Technical competency required by postgraduate psychiatric nursing students: A qualitative research

Effat Sheikhbahaeddinzadeh, Tahereh Ashktorab, Abbas Ebadi[1,2]

Abstract:

BACKGROUND: Technical skills result in the patient's safety. Psychiatric nurses need to learn and apply them to provide effective and secure cares. This study explains the technical competency required for postgraduate psychiatric nursing students.

MATERIALS AND METHODS: This conventional qualitative content analysis study is part of a larger study on the clinical competency of postgraduate psychiatric nursing students performed in Iran in 2020. A qualitative study was conducted at universities holding master's degree courses in psychiatric nursing. Participants were instructors and postgraduate psychiatric nursing students, psychiatric nurses, psychologists, and psychiatrists selected by purposeful sampling method. Sampling continued until data saturation was achieved. Data were collected through a semi-structured individual interview and were analyzed by conventional qualitative content analysis.

RESULTS: The "technical competency" has two subcategories of "specialized knowledge" (including general nursing knowledge, psychiatric nursing knowledge, and basic knowledge of psychology) and "application of knowledge in practice" (including clinical experience, skills of psychiatric nursing interventions, educational skills, and research and evidence-based practice skills).

CONCLUSION: The psychiatric nursing student learns and operates knowledge of psychiatric nursing, psychology, education, and research, besides improving their knowledge of general nursing.

Keywords:
Clinical competence, postgraduate nursing education, psychiatric nursing, qualitative research, technical expertise

Department of Nursing Management, Faculty of Nursing and Midwifery, Tehran Medical Science, Islamic Azad university, Tehran, Iran, [1]Behavioral Sciences Research Center, Life Style Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran, [2]Department of Management, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, Iran

Address for correspondence:
Prof. Tahereh Ashktorab, Department of Nursing Management, Faculty of Nursing and Midwifery, Tehran Medical Science, Islamic Azad University, Tehran, Iran.
E-mail: taherehashk@gmail.com

Introduction

"Technical competency" is referred to a disciplinary skill set. The knowledge acquired in educational institutions is focused on the skills specific to a discipline to help to implement performance.[1] Technical competence, as one of the aspects of nurses' competence,[2,3] is significant due to meeting the patients' safety.[2-6] Successful clinical outcome depends on the caring skillful way.[4,5] As technical competency is related to knowledge and skill, it makes it easy to judge performance quality.[2]

In general, competence is a measurable framework of knowledge, skill, ability, behavior, and other characteristics making a person professionally play the role successfully.[7] However, psychiatric nurse competence has not been determined due to role uncertainty,[8] lack of awareness of role,[9] deficiency of curriculum in postgraduate education,[10] and lack of health-care standards.[11] Therefore, there is no standard competence for psychiatric nurses.[12] However, in order to design a standard curriculum, assessment student performance, and ultimately improvement quality of care, technical competency should be clarified.[13] In addition, factors such as changes in disease structures,[13]

complexity of treatment, the increased number of the elderly and patients with chronic diseases, reduction of hospitalization time,[14] and de-institutionalization[15] have increased the need for available health services.[14]

Nurse competency in providing health services has a direct relationship with quality of care.[16] Insufficient skills can cause physical and mental injuries to patients.[17,18] Hence, competence should be continuously evaluated by managers[18] to promote the profession.[16] If the managers and psychiatric nurses know nurse competence level, skills, and cognitive problems, they will eliminate weakness to improve care.[19]

Psychiatric nurse clinical competency is a set of skillful and ongoing use of technical skills, knowledge, clinical reasoning, emotions, and values for patients.[20] Technical competency, as a part of clinical competence, emphasizes a minimum standard to safely perform a procedure or task independently.[21] Some studies such as Fattah Ahari *et al*. stated that the clinical competency of nurses working in psychiatric settings is desirable.[22] However, the average of psychiatric nursing skills, such as communication therapy, was lower than intensive cares and ethic competencies.[23] Whereas some studies stated newly graduated students achieved only 20% technical competencies,[24] which are inadequate.[15] Even, some studies stated psychiatric nursing cares are traditional.[25] Aliakbari *et al*. defined technical competence of nurses as basic and special nursing knowledge and skills to care for disaster people.[26] To the best of our knowledge, there have been no studies on technical competency required for postgraduate psychiatric nurses so far.

