Evaluating the Effects of Education on the Understanding and Acceptance of Evidence-based Performance by Nurses

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Abstract

Introduction: Evidence-based performance is a problem-solving approach to provide more effective decision-making, avoid repetitive care, facilitate providingservices, and empower employees. Continuous training enables nurses to provide valuable services to patients. The aim of this study was to determine the effects of education on the understanding and acceptanceof evidence-based performance by nurses workingin the infectious and internal wards of Imam Reza Hospital of Kermanshah (Iran) in 2019.

Materials and Methods: In this experimentalstudy,participants were selected byavailable sampling and randomly divided into two groups (n=50 per group). The data was collected using 3 questionnaires: a standard questionnaire for understanding a standard evidence-based performance acceptance questionnaire (Robin and Parish, 2010), and a demographic questionnaire addressing age, gender, work experience, monthly income, education, ward, employment status, and acquaintance with evidence-based performance. Data analysis was performed in SPSS 19 software.

Results: The mean score of the understanding significantly increased from 78.24 at pre-education to88.04 at post-education in the intervention group while there was no significant alternation in the mean score of control group comparing pre- and post-education (85.38 vs. ,respectively). The mean score of acceptance also significantly increased in the intervention group comparingbefore (37.66) with after (37.66) education. In the control group, the mean acceptance scores were 35.02 and 34.98before and aftereducation, respectively.

Conclusion: Education can improve the level of understanding and acceptance of evidence-based performance by nurses; therefore, it is recommended to includecontinuous educational programs in hospitals and encourage all nurses to attend these courses.

Keywords*: Evidence-based Care, Nurses, Education, Hospital, Understanding, Performance-based acceptance*

Introduction

Nurses are the largest group of health care providers and play key roles in continuously promoting and maintaining patients' health [(1).] As using evidence is a prerequisite for day-to-day decision-making, nurses are expected to combine their technical skills and professional knowledge based on scientific evidence to identify patients' problems, and design, implement, and evaluate health care programs to address these problems [(2).]

Evidence-based care can minimize error rate and ensure making the best possible decision based

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on the available evidence [3]. Evidence-based care which is a problem-solving approach inproviding health careintegrates the best of research findingswith experiences on patients' care and clinical expertise, as well as patients'interests to ensure more effective decision-making, avoiding repetitive cares, facilitating health care, and empowering health care providers [4]. Nurses require using a set of research evidence to make appropriate clinical decisions based on existing research evidence, clinical practice, and patient performance [5].

Therefore, it is possible to use educational models of evidence-based performancedesigned for greater acceptance. The Rogers' Innovation Dissemination Model is one of the models used to explain how to accept new topics. In nursing, the Rogers' model has been used as a conceptual framework to explain the process of applying research results in nursing [6-8]. The model seeks to answer the question of how and under what conditions ideas (e.g. evidence-based performance) are accepted [9].

Rogers believes that the innovation dissemination model has all the necessary steps to accept a new event. He states that innovation is an idea, function, or object that is perceived as a new thing by individuals or admission units and gradually disseminates through communication channels among the members of a social system [10].

The evidence-based care approach is a relatively new concept in nursing care in Iran, which has been specifically emphasized on in the Education Transformation Package of the Ministry of Health. Nevertheless,educating this concept has received less attention. Therefore, this study aimed to assess the effects of educating a care-giving approach based on the Rogers' innovation dissemination model on nurses' understanding and acceptance of evidence-based performance.

Materials and Methods

The present experimental study was conducted to 2019 determine the effects of training on the understanding and accepting of evidence-based performance by nurses working in the Imam Reza educational and medical center of Kermanshah (a.s.). Available sampling was used in this study. The researcherreferredto the Human Resources Department ofthe hospital and looked into a list of nursing personnel of internal (1 and 2),infectiousand psychiatricwards.At last, 100 nurses willing to participate were selected and randomized into two groups of 50 subjects.

