Comparing the Effects of Traditional and Combined Teaching Methods on Nursing Students' Learning Skills of Wound Care

Marlin Ardalan[1]*, Muhammad Saleh Vahedi[2], Ghader Salehnejad[3]

*[1]Faculty Members, School of Nursing and Midwifery, Kurdistan University of Medical Sciences, Sanandaj, Iran
[2] Faculty Members, Kurdistan University of Medical Sciences, Sanandaj, Iran
[3]Faculty Members, School of Nursing and Midwifery, Kurdistan University of Medical Sciences, Sanandaj, Iran
*Corresponding Author: Marlinardalan2002@yahoo.com

Abstract: Learning practical skills especially in fields of medical science is significantly important. There are controversies over the effectiveness of teaching methods, though. It is believed that some of these teaching methods cause learning to speed up, facilitate, and cost less. Therefore, the present study is aimed at comparing the effects of traditional and combined teaching methods on freshman nursing students' learning skills of wound care in academic year of 2009-2010. **Materials and Methods**: The present experimental study was consisted of 42 nursing students admitted to university in 2009-2010. They were randomized (every other student) into two groups, first- and second-half year students, by the education head office. Combined and traditional teaching methods were respectively utilized to teach the experimental and control groups skills of wound care. Data collection was conducted through a questionnaire and a bandage skill checklist. Cognitive domain and psychomotor effects were statistically analyzed through a multiple-choice test and OSCE, respectively. **Findings**: Statistical results proved a significant difference between the experimental group and the control one regarding their cognitive skill (Chi-square with $p<0.05$ and $t=3.14$) and psychomotor skill ($p<0.05$ and $t=5.23$). **Conclusion:** Compared to traditional method, combined teaching method has greater effect on practical bandage skill especially in psychomotor domain. Therefore, it is highly recommended that this method of teaching should be used for other skills, in other majors, and at other universities of the country.

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Introduction

Nursing profession is an infrastructure to providing efficient workforce in order to meet the increasing health and disease needs of the society [1]. Nursing education is also an important issue that has attracted many health specialists and planners' attention [2]. Development of human society needs, dynamic characteristic of training, and new health and medical policies are among the most important reasons for continuous changes in nursing profession and its related training methods [3].

Meanwhile, nursing education needs to play its key role in training innovative, committed, responsible students [1] so that they can effectively take different roles and critical nursing duties in different situations. In this regard, one aspect of nursing practice that is bandage skill which requires preparation, good knowledge base, decision skill, and keen attention to the wound should be paid close attention.Regarding different teaching methods, different scholars have always put emphasis on this fact that none of the existing methods, media, and teaching resources can solely cover all dimensions and goals of education; and that appropriate goal-oriented models can always help the trainer with teaching and the trainee with learning [4]. In fact, educational models are composed of different teaching methods each of which is utilized to meet different educational goals [5]. One of the oldest teaching methods applied in nursing education at clinical skill training centers (practice room) is the traditional explanatory-demonstration teaching method. Explanatory method includes direct transfer of information to the student through printed materials or the teacher's speech who explains both the principles and solutions to problems [6]. Demonstration method has also been utilized for years by instructors of clinical skill training centers. This method is based on four principles of preparing necessary tools, explaining, demonstrating, examining, and measuring. In this method, first the instructor shows the skill practically to the trainees and they learn it in small groups through observation. Sometimes they have to explain the skill, too. Then the students learn the skill individually through repeating it. Because the demonstrated subject is unexplainable without a model, artificial models are usually used for better understanding and imagination. Therefore, since there is not a complete method to teach clinical skills, it is recommended that

instead of a sole method a combination methods should be used [7]. In this regard, instructors should analyze available methods in different situations and choose the best method according to goals, conditions, and special situations [8]. Engum *et al* (2003) in their study conducted on 163 students (70 majoring nursing and 93 studying medicine) have compared the effects of traditional and interactive multimedia methods on teaching and learning how to place intravenous catheter. The results of their study showed that both methods had the same effect on learning the clinical skill [9].

In another study conducted by Karimi *et al* (2003) it was concluded that demonstration teaching method using video had greater effect on learning practical skills especially in psychomotor domain [10]. The results of the study conducted by Abollhasani and Haghani (2010) showed that utilizing new methods of teaching like problem-based method in nursing education had positive effect on students' learning enhancement [11].Since clinical skills are complex and various, using traditional methods has not succeeded in establishing a solid and reliable base to achieve extensive goals of the field, and other methods like using video and virtual simulation in multimedia system is not solely effective, the present study is aimed at comparing the effects of traditional and combined teaching methods on freshman nursing students' learning skills of wound care in academic year of 2009-2010.

Materials and Methods

The present experimental study was conducted on two groups of freshman nursing students of Nursing Faculty, Kurdistan University of Medical Sciences (admitted in to university in 2009-2010). Available random sampling was utilized. Students had been randomized (odd and even) into two groups of first- and second-half year students.