It is required to explain the necessary technical competence of postgraduate psychiatric nursing students for revising educational program objectives and training the qualified students to meet the health service's needs. While there is no existing theory or research literature regarding the technical competency of postgraduate psychiatric nursing students, a qualitative study is needed to answer these questions. This design is appropriate when an existing theory or research literature on a phenomenon is limited.[27] Therefore, this study, which is a conventional content analysis, was performed to explain the technical competencies required for MSc psychiatric nursing students.

Materials and Methods

Study design and setting
This is a conventional qualitative content analysis study, a part of a larger study. For achieving data-rich samples, nursing and midwifery faculties providing postgraduate psychiatric nursing internship credit, in Tehran and Mashhad, Iran, were selected as a research field.

Study participants and sampling
The researcher after introducing herself and the study objectives invited the individuals to participate in the study by a purposive sampling method. The participants were MSc psychiatric nursing students and instructors specializing in psychiatric nursing, also psychiatric nurses, psychologists, and psychiatrists with at least 2 years of clinical experience.

Data collection tool and technique
Data were collected by a semi-structured interview individually, lasting from November 2019 to August 2020. They lasted 25–40 min with respect to the participant's conditions. Data were collected and analyzed simultaneously. As in qualitative research, the sample size should be determined based on information needs, so the sample size guide was data saturation. Data saturation occurs when no new categories emerge from the analysis process. At this time, collecting more data does not add anything to the categories or their details. Only the volume of data increases, so the data collection is stopped.[27] After 18 interviews, the required information was collected and no new code was obtained. However, for confirming the created categories, three more interviews were conducted, and finally, data collection was completed by 21 interviews.

In the interview sessions, participants' perspectives were asked about "skills which should be acquired by postgraduate psychiatric nursing students." In each interview, for deciphering, some probing questions, such as "can you explain more about it?" were asked.

All the interviews were recorded after permission of the participants and were analyzed by conventional qualitative content analysis based on Graneheim and Lundman's method.[28] In the first step, each recorded interview was played several times. Then, it was typed word by word by computer. For ensuring the accuracy, the manuscripts were reviewed while playing the recorded audio files. After that, the interviews were read line by line several times. In the second stage, semantic units of the data were determined and were categorized more intensively. After summarizing them, a suitable label was selected (third stage). Subcategories were formed. In the fourth stage, based on a comparison of similarities and differences in subcategories, the main categories were developed. In the fifth stage, a suitable title was selected covering all obtained categories.

For increasing the credibility of the data, according to Lincoln and Guba's evaluative Criteria (1994),[27] a long-time contact with participants and prolonged engagement to conducted interviews, prolonged dealing with data, and data triangulation with different groups (psychologists, psychiatrists, psychiatric nurses,

psychiatric nursing professors, and students) were done. Confirmability was achieved by reviewing and verifying the written text of some interviews, codes, and the extracted categories by peer and faculty members checking. Transferability was achieved with the maximum variation of participants in terms of job experience, career, and education. For dependability, in addition to methodological coherence, the research stages and trends were accurately documented and reported step by step.

Ethical considerations
The study was approved by the Ethics Committee (No. IR. IAU. TMU. REC.1399.171).

Before beginning the interviews by the first author, the research objectives, confidentiality of information, and optional participation for participants were explained. Informed consent was obtained from all the participants. Permission was obtained from the participants for recording the interviews.

Results

The mean age of 21 participants was 42.35 ± 10.08 years old. Men and 14 women, were following:

1 psychiatrist, 1 psychologist, 16 psychiatric nurses with both of teaching and practical experiences and 3 students (mean and standard deviation were respectively 3.90 ± 1.1 and 3.43 ± 1.53 years) [Table 1].

"Technical competence" is derived from two main categories: "specialized knowledge" (3 subcategories) and "application of knowledge in practice" (four subcategories) [Table 2].