The data collection tools in this study included 3 questionnaires:

1. The standard comprehension questionnaire (Moore and Benbast, 1991) including25 items which have been graded on a five-point Likert scale (completely disagree to completely agree) and scored between 1 and 5. A score between 25 and 41 indicated a low level of understanding onthe features of evidence-based performance. A score between 41 and 83 showed anintermediate level of understanding, and finally, a score > 83 reflected a high level of understanding on evidence-based performance characteristics.

2. The standard evidence-based performance acceptance questionnaire (Robin and Parish, 2010). This tool has 10 items scored on a five-point Likert scale (completely disagree to completely agree). Scores between10-16, 16-33, and >33 indicated low, intermediate, and high levels of evidence-based performance acceptance, respectively.

3. The Demographicinformation questionnaire which included queriesaboutthe participants' age, gender, work experience, monthly income, education, hospital ward, employment status, and acquaintance with or a history of using evidence-based performance.

In this study, the intervention group received3 one-houreducational sessions on evidence-based care according to the Rogers' Innovation Dissemination Model. The control group did not receive any training program on this issue; however, they were assured that the research resultsand the training booklet and relevant files would have been provided to them at the end of the study. One week before the training, the questionnaires were completed by the participants of the two groups. Thisdatawas recorded as the pre-test in order to be compared with the levels of understanding and acceptance after the intervention.

In order to implement the educational intervention, the necessary coordination was made with nursing

managers and the officials of the in-service training units of hospital wards. The importance of the research was explained to the participants. The educational content included a 25-page booklet (the initial booklet was 80 pages, but according to nursing professors' suggestions, it was recapitulated into 25 pages) organized in three chaptersincluding topics on evidence-based care, Rogers' innovation dissemination model, and research databases and how to use them.

To more effectively present the educational content, the training program was performed using several methods:A) lectures and group discussions, b) messaging via social networks such as Telegram and WhatsApp, and c) educational booklets delivered to the nurses of the intervention group at the end of each session. In this study, the researcher himself lectured the content during 6 weeks (one 90 to 120-minute session per week). Three of the sessions were performed inthe amphitheater of Imam Reza Hospital, and three others were held in the educational classes of internal and infectious wards. At the end of each session, a training booklet on the presented topics was provided to the participates. Also, to facilitate the participants' access to the training contents, they were shared on channelsin social media networks (Telegram and WhatsApp). The timetable of the training sessions was scheduled so that the participants would not be on dutythe night before. Two weeks after the completion of the training course, the nurses' levels of understanding and acceptance of evidence-based care according to the Rodgers' innovation dissemination model were determined by filling the questionnaires in both groups. The results were then compared betweenthe groups and with pre-test data. Descriptive statistics were used to present the findings.

Ethical Considerations: Before the study, the objectives of the research were explained to the nurses, and informed consents were acquired from them. They were assured about the confidentiality of the information, and the fact that they would have been only used forthe research purposes. The participants were free to withdraw at any moment during the study.

Results

In this study, most of the participantsbelonged to the25-30and >40 years age groups and had bachelor's degrees. Most of themalso had less than 5 years or more than 10 years of work experience. Most of the participants were either officially hired or employed on contracts with an average monthly income between 3 and 3.9 million Tomeans. There was no significant difference comparing pre- and post-intervention comprehension scores in the control group (t = 1.938., P value = 0.167). In the intervention group, there was a significant difference between the comprehension scoresbefore and after the training (t = 10.279, P value = 0.002, Table 1).

There was no significant difference in the acceptance scoresin the control group before and after the training (t = 5.683., P value = 0.19). In the intervention group; however, there was a significant difference comparing the acceptance scoresbefore and after training (t = 15.914, P value = 0.002, Table 2).

Discussion

The aim of this study was to evaluate the effects oftraining of evidence-based careaccording tothe Rogers' Innovation Dissemination Model on boosting the understanding and acceptance of whichwas consistent with the results of the present study. Rodgers believes that people's perceptions onthe features of innovation directlyinfluence their acceptance. If people do not define innovation for themselves and do not relate it to their situation, they will not be able to pass through this stage. Anderson and Comrie argued that using the Rodgers' model can change perceptions on innovationand lead to successful modifications in performance [11].

