Impact of guided reciprocal peer questioning on nursing students' self-esteem and learning

Sima Lakdizaji, Farahnaz Abdollahzadeh, Hadi Hassankhanih, Manizhe Kalantari

ABSTRACT

Background: Self-esteem is essential for clinical judgments. Nursing students in clinical environments should make a bridge between theoretical education and clinical function. This study was aimed to survey the effect of guided questioning in peer groups on nursing students' self-esteem and clinical learning.

Materials and Methods: In this quasi-experimental study, all nursing students in semester 4 (60) were selected. The autumn semester students ($n = 28$) were chosen as the control group, and the spring semester students ($n = 32$) as the experimental group. The experimental group underwent the course of cardiac medical surgical training by the Guided Reciprocal Peer Questioning. The control group was trained by lecture. After confirmation of the validity and reliability of tools including Rosenberg Self-esteem Scale and the researcher-made questionnaire, data were collected and analyzed by SPSS version 17.0.

Results: There was no significant difference concerning demographic and educational characteristics between the two groups. Mean score differences of self-esteem and learning were not significant before teaching, while they were significantly promoted after teaching in the experimental ($P < 0.001$) and control ($P < 0.05$) groups. Promotion in the experimental group was more considerable than in the control group.

Conclusions: As revealed by the results, inquiry method, due to its more positive impact on self-esteem and students' learning, can be applied alone or in combination with the other methods. Conducting this study for other students and for theoretical courses is suggested.

Key words: Educational models, Iran, nursing student, questioning, self-esteem

INTRODUCTION

Complicated and stressful nature of nursing profession[1,2] necessitates nursing students to have an appropriate perception of the learned contents. Students spend most of their educational time in clinical environments,[3] and their learning in these environments should be capable of making a bridge between their theoretical education and clinical function.[4] On the other hand, self-esteem is a characteristic of a normal personality[5] and is a value individuals consider for themselves.[6]

In order to have the highest potentiality, students should have a positive attitude on themselves and their surrounding environment. They should have a high self-esteem in order to succeed in their duties and profession.[7] Therefore, the need for making changes in the process of learning to promote the efficiency of nursing internship is essential.[8]

One of the helpful methods for better learning is questioning. Question acts as a tool to attract the attention of students to develop a learning situation.[9] Questioning is an active process which individuals can appropriately decide through that.[10] Guided Reciprocal Peer Questioning (GRPQ) is one of the interactive methods[11] with the goal of learning through social interactions.[12] Myrick and Yonge have argued that when students ask their questions in the above-mentioned domains, learning can occur.[13] Researchers have shown that prevailing traditional education in educational centers results in passive students and superficial learning.[14]

Students who get educated through traditional methods pick up a great load of knowledge and concepts, but are not educated in analysis, prioritization, and organization of knowledge as essential elements of efficient and meaningful learning.[15]

Department of Medical Surgical Nursing, School of Nursing and Midwifery, Tabriz University of Medical Sciences, East Azerbaijan, Iran

Address for correspondence: Ms. student Manizhe Kalantari, Department of Medical Surgical Nursing, School of Nursing and Midwifery, Tabriz University of Medical Sciences, East Azerbaijan, Iran.
E-mail: m_kalantari_m@yahoo.com

On the other hand, an efficient learning is a product of appropriate teaching attained through innovative methods.[16] So, modification of educational patterns and application of more active learning strategies should be at the top of attention. An interaction in GRPQ promotes students' self-confidence as a sub-item of self-esteem and results in students' ability to face and cope with any obstacle during education. Excessive emphasis of nursing educators on traditional teaching indirectly imposes a sort of curriculum designed based on students' obedience and mere acceptance that suppress their ideas, resulting in their lower self-confidence.[17]

On the other hand, most of the researches have studied the association between self-esteem and educational development and success, but less attention has been paid to the effect of an appropriate educational method in promotion of educational development and success.[18,19] Vanaki *et al.*, Velde *et al.*, and King have already investigated the effect of this method on skills of critical thinking, learning, and self-esteem in other domains and lessons except clinical nursing.[11,12,20] But this study aimed to present the effect of GRPQ in peer groups on nursing students' self-esteem and clinical learning.

