

Improving Knowledge and Attitude of Nurses Working in Chemotherapy Wards through a Short Educational Course: A Successful Experience in Mashhad

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Background: Cancer is the third leading cause of death in Iran. Novel chemotherapeutic agents can lead to considerable improvements in cancer treatment, although using these agents requires special skills and experiences. The aim of this study was to evaluate the impact of a short course education on nurses' knowledge and attitude.

Methods: Overall, 24 nurses participated in this short educational course, supervised by several clinical/radiation oncologists. During a two-week period, several protocols of chemotherapy, complications associated with chemotherapy, and the management of adverse outcomes were taught to the participants with a special emphasis on nursing considerations. Before the program and at the end of the course, the Multiple Choice Questionnaire (MCQ) and Direct Observation of Procedural Skills (DOPS) were used for evaluating the effectiveness of the program on the participants' knowledge. Changing their attitude was also evaluated by an author-made Questionnaire. The mean knowledge and attitude scores before and after the interventions were compared using paired t-test.

Results: Overall, Four participants (16%) were male and 20 (83%) were female. The majority of the subjects (90%) worked at chemotherapy wards. Sixteen (66%) versus twenty two (91%) nurses achieved a minimum score of 70% on MCQ before and after the course, respectively ($p=0.03$). The mean scores before and after the course were 18.7 ± 8.6 versus 26 ± 11 for MCQ ($p=0.03$) and 30.3 ± 10 versus 45.3 ± 14 for DOPS ($p=0.004$). The mean of attitudes' score were 3.93 ± 1.7 and 4.04 ± 1.2 before and after the course, respectively, that showed a significant difference ($p=0.01$).

Conclusions: Short educational courses about major subjects in oncology nursing could improve nurses' knowledge and attitude.

Keywords: Chemotherapy, Education Course, Knowledge, Attitude, Nurses

ارتقای دانش و نگرش پرستاران شاغل در بخشهای شیمی درمانی از طریق دوره کوتاه مدت حرفه ای: تجربه ای موفق در مشهد

مقدمه: سرطان سومین علت شایع مرگ در ایران است. داروهای شیمی درمانی نوین پیشرفت چشمگیری در درمان سرطان ایجاد کرده است. با این وجود استفاده از آنها نیاز به تجربه و مهارت ویژه ای دارد. هدف این مطالعه ارزیابی تاثیر یک دوره کوتاه مدت حرفه ای بر دانش و نگرش پرستاران است.

مواد و روشها: مجموعاً ۲۴ پرستار، تحت نظارت چندین متخصص کلینیکال/رادیوتراپی انکولوژی در این دوره شرکت کردند. در خلال دو هفته، پروتکل های متعدد شیمی درمانی، عوارض داروهای شیمی درمانی و روشهای اداره آن، با تاکید بر ملاحظات پرستاری به آنها آموزش داده شد. برای ارزیابی تاثیر برنامه بر دانش شرکت کنندگان، پیش از شروع برنامه و در انتها از آنان آزمون سوالات چند گزینه ای (MCQ) و مشاهده مستقیم اقدامات مهارتی (DOPS) به عمل آمد. تغییر نگرش آنها نیز با یک پرسشنامه خود ساخته ارزیابی شد.

نتایج: ۴ مرد (۱۶٪) و ۲۰ زن (۸۳٪) در این مطالعه شرکت کردند. اکثریت شرکت کنندگان (۹۰٪) در بخشهای شیمی درمانی کار کرده بودند. ۱۶ (۶۶٪) و ۲۲ (۹۱٪) نفر از پرستاران حداقل نمره ۷۰٪ را در آزمون MCQ، به ترتیب قبل و بعد از دوره کسب کردند ($P=0.03$). میان نمره آزمون نگرش در آنان به ترتیب ۳۰.۳ و ۴۵.۳ قبل و بعد از دوره بود ($P=0.004$) که تفاوت معناداری را نشان داد. این دوره در جشنواره آموزشی مطهری در اردیبهشت ۹۳ مقام اول را کسب کرد.

نتیجه گیری: دوره کوتاه مدت حرفه ای در رابطه با مفاهیم اصلی پرستاری در انکولوژی می تواند دانش و نگرش پرستاران را ارتقا بخشد.

