLS) training and practiced these skills during an emergency. Disaster nursing skills were an indicator of the sub-theme (3Cs): nurse leadership competence in disaster management.

"...then BLS training, BLS skills (nurse leader) must be adequate, not only BLS competence but also have other training skills, actively participate in many training in the field of disasters with extensive experience...." (P-7, 16/1/2018).

".. She/he (the nurse) trained and experienced in dealing with emergencies so (she) can manage her employees, (the nurse was) ready ... (the nurse was) ready both knowledge and practice in all situations" (GD-3, 18/1/2018).

One of the three sub-themes (3Cs): the central role of specific indicators is to form a special team for disaster management in the mitigation phase.

"Determining how the flow will go, and whether there should be an additional team of officers so that apart from the initial planning there needs to be a backup plan, or how to optimize the existing resources, facilities and if an escalation occurs, you can immediately add beds to accommodate 50-100 people, (GD5, 18/ 1/2018).

DISCUSSION

In total, 49 indicators of nurse leadership were divided into two major groups depending on the similarity in each theme; common and specific indicators. This study shows similar indicators because each disaster phase is interrelated as a continuum or cycle (4,5,21). For instance, the mitigation and preparedness phases are interrelated and have respective roles. Mitigation focus reduces hazard exposure, while preparedness anticipates hazard events (22,23). In addition, the disaster response phase starts with events identifying and immediately responding to the plans developed in the preparedness phase (24). Finally, the recovery phase returns the condition to pre-disaster status and involves multifactorial processes such as infrastructure and physical and psychological care (4,23,25). Our research findings show the importance of nurse leadership in the entire disaster cycle, as evidenced by common and specific indicators.

This study defines nurses' leadership in disaster management as their ability to lead in four phases of disaster management. Four themes were adopted from disaster phases in the framework ICN 2009 that explained nurses' core competencies for disaster management (5). Nurses' leadership encompassed the disaster phase: nurse leadership in the mitigation phase, nurse leadership in the preparedness phase, nurse

leadership in the response phase, and nurse leadership in the recovery/rehabilitation phase (10). Even so, there are significant differences in leadership implementation leadership between the levels of nurses, according to the disaster nursing version 2.0 ICN framework in 2019, depending on the knowledge, skills, and responsibilities required in disaster management. The higher the level of leadership, the greater the responsibility for making decisions (6).

Nurse leadership in the mitigation phase is defined as nurse leadership skills to reduce a disaster's impact. In this study, the indicators of leaders that emerge apart from character include competence, knowledge of risk, and ability to build roles. These results were consistent with study that the mitigation phase started with risk identification and ensured individual and community prevention (5,10,23,24). In the preparedness phase, nurse leadership is skills for preparing to handle before, during, and after a disaster (5,9,10). The findings from this study showed that training and simulation competencies are very important for a leader to have. In addition, nurse leaders must have planned and evaluated disaster preparedness (10,26).

The findings in the response phase were that the nurse leader mastered the skills of disaster care and made the right decisions. Another study supports that nurse leadership is a skill for effective response, reducing disability, and saving as many lives as possible in a disaster (5,9,10). As for the recovery/rehabilitation phase findings, the majority emphasized the role shown in post-disaster monitoring and managing discharge planning. Another study showed that nurse leadership is a nurse leadership skill that actively participates in the follow-up of patients' needs after a disaster (5,9,10). During the recovery and rehabilitation, planning and reconstructing activities effectively respond to disasters (5,23,25).

Three sub-themes (3Cs) were found in all nurses' leadership indicators in disaster management: character, competence, and the central role of the leader. These results were consistent with two of the three components, "good leaders," formed by Gandz et al. (27) combinations of character, competence, and commitment (28). In this study, commitment is not separated as a component but is included in a leader's character. Participants revealed that commitment refers to a commitment to the central role of a leader who has accountability, which is categorized as a virtue (27). Commitment refers to "good leaders" who show aspirations and sacrifices in running organizational activities (27).

This study's character is defined as leadership traits, values, and virtues (27) to handle each disaster management phase. The leader's character is comprehensive values and personality related to mental, emotional, moral, and ethical traits effectively deal with

certain situations effectively. King et al.(29) showed that leaders most often mentioned characteristics, including interpersonal skills, the ability to remain calm under pressure, and personal character.