MATERIALS AND METHODS

In this quasi-experimental, two-group, pre-test post-test study, the subjects were selected by census sampling, and all nursing students of Tabriz Nursing and Midwifery Faculty ($N = 60$) who were enrolled in Medical Surgical Nursing 3 in 2010-2011 were chosen and required to complete clinical placement in a tertiary care in Shahid Madani Heart Hospital in Tabriz, Iran. The students ($n = 28$) in autumn semester were chosen as the control group to receive the conventional clinical training and those in the spring semester ($n = 32$) were considered as the experimental group to be trained using the GRPQ model. Students in both groups were treated equally except for the learning methods; they had 3 days clinical placement per week for two sequential weeks, and were trained using similar learning objectives. Students who did not give consent to the study were excluded and received the conventional training.

The inclusion criteria for students were selecting heart clinical course in 2010-2011, giving consent to participate in the study, being physically and mentally prepared to answer the questions, having no participation in similar studies and not being familiar with the questionnaire, not being a guest or transferred student from other universities, and having not more than one class session absence.

At the beginning of the internship period in both groups, a blind pre-test was taken by a person unaware of the educational method using Rosenberg Self-esteem Scale and a researcher-made test. Control group was grouped into six student groups and they were educated by routine educational outline in which deep questioning was not emphasized, and students just presented their daily lectures with no discussion and questioning. In this method, there may be a few questions asked by the educators, and not by the students who act according to the routines (planning nursing care, dressing, taking ECG, inserting angiocatheter, giving medication, taking blood samples, etc.). In this method, students react to new situations passively and never try to be innovative, and think based on detection and fulfillment of educational needs.[21]

The experimental group received the clinical education by researcher through guided questioning method in groups of six persons according to the same course plan by means of the questions roots [Table 1]. After finishing of clinical education, the post-test was performed again for all students using the same test.

Approach of guided questioning

In this approach, each student is asked to suggest two questions by use of root of questions that covers the lesson plan content at the end of teaching program every day. Under the guidance of the researcher, the students are asked to present the answers to the others. The students should find the right answers to the questions of each other. Partners in two are guided of questioning conditions and are trained to generate thought-provoking questions. Thus, the students, during the discussion, practice the strategy of questioning and responding to the debate and discuss about clinical subjects such as nursing care of cardiac patients. The discussion continues with questions and answers until the researcher stops them. It is important in guided questioning that the student cannot turn to the next question before they conduct full discussion on the topic.

Table 1: Guided reciprocal peer questions

How could … be used to …?

What is a new example of …?

Explain why … (explain how …)

What would happen if …?

What is the deference between … and ….?

What is … analogous to?

How could … be used to …?

What are the implications of …?

How does … affect …?

Why is … important?

What does … mean?

What are the strenghs and weaknesses of …?

How does … tie in with what we learned before?

Rosenberg Self-esteem Scale and the researcher-made test were used to collect data. This scale is a standard instrument including 10 general phases in which 5 have been expressed by negative words and 5 by positive ones. Each question is rated by Likert-type questions rated from "completely agree" to "completely disagree." They are scored as 0-3, with the highest score of 30. Scores over 25 show high self-esteem, 15-25 average self-esteem, and lower than 15 show low self-esteem.[22] Reliability and validity of the Persian version of self-esteem questionnaire had been confirmed by Alizadeh *et al*.,[23] with test — retest correlation of 0.82-0.88 and Cronbach's alpha of 0.77-0.88. In the present study, reliability of the questionnaire was rechecked by Cronbach's alpha as 0.86 through conducting a pilot study on 10 nursing students who met the inclusion criteria. The researcher made a test including 20 multiple test questions to investigate the level of students' cognitive learning from the taught subjects in relation to evaluation and nursing care of cardiac patients and their cardiac medication. Each item had a correct answer which was given a score of 1 so that scores 0-10 showed weak learning, 11-15 showed moderate learning, and 16-20 showed strong learning. Validity of the test was confirmed by content validity method. The reliability was calculated by internal consistency by a pilot study, from which Cronbach's alpha was obtained as 0.89.

Data obtained from the study were reviewed and analyzed by descriptive statistical and inferential statistical methods using SPSS software version 17.0 (frequency counts, percentage, means and standard deviations, Chi-square, independent *t*-test, paired *t*-test).

For ethical considerations, consents form at top of the questionnaire was signed by participants. Students who did not give consent to the study were excluded prior to choosing and were allocated to the usual method by the use of codes allocated to each of the questionnaires.