The first group was considered as the experimental group and the second one as the control group. All of the students took Principles of Nursing course (3 theoretical units and 1 practical unit). In the control group that was taught through the traditional method, the instructor first explained the theoretical materials so that he explained how to conduct the process and then showed how to do it practically. (The process of wound care was explained theoretically and practically by the instructor and then the practical unit of the course was taught in practice room using models). Afterwards, students practiced the taught materials. In the experimental group that was taught through the combined method, students were taught the theoretical materials including method, general and specific goals, content, and date and time of practical classes through displaying video and animation of wound bandage and care. Then the experimental students attended the clinical skill laboratory in two groups of 10 to 11 (boys and girls). In the beginning of the class, after utilizing group discussion method, procedures were demonstrated by three of the students (selected randomly from the roll list by the factor of 3). Practical problems in conducting the job were troubleshot by the researcher and the troubleshooting group students. In the end of the class, the researcher demonstrated the skill practically and the other session students practiced the same skills individually. Data collection tools were demographic information questionnaire, cognitive questionnaire, standard checklist of practical skills of cleaning wound, simple bandage, and wet to dry bandage. These questionnaires were completed by all of the subjects one month after training. In the end (one month after training) students' cognitive domain was tested and their psychomotor domain was measured through OSCE (Objective Structured Clinical Evaluation).Score of questionnaire levels of cognitive and functional was 20.

Less than 10 was weak, 10-13.99 was average, 14-16.99 was good, and 17-20 was great. Validity of the checklists was confirmed through reference book of Nursing Service Standards and their reliability was tested through retesting and scholars' views. Validity of cognitive domain test was checked through the method of content validity and its reliability was tested through retesting. Data analysis was conducted using SPSS 14.0 software.

Findings

A total number of 42 nursing students in two groups of experimental (n=21) and control (n=21) participated in the study. They aged 18-19 (See Table 1). The results of statistical analysis of comparing the traditional and combined methods are presented in Tables 2 and 3.

The average score of students' cognitive domain showed that most students with average scores were in the experimental group and with good scores in the control group. Chi-square test with $p<0.05$ and $t=3.14$ proved a significant difference between the two groups regarding their cognitive domain.

Mean score of psychomotor domain in the control group was weak and in the experimental group was good. Moreover, chi-square test with $p<0.05$ and $t=5.23$ proved a significant difference between the two groups.

Table 1. Subjects' Demographic Information

Group / Gender	Experimental		Control	
	Number	Percentage	Number	Percentage
Female	12	57	11	52
Male	9	43	10	48
Single	20	1	21	0
Diploma Average Score	15.32	1.1 - +	15.89	1.17 - +
Mean Age	19.83	1.35 - +	20.1	1.21 - +
Dorm Residency	15	71.4	17	80.9
Personal Residency	6	28.5	4	19.04

Table 2. Results of Cognitive and Practical Tests in the Control Group

Control Group / Skill Type	Traditional Method
Cognitive Skill	11.59 ± 2.8
Practical Skill	10.97 ± 3.22

Table 3. Results of Cognitive and Practical Tests in the Experimental Group

Experimental Group / Skill Type	Combined Method
Cognitive Skill	14.41 ± 3.002
Practical Skill	15.92 ± 2.90

Table 4. Comparing Mean Scores of Clinical Test in the Experimental and Control Groups

Skill Type	Traditional Method	Combined Method	Test Results
Cognitive Skill	11.59 ± 2.8	14.41 ± 3.002	t = 3.14 p(0.05)
Practical Skill	10.97 ± 3.22	15.92 ± 2.90	$p < 0.05$ and t = 5.23

Discussion and Conclusion

A lot of scholars are trying to remove the passiveness of teaching process and motivate the learners to actively participate in learning the materials [12]. The results of the study showed that the combined method enhances the students' skill learning of wound care. The findings of the study are in line with those of other studies that have compared the effects of traditional and modern methods of teaching [13 & 17]. The results of the study conducted by Keyvanfar (2001) on teaching science using the method of activating the students in learning showed that the applied method resulted a difference of 23 percent of score compared to the students who were taught through passive method [8]. Hugenholtz *et al* (2008) have showed that traditional and electronic methods of teaching do not result in a significant difference in students' learning [17]. Wu (2006) has conducted a study on electronic engineering students, the results of which showed that most students and instructors considered the combined methods of teaching more effective than the traditional ones [19]. In their study, Mo'men nasab *et al* (2002) concluded that learning in the experimental group who were taught through video was reported to be at a good level and in the control group that was taught through speech was at an average level [18]. However, there are controversies over the effectiveness of sole utilization of electronic teaching in students' cognitive learning [13, 15, & 20]. In a survey, Dadgari *et al* (2008) have investigated 31 students' opinion about problem-based teaching method in nursing course of Respiratory Diseases at Shahrood University of Medical Sciences. The results of that study showed that students were willing to learn clinical and practical parts of the course and that 77.4 percent of the students were satisfied with this teaching method [21]. Clinical research conducted in the recent 3 decades in the USA has showed that modern and combined methods of teaching are effective in enhancing learning and that teaching through these methods is possible in every time and situation compared to other teaching methods [11].

Regarding the practical skill of bandage, a significant difference was observed between the two groups, which means that the combined method has priority over the traditional one.

Therefore, since meaningful learning is of significant importance in nursing profession, such methods should be used in nursing education. It is noteworthy that in most conducted studies the

traditional method has been compared with another single method like teaching through movies or multimedia method. In the present study; however, combined method including utilizing multimedia animations and instructor and students' demonstration were investigated. As a result, learning outcomes are more valuable than those of other studies. Due to the importance of practical skills learning among nursing students and similar majors, it is highly recommended that these modern methods should be utilized in teaching practical courses.

In this regard, clinical instructors in different majors especially paramedical majors need to use these methods in teaching practical skills to their students. Therefore, it can be claimed that teaching bandage and wound care skill through the combined method has priority over the traditional method.

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Corresponding Author:
Marlin Ardalan
Faculty Members, School of Nursing and Midwifery, Kurdistan University of Medical Sciences, Sanandaj, Iran, E mail: Marlinardalan2002@yahoo.com

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