In this study, the competence of the leader is an expected level of performance by integrating knowledge, skills, judgment, and abilities to provide decision-making in disaster management (11,30). According to Bahrami et al.(31), nurses should also use skills for required treatments in critical situations. Therefore, nurse leaders' competence is needed to establish disaster nurse leadership that can be evaluated in disaster emergencies (12).

Central to a leader's role are activities that clear goals can determine, formulate plans, and organize people to reach goals (32,33) in disaster management. Sarbin and Allen defined the leader's role as behavior that resulted from a position(34). Marquis and Huston(33) mentioned that the leader's role is fundamental to clinical nursing practice and that all nursing roles include a leader's role. Thus, the nursing role in disaster encompasses the role of nurse leaders.

Limitations and recommendations for future research

It may be necessary to separate nurse competency levels according to the international council of nurse core competencies in disaster nursing version 2.0. However, we combined the three levels in this study to broaden the scope. The nurse leadership indicator obtained in this study is an initial version that requires further testing to be a valid and reliable set of items intended to use in any disaster situation that can measure nurse leadership.

CONCLUSION

Using the disaster phase of the International Council of Nurses (ICN) framework as a conceptual basis, there are 49 indicators of nurse leadership that are interrelated and have different characteristics. The findings of this study indicate that indicators of nurse leadership in disaster management involve not only certain competencies but also central character and role. Therefore, the indicators of nurse leadership in each phase of a disaster contain three sub-theme components (3C): character, competence, and the central role of a leader who will greatly assist in increasing the effectiveness and efficiency of disaster management. This indicator can also be used as a guide for instrument development in the future.

REFERENCES

1. UNDRR (United Nations International Strategy for Disaster Reduction). Terminology [Internet]. 2017 [cited 2017 Mar 27]. Available from: <https://www.undrr.org/terminology/disaster>
2. Kelman I. Lost for Words Amongst Disaster Risk

- Science Vocabulary? International Journal of Disaster Risk Science. 2018;9(3):281–91. doi: 10.1007/s13753-018-0188-3
3. World Health Organization (WHO). Disasters & Emergencies Definitions: Training Package [Internet]. 2017 [cited 2017 Mar 28]. Available from: <http://apps.who.int/disasters/repo/7656.pdf>.
4. Veenema TG. Disaster nursing and emergency preparedness: for chemical, biological, and radiological terrorism and other hazards, for chemical, biological, and radiological terrorism and other hazards. Springer Publishing Company; 2012. doi: 10.1891/9780826144225
5. World Health Organization (WHO) & International Council of Nurses (ICN). ICN Framework of Disaster Nursing Competencies. Geneva, Switzerland: WHO and ICN; 2009.
6. International Council of Nurses (ICN). Core competencies in the disaster nursing version 2.0 [Internet]. ICN. 2019 [cited 2023 Apr 2]. Available from: https://www.icn.ch/sites/default/files/inline-files/ICN_Disaster-Comp-Report_WEB.pdf
7. Supamane T, Krairiksh M, Singhakumfu L TS. Preliminary clinical nursing leadership competency model: A qualitative study from Thailand. Nurs Health Sci. 2011;13(4):433-439. doi: 10.1111/j.1442-2018.2011.00649.x
8. Tourangeau A, Mcgilton K. Measuring leadership practices of nurses using the Leadership Practice Inventory. Nurs Res. 2004;53(3):182-9. doi: 10.1097/00006199-200405000-00005.
9. Veenema TG, Griffin A, Gable AR, Macintyre L, Simons RN, Couig MP, et al. Nurses as Leaders in Disaster Preparedness and Response — A Call to Action. J Nurs Scholarsh. 2016; 48(2):187-200. doi: 10.1111/jnu.12198.
10. Knebel AR, Toomey L LM. Nursing leadership in disaster preparedness and response. In: Annual review of nursing research. Springer Publishing Company; 2012. p. 21–45. doi: 10.1891/0739-6686.30.21
11. Veenema TG, Losinski SL andrews, Newton SM, Seal S. Exploration and development of standardized nursing leadership competencies during disasters. Health Emergency and Disaster Nursing 2017; 4(1):26–38. doi: 10.24298/hedn.2015-0016
12. Veenema TG, Deruggiero K, Losinski S. Hospital Administration and Nursing Leadership inDisasters An Exploratory Study Using Concept Mapping. Nurs Admin Q. 2017;41(2):151–63. doi: 10.1097/NAQ.0000000000000224
13. Registered Nurses Association of Ontario. Developing and Sustaining Nursing Leadership. Healthy Work Environments. 2013;
14. Institute of Medicine (US) Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing. The Future of Nursing: Leading Change, Advancing Health. Washington (DC): National Academies Press (US); 2011. doi: 10.17226/12956