Specialized knowledge
In this study, specialized knowledge was defined as one of the basic competencies of psychiatric nursing students. Considering the importance of a holistic view in providing psychiatric nursing care, participants mentioned that knowledge on various aspects influential on health is necessary.

General nursing knowledge
All participants believed that clinical knowledge and skills at the undergraduate nursing form the basis of nursing knowledge with any specialized branch. It is even expected that at higher levels, they have a higher level of nursing knowledge. Participants stated that a psychiatric nurse should know basic nursing knowledge to take care of the patients both physically and mentally.

A 39-year-old psychiatric nurse with 10-year experience said:

Table 1: Demographic information of participants (*n*=21)

Variable	Frequency (%)
Age (years)	
25-30	2 (9.5)
31-36	4 (19.0)
37-42	5 (23.8)
43-48	5 (23.8)
49-54	3 (14.3)
>55	2 (9.5)
Gender	
Female	14 (66.7)
Male	7 (33.3)
Marriage status	
Married	20 (95.2)
Single	1 (4.76)
Divorced	0
Education	
MSc	12 (57.1)
Student	3 (14.3)
PhD	4 (19.0)
Others	2 (9.6)

Experience (years)	C	T
1-5	3 (14.3)	3 (14.3)
6-10	2 (9.5)	4 (19.0)
11-15	7 (33.3)	3 (14.3)
15-20	3 (14.3)	1 (4.8)
>20	4 (19.0)	2 (9.5)
<1	2 (9.5)	8 (38.1)
Total	21 (100)	21 (100)

T=Teaching experience, C=Clinical experience

Table 2: The categories and subcategories of technical competency

Category	Subcategory
Specialized knowledge	General nursing knowledge
	Psychiatric nursing knowledge
	Basic knowledge of psychology
Application of knowledge in practice	Clinical experience
	Skills of psychiatric nursing interventions
	Educational skills
	Research and evidence-based practice skills

"Many of psychiatric patients have some general illnesses. There must be a psychiatric nurse who not only knows general nursing knowledge and cares but also solves mental problems" (P18: MSc, Male*).*

Psychiatric nursing knowledge
This includes symptoms and signs of psychiatric diseases according to DSM-5 criteria, psychiatric emergencies, substance abuse, and psychiatric interventions and treatments in different age groups. A psychiatric nursing instructor suggested:

"Students should have sufficient information about pharmacotherapy, mental illnesses, and

some comprehensive information about mental disorders." (P12: MSc, Female*).*

Basic knowledge of psychology

Most of participants considered that basic knowledge of psychology is necessary. Participants believed that awareness of psychological theories, mental health principles, indicators, health measurement tools, psychotherapy, and psychoanalysis are necessary for more active cooperation in a psychiatric team. Hence, they can cooperate with a psychologist, follow-up recovery, and report every change in patients to the psychiatric team; as a result, treatment will be integrated. A psychiatric nurse stated:

"At first, they must have psychology knowledge to identify the problems in patient, or interact with a psychologist.*"* (P11: MSc, Female*).*

Application of knowledge in practice

All participants believed that postgraduate students must learn psychiatric diseases, treatments, and nursing cares types to properly implement nursing and psychiatric nursing interventions, educate clients, families, colleagues, and students. They should know different educational methods and learning theories to perform teaching processes based on them. Also, they should know about different methods of research for solving the discovered problems in community. Participants believed that clinical experience is necessary to acquire nursing fundamental skills, develop interaction skills, and achieve socialization of students.

Clinical experience

Most participants stated that clinical experience is essential for understanding patients, diseases, also providing better services. Some believed it is desirable that postgraduate students would have nursing experience in general wards to obtain nursing skills, collaborating with colleagues and the medical team members. After that, a student should work in psychiatric centers to improve their skills. Experience facilitates to decipher specialized knowledge. An instructor with 10 years experiences stated:

"Students working mostly in clinical settings can perform well more than they who do not work. Specially, if they have been experienced the psychiatric setting." (P19: MSc, Female).