RESULTS

Based on demographic information, the majority of the students were females (53.2%), unmarried (83.9%), and unemployed (87.1%), with a mean age of 20.25 (4.66) years; ages ranged from 20 to 24 years; and the mean *Grade Point Average* 16.5 (0.9) ranged from 14 to 19.25. Chi-square and *t*-tests showed that there were no significant differences between experimental and control groups in terms of the following variables: Rate of interest in nursing, work experience, parental education, marital status, residence, gender, and high school field of study.

Results showed significant differences between the control and experimental groups in self-esteem and learning [Table 2].

Table 2: Mean comparison of self-esteem and learning scores pre- and post-intervention

Variables	Groups			
	Cases (*n*=32)		Controls (*n*=28)	
	Pre-test mean (SD)	Post-test mean (SD)	Pre-test mean (SD)	Post-test mean (SD)
Self-esteem	17.5 (3.5)	22.1 (4.4)[1]	16.03 (3.09)	18.5 (5.9)[2]
Learning	9.32 (2.02)	12.23 (2.5)[3]	9.53 (2.04)	10.46 (2.7)

[1]$P<0.000$, [2]$P=0.05$, [3]$P=0/001$

Table 3: Mean comparison of self-esteem and learning scores after intervention by groups

Variables	Groups		Statistical significance
	Cases (*n*=32) mean (SD)	Controls (*n*=28) mean (SD)	
Self-esteem	22.1 (4.4)	18.5 (5.9)	$t=2.73$, $P=0.008$*
Learning	12.23 (2.5)	10.46 (2.7)	$t=2.86$, $P=0.006$*

* is Significance

Moreover, paired *t*-test showed that the self-esteem after intervention ($t = 5.50$, $P < 0.001$) was better in the experimental group than in the control group ($t = 1.90, P = 0.05$), and this difference was less significant in the control group. After the intervention, independent *t*-test showed significant differences in self-esteem ($t = 2.73$, $P = 0.008$) and learning ($t = 2.86$, $P = 0.006$) in the two groups.

Mean total score of cognitive learning in experimental and control groups is shown in Table 2.

Paired *t*-test [Table 2] showed significant difference in cognitive learning between pre-test and post-test ($t = 6.56$, $P = 0.001$) in the experimental group. But in the control group, it did not show significant differences between pre-test and post-test ($t = 1.67, P = 0.1$). Therefore, it presents the effectiveness of questioning in learning.

Independent *t*-test [Table 3] did not show significant differences in cognitive learning before the intervention ($t = 0.4$, $P = 0.6$) and after the intervention ($t = 2.7$, $P = 0.07$) in the two groups.

DISCUSSION

In the present study, the effect of guided questioning on self-esteem and learning of nursing students was investigated. Results showed that after intervention, significant differences were seen between the control and experimental groups in self-esteem. Moreover, it showed that the self-esteem after intervention was better in the experimental group than in the control group and this difference was less significant in the control group.

The other finding of this study was a significant difference between pre-test and post-test scores of cognitive learning after intervention, while it was not seen in the control group. Despite concerning the direct effect of guided questioning on cognitive learning and self-esteem of nursing students, we could not access to more studies about it, but according to Rahmani *et al*., Churarut and Debacker, and Heravi Karimuy *et al*., after active teaching methods such as concept map, questioning, and group discussion, learning mean scores increased.[24-26]

Various studies indicated that application of students' active participation and collaboration increases students' level of learning,[26,27] feeling of responsibility, and motivation of learning, so ultimately prepares them for lifelong learning and constant professional studying during work.[28,29] Johson and Mighten believed that active learning methods have higher effects on students' learning compared to passive methods.[30] Meanwhile, the findings in Karimi's study for investigating the effect of lecture and group discussion on nursing students' learning showed that the level of learning was significantly higher in the lecture method compared to group discussion.[27] In this regard, Salimi *et al*., in a study to define the effect of two methods of lecture and small group works on the nursing students' skills of medication calculation, showed that both methods had equal positive effects on enhancement of this skill.[31]

Although the study results were a significant indicator of difference in both control and experimental groups, it was not consistent with the findings of Baghayi *et al*. who compared the effect of lecture and problem-based learning among nursing students learning hematology. They reported no significant difference in the level of learning in both the groups, although the obtained mean score was higher in the lecture group compared to the problem-based group,[32] which is possibly due to conducting this study with limited number of students in a clinical environment as well as the differences in type of the subjects, length of study, and students' semester.[11,12,19] The results of the present study are consistent with those of Quistorff and Aspegren in which teaching was conducted through lecture and questioning methods for medical students. They concluded that students spend more time on studying and are driven toward learning in questioning method.[33]