کلمات کلیدی: شیمی درمانی، وضعیت آموزشی، نگرش، پرستاران

ارتقاء مستوى المعرفة والرؤية عند اعضاء الهيئة التمريضية في قسم العلاج الكيماوي من خلال اجراء دوره حرفيه قصيره تجريبه موفقه في مدينة مشهد

المقدمه: السرطان هو العامل الثالث للموت في إيران. إن ادوية السرطان الكيماوية الجديدة لها تطور ملحوظ في مجال علاج السرطان.

مع هذا استخدام هذه الادوية تحتاج الى تجريبه ومباراه خاصه إن الهدف من هذه الدراره هو تقييم مستوى تأثير دوره قصيره المدى و حرفيه على المعرفة و الرؤية عند طاقم التمريض.

الطلوب: اشترك ۲۴ شخص من طاقم التمريض في هذه الدراره تحت رعايه عدد من متخصصين العلاج الكيماوي. تم تعليم البروتوكولات المتعدده في التاكيد على الامور التمريضيه. خلال اسبوعين.

من اجل تقييم البرنامج على المشتركين تم اجراء اختبار في بدايه الدراره و نهايتها من نوع الاختبارات ذو اربعه اجوبه (MCQ) و المشاهده المباشرة و الاقدمات الخبرويه (DOPS). و ايضا تم تقييم تغييرالرؤية من خلال استماره.

النتائج: اشترك ۴ رجال (۱۶٪) و ۲۰ مرأه (۸۳٪) في هذه الدراره. ۹۰٪ من المشتركين كان لديهم سوابق عمل مجال العلاج الكيماوي. ۱۶ (۶۶٪) و ۲۲ (۹۱٪) من طاقم التمريض قد حصلوا على علامه ۷۰٪ في اختبار MCQ. قبل و بعد الدراره ($P=0.03$) إن معدل اختبار الرؤية كان ۳۰.۳، ۴۵.۳ قبل و بعد الدراره $p=0.01$ التي اشارت الى اختلاف احصائي ذوقيه. لقد حصلت هذه الدراره على الرتبه الاولى في مؤتمر مطهرى التعليمي في شهر ارديبيشت من عام ۹۳ هـ.ش.

الاستنتاج: إن الدراره الحرفيه القصيره في مجال المفاهيم اللاسيه في التمريض العلاج الكيماوي تعمل على رفع مستوى المعرفة و الرؤية عند طاقم التمريض.

الكلمات المفتاح: التعليميه، الرؤية، طاقم التمريض.

قليل مدت پروفیشنل کورس کے ذریعے کیمو تھراپی وارڈ کی نرسوں کے علم میں اضافہ کرنا، مشہد میں کامیاب تجربہ

بیک گراؤنڈ: کینسر ایران میں اموات کا تیسرا سب سے بڑا سبب ہے۔ کیموتھریپی کی نئی دواؤں سے کینسر کے علاج میں کافی پیشرفت ہوئی ہے۔ البتہ مریضوں کو یہ دوائیں لگانے کے لئے تجربے اور مہارت کی ضرورت ہوتی ہے۔ اس تحقیق کا هدف نرسوں کو پڑھانے جانے والے قلیل مدت پروفیشنل کورس کی تاثیرات کا جائزہ لینا ہے۔

روش: اس تحقیق میں مجموعی طور سے چوبیس نرسوں نے شرکت کی۔ اس تحقیق پر کلینیکل، ریڈی ایشن اور کینسر کے ماہرین نے نگرانی کی۔ دوپختے کے دوران نرسوں کو کیموتھریپی کے متعدد پروٹوکول، کیمومیڈیشن کے ناگوار اثرات، اور ان کو کنٹرول کرنے کی روشوں سے آگاہ کیا گیا۔ اس بات کا جائزہ لینے کے لئے کہ اس تحقیق میں شرکت کرنے والوں کو اس کورس سے کتنا فائدہ پہنچا ہے ایک سوالنامہ دیا گیا تھا جس میں ایم سی پی اور ڈی او پی ایس نوعیت کے سوالات تھے۔

نتیجے: اس تحقیق میں چار مردوں اور بیس خواتین نے شرکت کی تھی۔ زیادہ تر افراد نے کیموتھریپی وارڈ میں کام کیا تھا۔ اکانوے فیصد شرکاء نے ٹسٹ سے پہلے اور بعد میں ستر فیصد نمبر حاصل کئے۔ سا شارٹ ٹرم کورس کو دوپڑار چودہ میں تعلیمی فیسٹیول میں انعام دیا گیا۔