Most participants stated that undergraduate nursing skills (e.g., cardiopulmonary resuscitation, sampling, and using intravascular catheters) constitute the nursing basis. Postgraduate psychiatric nurses are expected to acquire psychiatric nursing intervention skills besides undergraduate nursing skills. They should design,

implement, and report activities as nursing processes more competently. As P19 stated:

"Students should make a nursing diagnosis more accurately and quickly, recognize the signs and symptoms of the disease and drugs` side effects.*"* (MSc, Female).

The head nurse of a psychiatric ward emphasized:

"The psychiatric nurses accurately document symptoms, especially the side effects of medications, or they record whatever a patient with insomnia has done and may have been efficient in his illness.*"* (P4: MSc, Male).

Skills of psychiatric nursing interventions

The MSc psychiatric nursing students must be able to implement psychiatric nursing interventions suitable for psychiatric patients in different ages and genders, also in various conditions, i.e., chronic, acute, and emergency, through therapeutic communication skills. Therapeutic communication is the underlying aspect of all psychiatric nursing interventions. All the participants agreed on the significance of therapeutic communication. A faculty of the university said:

*"*Communication is incredibly significant. In psychiatric ward, we use equipment much less than medical ward. So, therapeutic tool in psychiatric departments is communication.*"* (P12: MSc, Female).

It is impossible to communicate or train the patients with chronic disease, hospitalized in psychiatric settings for a long time or even lifetime, admitted due to recurrence of their illness several times, disoriented, or too aggressive. Therefore, skill of communicating with the family of the psychiatric patient gets essential. Head nurse of psychiatric setting with 20 years' experience said:

"Most psychiatric patients get admitted and discharged 2–3 times in a year. The first thing which matters to their family is communication, how to contact with them." (P4:MSc, Male)

Participants considered it necessary to communicate with not only the patient and family but also colleagues and health team because it leads to an integrated care of the patients, decreased job tension, and increased quality of cares. Psychologist mentioned:

"Students should know how to report to a psychiatrist and how to communicate with other members of treatment team." (P6: MSc, Female).

Other skills such as reminiscence therapy, storytelling, play therapy, and rehabilitation interventions are available

in various levels of prevention. Psychiatric diseases are usually chronic, with disturbed performances; also one of the consequences of chronic physical disabilities is mental disorders. Consequently, postgraduate psychiatric nursing students should acquire mental rehabilitation skills. The educational supervisor and faculty of the university stated:

"Rehabilitation is a general concept. Students have to do mental rehabilitation that needs to be applied appropriately, and make the client prepare for acceptance." (P2: MSc, Female).

Educational skills

The postgraduate psychiatric nursing student should have considerable educational skills to well train the educational contents to the clients and their families and even society effectively. Thus, students will be able to share their knowledge and specialty with future colleagues and students. The faculty of the university on collaborating in education stated:

"They, as a teacher can present an in-service training courses for the staff. Their updated information on psychiatric nursing cares can be shared with undergraduate nurses." (P12:Msc, Male).

Regarding the education of the clients and family, the psychologist of the psychiatric ward stated:

"I think if patient and family are educated exactly, and get oriented, many aggressions and anger of patients will be prevented." (P6:MSc, Female).

Regarding the educational ability, 46-year-old faculty of the university stated:

"It`s necessary they scientifically know those mental illnesses to be able to transfer to others." (P3: PhD, female).

Research and evidence-based practice skills

Participants expected students to obtain research skills to develop psychiatric nursing profession and knowledge. Considering the increasing trend of production of knowledge, complexities of today's world, aging of society, and incidence of unknown and chronic diseases, interventions are to be based on scientific and valid evidence. In other words, for providing the best care, the best scientific documentation should be applied in clinical decision-making. The faculty of the university said:

"A psychiatric nurse, according to whatever learned on research, and the translations done, would get expert. They should research on the admitted patients; apply novel approaches and methods." (P12:MSc, Female).

Discussion

In this study, "Technical competency" required for postgraduate psychiatric nursing students was "Specialized knowledge" and "Application of knowledge in practice." Based on findings, a psychiatric nurse should have a specialty in psychiatric nursing, psychology, and nursing knowledge and apply it in clinical settings.

