

Efficacy of purposeful educational workshop of medical and nonmedical interventions based on needs assessments in nurses

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ABSTRACT

Background: The medical and nonmedical care of patients is the necessary skills in nursing profession. That it needs proper knowledge and attitude. Hence, it is important to promote nurses' knowledge and attitude by education based on need assessment. This study aimed to define the efficacy of a medical and nonmedical intervention educational workshop on nurses' knowledge and attitude until 3 months after holding the workshop in psychiatric wards of educational hospitals in Isfahan. **Materials and Methods:** This is a quasi-experimental study. The study population comprised all nurses working in psychiatric wards of Nour and Farabi Hospitals (64) in Isfahan in 2012. An educational workshop was held through educational sessions in the form of lectures and group discussion in two above-mentioned hospitals. Nurses' level of knowledge and attitude were investigated by a researcher made questionnaire before, immediately after and 3 months after intervention. Data were analyzed by descriptive statistical tests of repeated measure ANOVA and Bonferroni. **Results:** A significant increase was observed in mean scores of nurses' knowledge immediately after and 3 months after education compared to before education ($P < 0.001$). Also, the mean of attitude score in 3 phases have significant different ($P < 0.009$). Nurses have the high satisfaction (86.3%) of need assessment based education workshop. Moreover, it is effective in the science information revival of nurses. **Conclusion:** Educational sessions notably affected the promotion of nurses' knowledge and attitude. With regard to nurses' satisfaction with the workshop which was held, designing and organizing educational workshops based on constant needs assessment is suggested for the promotion of nursing cares.

Key words: Medical and nonmedical interventions, nurses, psychiatry ward, workshop

INTRODUCTION

Evidence that continuing professional development impacts positively on patient and families outcomes is necessary to sustain an on-going investment in learning activities. In order to optimize the opportunities afforded by emerging web-based

technology rural nurses' need to develop and maintain their computer competencies. Further investigation of the impact of specialist clinical placements on rural nurses' palliative care capabilities is also indicated.^[1] Medication is the main component of nurses' function and is a major part of patients' care and treatment process. There are annually thousands of medication errors among physicians and para medicine personnel reported in the United State. Unfortunately, there is a catastrophic statistic on these errors, which has remained not reported. These errors may be due to function

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of physicians, pharmacists, medication technicians', nurses or midwives.^[1] Medication errors may occur in any step of prescription and drug distribution process as prescribing medication is a sophisticated process and needs knowledge, decision making and proper function of the staffs working in various hospital wards.^[2]

Medication errors have direct and indirect outcomes. Their direct outcomes threaten patients' life and increase costs while their indirect outcomes include nurses' occupational problems and reduction of trust to them as well as their diminished function.^[3] Based on research, the burden of medication errors in National Health Services in England accounts to an annual 500 million dollars in addition to prolonged hospitalization days.^[4] Nurses spend about 40% of their time on preparation of drugs and medication so, they play a highlighted role in patients' medication process.^[5,6] Based on research, medication errors originate from physicians in 39% of the cases, from nurses in 38% and from pharmacists in 23% of cases.^[7]

Baghcheghi *et al.*, in a study on medication errors resulting from drug preparation and administration in internal wards, concluded that most of errors are resulted from nurses' acknowledge of medication orders and their method of application.^[8] In an analysis of 469 life threatening errors between 1993 and 1998 in USA, human factors were reported to have the most efficient role, mostly due to a defect in practice and knowledge (0.44).^[9] *mohammadi et al.* in their study found out that nurses face problems due to lack of attention to prescribed medications dosages, ordered by a physician, wrong dosage calculation (exchange) and not application of their theoretical knowledge in clinical setting.^[10] Therefore, a comprehensive action is needed to solve this problem.^[11,12] In studies conducted in Iran, more attention of authorities and nursing managers have been emphasized more attention to this issue. It seems that holding educational courses to empower nurses' scientific knowledge and motivation and making it more beneficial for the patients, education process modification through encouragement of nurses to report their medication errors and preparation of processes for physicians' encouragement to order medication more readably in clinical setting can have a more positive and efficient outcomes.^[13] Numerous studies, conducted on the effect of continuing education on nurses' efficiency, self-confidence, knowledge and skills, all show positive results so that several international studies report the effect of continuing education on improvement of cares quality.^[14-16] The results of research in USA, Canada, Australia and England have shown the positive effect of education on quality of nursing care as well as the importance of educational programs and their effect on nurses' knowledge, attitude and experimental and scientific skills.^[15] The educations can enhance efficiency that are purposeful and based on nurses' educational needs.^[16] The researcher had already determined these needs in her study on needs assessment of nurses working in psychiatric wards of hospitals in Isfahan in 2011 and her obtained results showed