With regard to self-esteem, students' scores in the experimental group were reported to show high self-esteem in a study conducted by Barkhordari *et al*.[34]

In this regard, based on Bandura's Social Learning Theory, teaching and learning are an active process through which children and adolescents actively learn and develop their social and behavioral skills during interaction with their family, peers, and schoolmates. On the other hand, in questioning, the knowledge is formed in the context of social interactions.[35]

With regard to the results of the present study, these are not consistent with those of Jalali and Nazari who investigated the effect of social learning on students' self-esteem,[36] possibly due to the differences in educational level and the employed educational method, sample size, and the clinical environment employed in the present study, compared to the above studies. In fact, educational level is one of the factors influencing self-esteem.[6] In the present study, all the samples were university students, while in latter researches, they were school students.

Since being self-confident and feeling responsible as well as having self-esteem are essential for nursing students to judge and decide in various clinical situations,[37] the academic members in nursing school should provide active learning fields to encourage and make students to have a positive attitude toward their course and profession from the early years of education. They should also deliver the authority to the students in clinical environments and encourage them to apply their already learned knowledge at the time of giving care to the patients in order to make them have enough self-esteem.[38,39]

Research limitations can also influence the commented results. In the present study, existence of some students who were not respondent to some questions, sample size, usage of the same achievement test to measure cognitive learning, and ultimately, utilizing this test in both pre-test and post-test acted as research limitations which could have affected the results. Further studies should be done with larger sample size, more appropriate sampling method, more sessions, and in the other clinical environments.

CONCLUSION

Considering the importance of clinical training in nursing, and in respect to the findings of the present study which indicated a more positive impact of questioning method on learning and self-esteem, the two main components of education, than the usual teacher-centered method, it is suggested to provide this method alone or in combination with the other methods to enhance the professional capabilities and deep learning of nurses.

REFERENCES

1. Schmidt B, Stewart S. Implementing the virtual reality learning environment: Second life. Nurse Educ 2009;34:152-5.

2. Hawkins K, Todd M, Manz J. A unique simulation teaching method. J Nurs Educ 2008;47:524-7.

3. Mohamadi N. Comparative study of clinical problems from the perspective of teacher's and Senior students. J Nursing Midwifery Hamadan 2000. p. 50-3.

4. Vallant S, Neville S. The relationship between nursing students and nurse clinician nurses: Impact on students learning. Nurs Prax 2006;22:23-33.

5. Zare N, Daneshpajooh F, Amini M, Razeghi M, Fallahzadeh MH. The relationship between self-esteem, general health and academic achievement in students of Shiraz University of Medical Sciences. Iran J Med Educ 2007;1:59-67.

6. Smith EE, Nolen-Hoeksema S, Fredrickson B, Loftus G. Atkinson and Hilgard's introduction to psychology. 14th ed. New York: Wadsworth Publ; 2002.

7. Hoseyni Nasab D, Vojdanparast H. The relationship between self-esteem and academic achievement of students in basic sciences and humanities, in teacher training centers. J Tabriz Fac Lit Hum 2002;183:101-26.

8. Hall JM. Dispelling desperation in nursing education. Nurs Outlook 2004;52:147-54.

9. Montello L, Bonnel W. The versatile question: Diverse uses of questioning in on line and traditional learning. Teach Learn Nurs 2009;4:71-5.

10. Billings DM, Halested JA. Teaching in nursing a guide for faculty. 3rd ed, chapter 14. Philadelphia: Saunders Elsevier; 2009. p. 253.

11. King A. Autonomy and question asking: The role of personal control in guided student-generated questioning. Learn Ind Diff 1994a;6:163-85.

12. Vanaki Z, Taghi SH. The effect of guided reciprocal peer questioning on critical thinking skills and meta cognitive knowledge of nursing students. Med Sci Educ 2008;8:333-40.

13. Myrick F, Yonge O. Preceptor questioning and student critical thinking. J Prof Learn 2002;18:176-81.

14. Keramati M. cooperative learning. Mashhad: Ayin Tarbiyat; 2000. p. 78-128.

15. Ata'ollahi Z. Comparison of lectures and problem-based learning on nursing students learning. MS dissertation. Tehran: Shahid Beheshti University; 1996.

16. Lewenstein AJ, Bradshow MJ. Fuszards innovative teaching strategy in nursing. 3rd ed. Mary Land: Aspen Publication; 2001.