Rodgers emphasized in his model on disseminating innovationsand improving their acceptance by boosting knowledge about them. Until people in a social system do not acquire adequate knowledge about newly suggested innovations, they cannot accept them. Rodgers also emphasizedon the understanding ofinnovations' characteristics to improvetheiracceptance and believed that people needed to understand these characteristics so that they can accept the innovation. The efforts of innovators should be focused on better introducing the innovation to boost people'sunderstandingon its characteristics including relative benefits, comparability, ease of learning, observability of outcomes, and applicability [12]. The results of the present study showed that the level of nurses' using of the Rodgers' care model

waslow-moderate. Accordingly, Varei et al. evaluating an evidence-based care based on Aiovamodel revealed a poor-intermediate knowledge in nurses [13]. Some studies have shown that the evidence-based care approach is perceived by many nurses as a new approach that they had never been educatedabout it. Other studies have shown that most nurses have not been trained regarding evidence-based performance, and 86.7% of them stated that they would need training to learn aboutthe principles of evidence-based performance approach [14]. It is a certainty that interests in learning and improving evidence-based performance skills rootin positive attitudes toward this approach and can be developed during daily activities [15]. The results of a study by Varei et al. showed that less than half of nurses had a positive attitude toward this approach, after training; however, more than 80% of themstated a positive attitude [16]. In this regard, the results of a study on Taiwanese nurses showed their positive attitudes regarding the application of research resultsin clinical practice [17].

Kurniawan and Petpichetchian argued that in clinical settings, it is not applicable to only rely on clinical experiences, pathophysiological logics, and process-based opinions. Physicians and nurses should learn to also use critical thinking skills and evidence-based methods for clinical decision-making and increasing quality and cost-effectiveness ofhealthcares [18]. Improving the quality of health care requires providing services based on scientific evidences, as well as employing new innovations,and preventive and effective caring approaches [19].

Similar findings were obtained in the study of Scott et al. who described that the understanding of innovation's features could explain 47% of acceptance variance. They argued that more and clear information should be provided about the benefits and supporting research evidencesof innovations [20]. Therefore, it is necessary to pay more attention to the characteristics of evidence-based performance, as a "new" subject in nursing education, to boostits acceptance. Matteo and Arjimondescribed that about 10 to 40 % of patients do not receive nursing care based on current scientific evidences, and also more than 20 %of patients do not receive the care they really need. Therefore, they suggested thateducating evidence-based performancecan be a strategy to reduce defects in providing effective health care's ([21]).

Conclusions

Forming evidence-based nursing care committees and specialized working groups can be useful to monitor and evaluate the implementation and assessment of this approach. From limitations of this study were the lack of a control group and a relatively low sample size. So, it is recommended to conduct similar two-group studies on larger sample sizes toestablish a strategy to promote the evidence-based nursing.

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Table 1. Comparison of the understanding score between the intervention and control groups before and aftertraining

Study groups	Mean	SD	N	T	P
Intervention/ before training	78.24	10.9	50	10.279	0.002
Intervention/after training	88.04	7.31	50		
Control/the initiation of study	85.38	11.35	50	1.938	0.167
Control/ the end of study	85.38	11.35	50		

Table 2: Comparison of the acceptance score in the intervention and control groups before and after training

Study groups	Mean	SD	N	T	P
Intervention/ before training	30.66	5.34	50	15.914	0.001
Intervention/after training	37.66	5.56	50		
Control/the initiation of study	35.2	6.01	50	5.683	0.19
Control/ the end of study	34.98	5.67	50		