that the most important needs of working nurses in these wards were in association with medical and nonmedical interventions including familiarization with side-effects of drugs, management of side-effects, medication indications and necessary cares at the time of medication.^[16] With regard to above-mentioned issues and determination of nurses' educational needs in relation with medical and nonmedical interventions, there is not any medical intervention workshop in Iran, so we need to assess the effect of this type of program. This study aimed to define the efficiency of an educational workshop on medical and nonmedical interventions to promote the knowledge and attitude of nurses working in psychiatric wards of educational hospitals in Isfahan until 3 months after holding the workshop.

MATERIALS AND METHODS

This is a quasi-experimental interventional study. For ethical consideration, the workshop was designed according previous need assessment from nurses.^[12] It has been coordinated to the nursing managers in Noor and Farabi Hospitals for workshop conduction. Participation in the workshop was voluntary. Education grant was considered education grant for participants. Study population comprised all nurse working in psychiatric wards of two educational hospitals affiliated to Isfahan University of Medical Sciences (Noor and Farabi) in 2012–2013. A total of 64 nurses (as employees, staffs on a contract and casual staffs) participated in the study. Inclusion criteria were at least having a BS degree in nursing and working in a psychiatric ward as an employee, on a contract or a casual staff as well as all nurses who worked part time or did overtime in the ward. Data were collected by a researcher made questionnaire which contained three sections of employment and personal characteristics, knowledge (including 17 multiple choice questions) and investigation of attitude (containing 14 Likert's scale question on about psychiatry drugs indication, their side-effects, nursing care and the management of drugs side-effects). Employment and personal characteristics were recorded and knowledge and attitude were assessed by questionnaire.

Whose reliability and validity were confirmed before data collection. Validity of the questionnaire was made by consideration of scientific references, and was confirmed by some academic members. Its reliability was calculated by calculation of alpha Cronbach ($\alpha = 0.96$).

The educational method employed in the present study was lecture, question and answer and group discussion. It should be noted that the researchers conducted the study with regard to the results obtained from the needs assessment of nurses working in psychiatric wards of hospitals affiliated to Isfahan Medical Sciences University in 2012.^[12]

Educational protocol and related workshops were designed through formation of a scientific committee (including some of psychiatry professors and nursing educators of Isfahan

University of Medical Sciences as well as nursing managers and educational supervisors) and discussion about obtained educational needs.

The outlines of the educational workshop contained six sections: “The generic name of drugs, recognition of dosage and forms, indication and diagnose side effects, electroconvulsive therapy (ECT) indication and side effects, caring for drugs prescription and the management of drugs side-effects.” Each workshop takes 5 h in 1-day for about 30 participants. Nurses’ level of knowledge and attitude was investigated by the questionnaire before beginnings of the workshop, at its end and 3 months after holding the educational workshop. To have the highest possible number of attendants in the workshop, the workshop was held by academic members of the related university in two different times and in two various hospitals (Nour and Farabi). At the end of workshop, the attendants were given workshop educational materials in form of a CD and the credit of continuing education course. Data collection and analysis was done by software SPSS 18 [SPSS Inc.: Chicago]. Central distribution index was used for descriptive statistics. Repeated measure ANOVA with control of some baseline and confounding factors as well as Bonferroni test were used for data analysis. The statistical significance was determined as $P < 0.05$.

RESULTS

Sixty-four nurses attended the present study of whom 29.7% were male and 70.3% were female. Most of the nurses were married (81.3%). The highest frequency of employment condition was for casual staffs (87.5%) and permanent staffs (12.5%). About 42.2% of nurses had ≤ 5 years work experience. The results showed a significant increase in nurses’ knowledge mean scores in relation with medical and nonmedical immediately after and 3 months after education ($P < 0.001$) so that it increased from 61.5 ± 14.8 (before education) to 81.7 ± 1.8 (immediately after) and to 79.9 ± 13.8 (3 months after) [Table 1].

Furthermore, there were a significant difference between mean scores of nurses’ attitude about medical and nonmedical interventions before, immediately after and 3 months after education ($P < 0.009$) [Table 1].