The first category was "specialized knowledge," consistent with the study by Aliakbari *et al.*[26] They mentioned basic scientific knowledge and knowledge about crisis and the specialized interventions related to the situation, as "technical competence of nurse in the crisis" term. This inconsistency in specialty is due to a study that has been conducted on nurses in the crisis.

Mohtashami *et al.* and Moskoei *et al.* mentioned the specialized competence of mental health nurses, as the therapeutic communication skills and caring for patients with psychiatric disorders.[11,29] The nurse/patient relationship constitutes the specialized care competency.[30] The therapeutic communication includes being an active listener, creating confidence through supporting the patient's strengths, making trust in the patient, and encouraging the expression of emotions.[29] In the present study, specialized knowledge refers to three fields of general nursing knowledge, psychiatric nursing, and psychology. In addition to general nursing knowledge, identifying the symptoms and signs of psychiatric diseases based on DSM-5 criteria, psychology of the elderly, children, and adults, emergencies, substance abuse, various treatments for psychiatric diseases, such as psychiatric drugs, individual and group psychotherapy, psychoanalysis, and familiarity with different psychological tools were considered to be necessary. Mohtashami *et al.* and Moskoei *et al.*,[11,29] did not mention psychiatric nursing interventions for family, group, types of supportive treatments, etc., in their studies. These inconsistencies may be due to the fact that these studies have been conducted on undergraduate nursing students and nurses working in psychiatric wards. This study emphasized the specialized knowledge of postgraduate psychiatric nursing students in three fields of undergraduate nursing, psychiatric nursing, and somewhat psychology. However, studies have shown that only 2% of nurses use the knowledge published in valid journals.[30] This shows they are not responsible to improve their knowledge.

Some researchers believe that knowledge brings power.[31] Medical education emphasizes "competency-based learning"[32] to change knowledge, attitude, and skills of learners. Hence, they can perform their professional duties appropriately.[13]

Skill of training and performance of students during the course of study are inefficient to meet nursing qualifications.[33,34] Also, most new graduates are not qualified to face the challenges of the real nursing environment.[30] Studies emphasized lifelong learning of nurses confirming the important role of knowledge in empowerment and professional competency.[34]

The second category is "Application of knowledge in practice." The ability to apply theoretical knowledge obtained from formal training during the master's degree in clinical practice was also mentioned in this study, which is consistent with the studies by William *et al*., and Bahrami *et al*.,[35,36] Development and application of knowledge are necessary to provide safe and qualified health cares. Nurses need to apply the obtained findings based on research or practice based on the evidence, consciously in clinical settings.[37] The gap between theory and practice in nursing is one of the main challenges. Students are not able to apply knowledge in clinical settings despite passing theoretical credits.[38] Studies have shown that 30%–40% of patients do not receive knowledge-based care and 20%–25% of them receive inappropriate or unnecessary care.[4,37] Regarding promoting health and eliminating the gap between knowledge and performance, World Health Organization has also emphasized transforming knowledge into performance.[37] Hence, knowledge is like a source of power when it can be used to improve performance and achieve the goals of the organization.[39]

Conclusion

Psychiatric nursing students will learn and will be able to apply psychology and psychiatric nursing, in addition to improve undergraduate nursing knowledge. They will learn and implement different teaching methods and learning theories. Also, health problems of the client are solved by appropriate research, and the most appropriate scientific achievements.

Limitations and recommendation
The main limitation of this research was reviewing and inclusion of a few papers on the competence of psychiatric nurses. Further research can be conducted to decipher postgraduate psychiatric nurse technical competency in depth.

Relevance to clinical practice
- To provide a practical and theory definition for technical competence of postgraduate psychiatric nursing students
- A clear definition on technical competency results in integrating into educational program of postgraduate psychiatric nursing

- Determining the standard indicators for objectively evaluating of postgraduate psychiatric nursing students' performance
- Describing some jobs' tasks of psychiatric nurses
- And ultimately, improving level of quality of psychiatric nursing cares. Thus, it is recommended to evaluate the technical competence of psychiatric nurses and psychiatric nursing students constantly.