References

1. Habibi, Shafi; Rezaei Hachehoo, Peyman; Tabghi, Razieh Promoting Information Literacy; The Basis of Evidence-Based Nursing Development; Journal of Health Information Management. 2010: 7(3): 371-389.
2. AdibHajbagheri, Mohsen Nurses Understanding Evidence-Based Care: A Qualitative Study, Feyz Journal of Nursing Research. 2007: 11(2): 44-52
3. Rolloff M. A constructivist model for teaching evidence-based practice. Nurs Educ Perspect. 2010; 31(5): 290-293.
4. Balakas R, Sparks L. Teaching research and evidence-based practice using a service-learning approach. JNurs Educ. 2010; 49(12): 691-695.
5. Melnyk BM, Fineout-Overholt E. Evidence-Based Practice in Nursing &Healthcare. Philadelphia:Lippincott William Wilkins; 2005. 6-10
6- Sohrabzadeh M, Menati R, Tavan H, Mozafari M, Menati W. Survey onpatient against female nurses and lack of reporting aggressive event in Ilam hospitals at 2012 . Iran Occup Health J. 2015; 12(1):47–55.
7- Aivazi AA, Tavan H. Prevalence of conceived violence against nurses ateducational hospitals of Ilam, Iran, 2012. Int J AfrNur Sci. 2015; 2:65–8.
8. Pashaeypoor S, Negarandeh R, BorumandniaN.. Factors affecting nurses' adoption of evidence-based practice based on Rogers' Diffusion of Innovations Model: A path analysis approach. Hayat, Journal of School of Nursing and Midwifery, Tehran University of Medical Sciences. 2015,21(4): 103-112
9. Suzanne C. Beyea RN. FAAN MS.Evidence-Based Practice in Nursing: A Guide to Successful Implementation. HCPro, Inc 2006:1-15.
10. Titler MG, Kleiber C, Steelman V, Rakel BA, Budreau G, Everett LQ et al. The Iowa Model of Evidence Based Practice to Promote Quality Care. Nursing Clinics of North America. 2001, 13: 497 – 509.
11- Anderson M, Comrie R. Adopting preoperative fasting guidelines. AORN J. 2009 Jul; 90(1): 73-80.
12- Rogers EM. Diffusion of innovations. 5th ed. New York: Free Press; 2003.
13- varai S, salsali M, cheraghi M A. Effect of Evidence based practice according to IOWA model on Knowledge, Attitude and Performance of nurses. nvj. 2015; 2 (3):1-14
14- Hadley J, Hassan I, Khan K. Knowledge and beliefs concerning evidence-based practice amongst complementary and alternative medicine health care practitioners and allied health care professionals: A questionnaire survey. BMC Complementary and Alternative Medicine. 2008; 8: 1-7.
15. Jette DU, Bacon K, Batty C, Carlson M, Ferland A, Hemingway R. D, Hill J C, Ogilvie L, Volk D. Evidence-Based Practice: Beliefs, Attitudes, Knowledge, and Behaviors of Physical Therapists. Physical Therapy. 2003; 83: 786-805.
16- varai S, salsali M, cheraghi M A. Effect of Evidence based practice according to IOWA model on Knowledge, Attitude and Performance of nurses. nvj. 2015; 2 (3):1-14
17- Chen Chang H, Russell C, Jones MK. Implementing

Evidence-Based Practice in Taiwanese Nursing Homes Attitudes and Perceived Barriers and Facilitators. Journal of Gerontological Nursing. 2010; 36 (1): 41-48.

18- Kurniawan T, Petpichetchian W. Case Study: Evidence Based Interventions Enhancing Diabetic Foot Care Behaviors among Hospitalized DM Patients. Nurse Media Journal of Nursing. 2011; 1(1): 43-53.

19. Rosswurm MA, Larrabee JH. A model for change to evidence based practice. Journal of nursing scholarship. 1999; 31(4): 317-22.

20- Scott SD, Plotnikoff RC, Karunamuni N, Bize R, Rodgers W. Factors influencing the adoption of an innovation: An examination of the uptake of the Canadian Heart Health Kit(HHK). Implement Sci. 2008; 3: 41.

21- Flores- Mateo G, Argimon JM. Evidence based practice in postgraduate health care education: A systematic review. BMC Health Serv Res. 2007; 7: 119.