Based on Table 2, comparison of nurses’ knowledge mean scores of three stages (before education and immediately after), (before education and 3 months after) and (immediately after education and 3 months after), there were significant association between before education and immediately after it. Also, there were significant relation between mean scores nurses’ knowledge before education and after 3 months.

Nurses’ knowledge and attitude as adjusted variables, (before education and immediately after), (before education and 3 months after) and (immediately after education and 3 months after) was evaluated by The Bonferroni correction.

Based on Table 3, the mean of attitude scores showed a significant difference between immediately after education and 3 months after it.

Based on Table 4, the results showed a significant increase in nurses’ knowledge about dangerous side-effects of clozapine, side-effects of new antidepressant drugs and monoamine oxidase (MAO) inhibitors, antidepressant drugs groups, extra pyramidal side effects, side-effects of selective serotonin reuptake inhibitors (SSRIs) and lithium and drug interactions with ECT.

The obtained results showed that 86.3% of nurse were either “much” or “very much” satisfied with the educational course held for them and believed existence of such a course led to their scientific information improvement.

DISCUSSION

This study aimed to investigate the efficiency of educational intervention on the levels of nurses’ knowledge and attitude in psychiatric wards about medicational and nonmedicational interventions. The obtained results showed the effect of a medicational and nonmedicational interventional

Table 1: Mean scores of nurses’ knowledge and attitude before, immediately after and 3 months after interventions

Variable	Time			P
	Before	Immediately after	3 months after	
Knowledge	61.5 (1.8)	81.7 (11.8)	79.9 (13.8)	<0/001
Attitude	65.6 (9.8)	63 (9.6)	68.3 (9.5)	0/009

SD=Standard deviation

Table 2: Comparison of nurses’ knowledge concerning medical and nonmedical interventions

Time	Mean (SD)	P*
Before education	61.5 (14.8)	<0/001
Immediately after education	81.7 (11.8)	
Before education	61.5 (14.8)	<0/001
3 months after education	79.9 (13.8)	
Immediately after education	81.7 (11.8)	0/9
3 months after education	79.9 (13.8)	

*Bonferroni test. SD=Standard deviation

Table 3: Comparison of nurses’ attitude concerning medical and nonmedical interventions

Time	Mean (SD)	P*
Before education	65.6 (9.8)	0/648
Immediately after education	63.6 (9.6)	
Before education	65.6 (9.8)	0/409
3 months after education	68.3 (9.5)	
Immediately after education	63.6 (9.6)	0/009
3 months after education	68.3 (9.5)	

*Bonferroni test. SD=Standard deviation

Table 4: Distribution of nurses correct answers in response to medical and nonmedical interventions question before, immediately after and 3 months after intervention

Knowledge question	Number (%)		
	Correct answer before	Correct answer after	Correct answer 3 months after
Cognition of antidepressants drugs	23 (39/5)	44 (68/8)	45 (70/3)
Cognition of drugs forms	59 (92/2)	61 (95/3)	64 (100)
Cognition of the side effects of antipsychotics	36 (56/3)	49 (76/6)	55 (85/9)
Cognition of extrapyramidal effects	37 (57/8)	53 (82/8)	55 (85/9)
Cognition of carbamazepine side effects	57 (89/1)	53 (82/8)	59 (92/2)
Recognition hypotension orthostatic	53 (82/8)	46 (71/9)	39 (60/9)
Drug interaction with ECT	46 (71/9)	57 (89/1)	58 (90/6)
The contraindication of ECT	49 (76/6)	49 (76/6)	62 (96/9)
Nursing care before ECT	47 (73/4)	58 (90/6)	50 (78/1)
Recognition the serious side effects clozapine	19 (29/7)	63 (98/4)	56 (87/5)
Recognition effect of the side new antidepressants	20 (31/3)	62 (96/9)	30 (46/9)
Cognition lithium side effects	45 (70/3)	60 (93/8)	52 (81/3)
Necessity education to patients for lithium	33 (50/6)	47 (73/4)	57 (89/1)
Recognition MAOIs side effects	10 (15/6)	33 (51/6)	24 (37/5)
Recognition with neuroleptic malignant syndrome	47 (73/4)	57 (89/1)	62 (96/9)
Recognition SSRIs side effects	38 (59/4)	53 (82/1)	51 (79/7)

ECT=Electroconvulsive therapy, MAOIs=Monoamine oxidase inhibitors, SSRIs=Selective serotonin reuptake inhibitors

educational workshop on improvement of knowledge level of nurses working in psychiatric wards immediately after and 3 months after education in 15 items. Also, only one item (recognition hypotension orthostatic), the knowledge was decreased however it was not statistically significant.