Conflicts of interest
There are no conflicts of interest.

References

1. Albino G. Technical and behavioral competencies on performance evaluation: Petrek leaders' perspectives. Sage Open 2018; 8 (2):2158244018780972. [doi: 10.1177/2158244018780972].
2. Midhat Ali M, Fahad M, Qureshi SM, Wook Kang C. Technical Competency Framework: DEVELOPMENT and Implementation TECHNICAL Competency Framework: Development and Implementation,.6th International Mechanical Engineering Congress on Green Systems and Innovation,: IEP, Karachi, Pakistan, Proceedings of SIMEC-2016, 15-16 July 2016.
3. Midhat Ali M, Qureshi SM, Memon MS, Mari SI, Ramzan MB. Competency framework development for effective human resource management. Sage Open 2021;11 11:21582440211006124. [doi.org/10.1177/21582440211006124]
4. Grantcharov TP, Reznick RK. Teaching procedural skills. BMJ 2008;336:1129-31.
5. Lodge D, Grantcharov T. Training and assessment of technical skills and competency in cardiac surgery. Eur Journal CardioThorac Surg 2011;39:287-93.
6. Walsh S, Linton JD. The measurement of technical competencies. J High Technol Manag Res 2002;13:63-86.
7. Scott Tilley DD. Competency in nursing: A concept analysis. J Contin Educ Nurs 2008;39:58-64.
8. Browne G, Hurley J. Mental Health Nurses as therapists in a rehabilitation setting: A phenomenological study. Int J Ment Health Nurs 2018;27:1109-17.
9. Sheikhbahaeddin-zadeh E, Homani MajdAbadi F, Psychiatric nurses` rehabilitation services for chronic mental disorders: A systematic review, 1st national conference on care and cure, aliabadketool, 2017; March6, poster,http://ctn1.aliabadiau. ac.ir[in Persian]
10. Irajpour A, Alavi M. Health professionals' experiences and perceptions of challenges of interprofessional collaboration: Socio-cultural influences of IPC. Iran J Nurs Midwifery Res 2015;20:99-104.
11. Mohtashami J, Salsali M, Pazargadi M, Manocheri H, Alavi majd H, Designing and psychometry clinical competency checklist of mental health nurse students. Iran J Psychiatr Nurs (IJPN) 2014;2:46-57.
12. American Psychiatric Nurses Association Board of Directors. Psychiatric-mental health nurse essential competencies for assessment and management of individuals at risk for suicide; 2015.

13. Fukada M. Nursing competency: Definition, structure and development. Yonago Acta Med 2018;61:1-7.

14. Leonardsen AC, Blågestad IK, Brynhildsen S, Olsen R, Gunheim-Hatland L, Gregersen AG, *et al*. Nurses' perspectives on technical skill requirements in primary and tertiary healthcare services. Nurs Open 2020;7:1424-30.

15. Kaplan BJ. Kaplan and sadock's synopsis of psychiatry. Behavioral sciences/clinical psychiatry. Tijdschrift Voor Psychiatr 2016;58:78-9.

16. Bahreini M, Moateri M, Akaberian SH, Mirzaii K. Defining clinical competency of nurses employed at hospitals related to Bushehr medical science university in self-evaluating method. Persian Gulf Med Biol Res 2008;1:69-75.

17. Gonçalves PD, Sequeira CAC, Paiva e Silva MA. Nursing interventions in mental health and psychiatry: Content analysis of records from the nursing information systems in use in Portugal. J Psychiatr Ment Health Nurs 2019;26:199-211.

18. Kim K, Han Y, Kim J. Korean nurses' ethical dilemmas, professional values and professional quality of life. Nurs Ethics 2015;22:467-78.

19. Salehmoghaddam A, Halakou S, Heshmatinabavi F, Mazlum S. Relationship between head nurses' technical-clinical and organization competencies and newly nurses' clinical competencies in teaching hospitals: A cohort study. Q J Nurs Manag 2016;4:29-41.