17. Espeland K, Shanta L. Empowering versus enabling in academia. J Nurs Educ Thorofare 2001;40:342-6.

18. Philpot VD, Holliman WB, Madonna S. Self-statements, locus of control and depression in predicting self-esteem. Psychol Rep 1995;76:1007-10.

19. Mullis AK, Mullis RL. Vocational interests of adolescents: Relationships between self-esteem and locus of control. Psychol Rep 1997;81:1363-71.

20. Velde B, Wittman P, Vos P. Development of critical thinking in occupational therapy students. Occup Ther Int 2006;13:49-60.

21. Bahmanpur K. Impact of problem based learning on critical thinking risk factors of critical thinking, attitude and behavior of undergraduate education. Master's thesis, School of Nursing and Midwifery, Tehran University of Medical Sciences; 2002.

22. Rosenberg M. Society and the adolescent self-image. Middletown CT: Wesleyan University Press; 1989.

23. Ali zadeh T, Farahani MN, Shahraray M, Alizadegan SH. The relationship between self-esteem and locus of control with infertility related stress of unfertile men and women. Med J Reprod Infertil 2005;2:194-204.

24. Rahmani A, Mohajjel-Aghdam A, Fathi-Azar E, Abdullahzadeh F. Comparing the effects of Concept Mapping and Integration method on nursing students' learning of nursing process in Tabriz Medical Sciences University. Iran J Med Educ 2007;7:41-9.

25. Churarut P, Debacker T. The influence of concept mapping on achievement, self-regulation, and self- efficacy in students of English as a second Language. Contemp Educ Psychol 2004;29:248-63.

26. Heravi Karimuy M, Jaded Milani M, Rozhe N. Effect of lecture method and inquiry in nursing students learning on community health course. Med Sci Educ 2003;11:55-60.

27. Karimi M, Tavakkol KH, Alavi M. Effect of lectures and group discussion on learning and teaching of nursing students. Nurs Midwifery J Hamadan 2005;13:15-9.

28. Mehdizadeh M, Kermani F, Iravani S, Markazi-Moghaddam N, Shayan S. Comparing lecture and problem-based learning methods in teaching limb anatomy to first year medical students. Iran J Med Educ 2008;7:379-88.

29. Fasihi Harandi T, Aziz Zadeh Forozi M, Mohammad Alizadeh S, Ghazanfari Moghaddam Z. Effective factors on theoretical class attendance according to nursing and midwifery students' point of view, Kerman, Razi School of Nursing and Midwifery. SDME 2007;4:100-7.

30. Johnson JP, Mighten A. Comparison of teaching strategies: Lecture notes combined with structured group discussion versus lecture only. J Nurs Educ 2005;44:319-22.

31. Salimi T, Shahbazi L, Mojahed S, Ahmadieh MH, Dehghanpour MH. Comparing the effects of lecture and work in small groups on nursing students' skills in calculating medication dosage. Iran J Med Educ 2007;7:79-8.

32. Baghayi M, Atrkar-Roshan Z. Comparison of lecture methods and Problem-based learning on the learning and retention of nursing students. J Med Gilan Univ Med Sci 2003;12:87-93.

33. Quistorff B, Aspegren K. The interactive lecture: A simple form of student-activating learning. Ugeskr Laeger 2003;165:3400-3.

34. Barkhordari M, Jalalmanesh J. Study of critical thinking disposition and self-esteem in Azad and Shahid Sadoughi nursing students in Yazd in 2008. Med Sci Educ 2009;9:13-9.

35. Bandura A. Self-efficacy: Toward a unifying theory of behavioral change. Psycho Rev 1977;84:191-215.

36. Jalali D, nazari A. Social learning model of education on self-esteem, confidence: Express their behavior and academic progress of students in third grade. Behav Sci Res 2009;7:43-50.

37. Islami R, Shokrabi A, Behbahani N, Jamshidi R. Comparison of critical thinking abilities among nursing students in first and last semester and. Iran J Nurs 2003;17:14-29.

38. Hasanpour M. Critical thinking in nursing education [dissertation]. Tehran: Faculty of Nursing and Midwifery, Iran University of Medical Sciences; 2007.

39. Nafea AR, Lakdizaji S, Oshvandi K, Fathi Azar E, Ghojazadeh M. Nursing student's critical thinking skills in Tabriz Nursing and Midwifery Faculty. Res J Biol 2008;3:475-9.