These results is consistent with study of Pasyar *et al.* on the effect of continuing education concerning medication indications on promotion of nurses' knowledge and attitude.^[17] This also confirms the high effect of education on increase of the knowledge in treatment personnel, and consequently, on promotion of patients' health and relatively improvement of services quality and nurses' job satisfaction.

This method seems to have a high effect on preservation of information until 3 months after intervention. In a study by Abbaszadeh *et al.* in Kerman, Iran, suggests that continuing education program promote knowledge, attitude and performance of nurses on documentation.^[18] In a study conducted in Northern Italian University on effectiveness of a clinical skills workshop for drug-dosage calculation with participation of 77 nursing students, the results showed that clinical skills workshop increased drug-dosage calculation as well as students' understanding of mathematical calculation,^[19] which is consistent with the present study.

In evaluation of the effect of educational workshop on nurses' knowledge concerning medicational and nonmedicational interventions, the results showed a significant increase in nurses' knowledge about dangerous side effects of clozapine, side effects of new anti-depressant drugs and MAO inhibitors, antidepressant drugs groups, extrapyramidal side effects, side effects of SSRIs and lithium and drug interactions with ECT. The results of the present study seemed to have met most of the nurses' needs revealed in the nurses' needs assessment,

conducted several months before holding the educational workshop^[16] by the researcher, including "familiarization with drugs side effects," "management of side effects," and "necessary nursing cares in drugs consumption."

Research showed that nurses' staffs' education in hospitals about paying a close attention to medication on precise time leads to improvement of medication management and quality of patients' care as well as reduction of side-effects,^[20] which is consistent with the present study. It seems that current continuing education programs held for nurses have not been adequately successful in increase of nurses' knowledge and attitude due to lack of purposefulness of educations, lack of needs assessments and the type of education (no workshop held).

Research showed that if educational programs are purposefully held based on nurses' needs and in form of workshops, they can significantly affect nurses' knowledge, attitude and skills,^[21] something we observed in the present study. Another variable investigated in the present study was determination of nurses' attitude for which the results showed the effect of educational intervention on the attitude of nurses working in psychiatric wards immediately after and 3 months after education.

Dadgari *et al.* showed that educational workshop leads to improvement of knowledge, attitude and practice of nurses in critical care units.^[22] Mehdipur showed that educational classes result in an increase in nurses' attitude and their more preparation to educate the patients,^[23] which is in line with the present study. Several studies showed weakness of the nursing students' and personnel working in hospitals about psychiatric medications, insufficient skills of correct medication due to brand name and labels similarities as well as wrong dosage calculations.^[24,25] On the other hand, other studies indicated the effect of educational programs

on improvement of medicational care quality.^[26] Therefore, nursing personnel education is going ahead with a rapid pace toward professionalism and employees' empowerment parallel to coordination with other medical professions, and curriculum education and just attaining a university certificate cannot be a license for work during an employee's working life any more. In fact, education in medical groups does not end in university but continues during professional activities.^[27] Brady and Hyde believes nurses' knowledge and preparation for continuing education is essential.^[28] In this direction, detection of educational needs and provision of facilities is the first step toward removal of defects and promotion of educational quality. Therefore, the role of continuing education should be considered as a basic need for nurses' adaptation with rapid increasing scientific changes, and determination of educational priorities based on needs assessment as the main step in educational planning.^[29] Nurses are frequently exposed to new advancements during their professional carrier and should update their knowledge about drugs specially the generic names of medications, dosage and medication types, and drugs side effects and contraindications. According to the results of the present study, a proper background for nurses' attendance in educational programs based on needs assessment should be prepared for their professional promotion.

CONCLUSION

Our obtained results showed that holding an educational workshop was effective on nurses' knowledge and attitude toward medical and nonmedical interventions.

Results of this study confirm that purposeful continuing education is essential for nurses to promote the quality of nursing cares.

With regard to the role of nurses in medical interventions and the necessity of their being up-to-date with medical information as one of their necessary skills to reduce medication errors and the most important and life-threatening treatment complications, nurses should be provided with the required conditions for attendance in educational programs based on their professional needs.

Limitations

The researchers faced problems and limitations in conducting this study of which the most important ones were the limited population of participants, and short length of education period and follow-up.

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Conflicts of interest

There are no conflicts of interest.

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