20. Sheikhbahaeddinzadeh E, Ashktorab T, Sadat-Hosseini A. Clinical competence of psychiatric nurse: A concept Analysis in Rogers'Evolutionary Method. Iran J Psychiatr Nurs (IJPN) 2020;8:86-103.

21. Szasz P, Louridas M, Harris K, Aggarwal R, Grantcharov T. Assessing technical competence in urgical trainees: A systematic review. Ann Surg 2015;261:1046-55.

22. Fattah Ahari A, Fallahi-Khoshkenab M, Rahgoi A, Hosseinzadeh S. Evaluation of psychiatric nursing clinical competencies in nurses working in Razi psychiatric hospital affiliated to the university of social welfare and rehabilitation science from the viewpoint of themselves and their head-nurses in 2019. Iran J Nurs Res 2021;16:89-97.

23. Karaminia MH, Pharchehpafieh S, Maleki S, Amirkhani A. Nurses' clinical competence in psychiatric wards of selected hospital of university of Behzisti & Tavanbakhshi, 2018-2019. Med Sci J Islam Azad Univ 2020;30:332-40.

24. Liou SR, Liu HC, Tsai SL, Chu TP, Cheng CY. Performance competence of pre-graduate nursing students and hospital nurses: A comparison study. J Clin Nurs 2020;29:2652-62.

25. Zauszniewski JA, Bekhet A, Haberlein S. A decade of published evidence for psychiatric and mental health nursing interventions. Online J Issues Nurs 2012;17:8.

26. Aliakbari F, Bahrami M, Aein F, Khankeh H. Iranian nurses' experience of essential technical competences in disaster response: A qualitative content analysis study. Iran J Nurs Midwifery Res 2014;19:585-92.

27. Creswell JW. Research design: Qualitative, quantitative and mixed methods approaches. Los Angeluses: SAGE; 2017. p. 342-3,296.

28. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Educ Today 2004;24:105-12.

29. Moskoei S, Mohtashami J, Ghalenoeei M, Nasiri M, Zaghari Tafreshi M. Development and psychometric properties rating scale of "clinical competency evaluation in mental health nurses": Exploratory factor analysis. Electron Physician 2017;9:4155-61.

30. Bahreini M, Moattari M, Kaveh M, Ahmadi F. Self-assessment of the clinical competence of nurses in a major educational hospital of Shiraz University of Medical Sciences. J Jahrom Univ Med Sci 2010;8:28-36.

31. Liou SR, Chang CH, Tsai HM, Cheng CY. The effects of a deliberate practice program on nursing students' perception of clinical competence. Nurse Educ Today 2013;33:358-63.

32. Ebadi A, Tabanejad Z, Pazokian M. Clinical competence among MSc students of critical care nursing. Iran J Med Educ 2015;14:1036-46.

33. Beyea SC, von Reyn LK, Slattery MJ. A nurse residency program for competency development using human patient simulation. J Nurses Staff Dev 2007;23:77-82.

34. Atashzadeh Shorideh F, Imani E, Zagheri Tafreshi M. Reviewing knowledge management and its significance in nursing practice. J Dev Strategies Med Educ 2015;3:20-34.

35. Bahrami M, Aliakbari F, Aein F. Iranian nurses' perception of essential competences in disaster response: A qualitative study. J Edu Health Promot 2014;3:1-9.

36. Williams RG, Klamen DA, McGaghie WC. Cognitive, social and environmental sources of bias in clinical performance ratings. Teach Learn Med 2003;15:270-92.

37. Nikpeyma N, Izadi A. Assessment on knowledge source used in nursing practice. J Health Promot Manag 2012;1:55-61.

38. Tajvidi M, Moghimi Hanjani S. The relationship between critical thinking and clinical competence in nurses. Strides Dev Med Educ 2019;16(1). doi: 10.5812/sdme. 80152.

39. Mosakhani M, Ajli Ghashlajughi M, Safavi Mir Mahale R. Model presentation for assessment rate of organization preparation in knowledge management. Manag Res Iran 2010;14:221-43.