15. DeVellis RF. Scale Development: Theory and Applications. Applied Social Research Methods. SAGE publications; 2003.
16. Debas HT, Donkor P, Gawande A, Jamison DT, Kruk ME, Mock CN, eds. Essential Surgery: Disease Control Priorities, Third Edition (Volume 1). Washington (DC): The International Bank for Reconstruction and Development / The World Bank; April 2, 2015. doi: 10.1596/978-1-4648-0346-8
17. Krueger R CM. Focus groups: A practical guide for applied research. SAGE publications; 2000.
18. Hennink MM. Focus Group Discussions. Focus Group Discussions (Understanding Qualitative Research). 2014.
19. Mack N, Woodsong C, MacQueen KM GG. Qualitative research methods: a data collectors field guide. 2015.
20. Kelly L, Morley D, Dawson J, Fitzpatrick R, Jenkinson C, Dummet S. Development of the Oxford Participation and Activities Questionnaire: constructing an item pool. Patient Relat Outcome Meas. 2015; 6:145-155. doi: 10.2147/PROM.S82121
21. Putra A, Petpichetchian W. Public Health Nurses' Roles and Competencies in Disaster Management. Nurse Media Journal of Nursing. 2011;1(1):1-14. doi: 10.14710/nmjn.v1i1.742
22. Bullock JA, Haddow GD, Coppola DP. Mitigation, Prevention, and Preparedness. Introduction to Homeland Security. 2013;435-494. doi:10.1016/B978-0-12-415802-3.00010-5
23. Ciottone, G. R., Biddinger, P. D., Darling, R. G., Fares, S., Keim, M. E., Molloy, M. S., & Suner S. Ciottone's disaster medicine. Elsevier Health Sciences.; 2015. 161–220 p.
24. Saunderson Cohen S. Mass casualty incidents. In: Sheehy's Manual of Emergency Care 7th Edition. St. Louis, M: Elsevier Mosby; 2013. p. 19–35.
25. Al Thobaity A, Williams B, Plummer V. A new scale for disaster nursing core competencies: Development and psychometric testing. Australasian Emergency Nursing Journal. 2016;19(1):11–9. doi: 10.1016/j.aenj.2015.12.001
26. Abdelghany Ibrahim FA. Nurses Knowledge, Attitudes, Practices and Familiarity Regarding Disaster and Emergency Preparedness – Saudi Arabia. American Journal of Nursing Science. 2014;3(2):18. doi: 10.11648/j.ajns.20140302.12
27. Gandz BJ, Crossan M, Seijts G, Reno M. Leadership Character and Corporate Governance. Journal of the Institute of Corporate Directors. 2013;167:15–21.
28. Osman A, Abdullah MS, Hadi A, Manaf A. The Effect of Character, Competency and Commitments towards Leadership Behavior of Public Institutions of Higher Learning. International Journal of Philosophy and Social-Psychological Sciences 2016;2(2):20–6.
29. King R V., Larkin GL, Fowler RL, Downs DL, North CS. Characteristics of Effective Disaster Responders and Leaders: A Survey of Disaster Medical Practitioners. Disaster Med Public Health Prep. 2016;10(5):720–3. doi: 10.1017/dmp.2016.24
30. American Nurses Association's Leadership Institute (ANA LI). ANA Leadership Institute: Competency Model Framework. American Nurses Association.; 2013. 3–19 p.
31. Bahrami M, Aliakbari F, Aein F. Iranian nurses' perception of essential competences in disaster response: A qualitative study. J Educ Health Promot. 2014; 3:81. doi: 10.4103/2277-9531.139247
32. Gupta R. Role of Leaders in Organizational Recruitment and Selection. Nolegein-Journal of Human Resource Management & Development. 2018;1(1):22-6. Available from: <https://mbajournals.in/index.php/JoHRMD/article/view/68>
33. Marquis BL, Huston CJ. Leadership Roles and Management Functions in Nursing: Theory and Application. Philadelphia: Lippincott Williams, & Wilkins.; 2009.
34. Sheard AG, Kakabadse AP. A role-based perspective on leadership as a network of relationships. Journal of Management Development. 2007;26(4):331–52. doi: 10.1108/02621710710740093