سفارش: آنکو لوجی شعبے میں شارٹ ٹرم پروفیشنل کورس نرسنگ کے بنیادی اصولوں پر تاکید کے ساتھ نرسوں کے علم میں اضافہ کرسکتا ہے۔

کلیدی کلمات: آنکولوجی، کیموتھریپی، تعلیمی صورتحال نرسنگ۔

INTRODUCTION

Cancer is one of the most prevalent diseases around the world. According to recent reports by World Health Organization (WHO), the incidence of cancer will increase in future decades. In fact, this condition is expected to be the second most common cause of mortality (1). Similarly, cancer is the third leading cause of death in Iran (2).

Recent advances in cancer treatment, especially the production of novel chemotherapeutic and biotherapeutic agents, have led to the prolongation of survival in cancer patients. Nursing students require continuous training for the improvement of their knowledge, expertise, and personal development (3). Nevertheless, not enough attention is being paid to chemotherapy principles in educational curriculums (4, 5). In fact, nurses are usually unfamiliar with different clinical and practical aspects of these agents after graduation. Several researches have shown that continuing education for cancer nurses leads to improved patients' care (6-8). Steginga SK et al assessed the impact of an intensive nursing education course on nurses' knowledge, confidence, attitudes, and perceived skills in the care of patients with cancer. Their results showed significant improvement of nurses' knowledge, attitude and skills in in the psychosocial care of patients with cancer (9). Schlairet study revealed that majority of nurses had no formal lifelong education and there are significant knowledge deficiencies in this area. Those nurses who had lifelong nursing education scored significantly better than the others (10). Strengthening nursing knowledge and changing their attitude through an educational course could improve continuous care of cancer patients in Ferrell study (11).

Our experience shows that there is reluctance in nurses to work in oncology departments. This may be due to lack of sufficient knowledge about working with unknown agents and negative attitude toward cancer. The aim of this study was to evaluate the impact of a short educational program about the practical principles of chemotherapy administration, on the knowledge and attitude of nurses.

METHODS

This cross sectional, analytic study with before and after design was conducted on the target group of 24 registered nurses who have been working at least six months at Omid oncology Hospital of Mashhad University of Medical Sciences, Iran, in June 2013 on the behalf of Iranian Association of Radiation Oncology and Cancer Research Center. First, the educational needs of nurses and oncologists were assessed, based on their own comments. Then, a scientific committee composed of oncology and nursing faculty members, as well as experienced nurses, working at the oncology department of Omid Hospital in Mashhad, Iran, was formed. Afterwards, the related experience of implementing such programs in developed countries such as England was reviewed. Several educational programs including the Nursing Program at King's College Community and Royal Marsden Nursing Educational Curriculum were discussed. Finally, a detailed program including 30 hours of lectures, along with 30 hours of

practical training in the field, was designed.

The designed course mainly focused on the most practical and important topics based on the European Oncology Nursing Society (EONS) and European Society of Medical Oncology (ESMO) to help participants overcome daily health care challenges of oncology. The main subjects included the management of common chemotherapy-related complications including nausea, vomiting, and extravasation, an introduction to injection protocols, nursing considerations of most popular chemotherapeutic agents (e.g., vinca alkaloids, antimetabolites, platinum, taxanes, and alkylating drugs), and the management of malnutrition, depression and anxiety in cancer patients.

A brief pamphlet of several basic skills in cannulation, preparation of drugs, and port catheter activation was designed by the expert of nursing and then revised in the specialist panel of oncologists, and the electronic files were provided for the learners. The final design was approved by the Continuous Medical Education (CME) Center at Mashhad University of Medical Sciences and the Ministry of Health and Medical Education. The 6-item questionnaire based on the results of Khan et al study (6) was developed by authors and used to assess the attitudes of nurses before and after the course. The validity and reliability of questions were detected by content validity and Alpha-Cronbach ($r=0.86$), respectively. The measured reliability coefficient of 0.75 was considered acceptable. Attitude scores were measured on a three level Likert scale defined as positive, disorderly, and negative. At the beginning and end of the course, all trainees' knowledge and skills were evaluated by the Multiple Choice Questionnaire (MCQ) and Direct Observation of Procedural Skills (DOPS) through checklist. The items of the checklist were discussed in a specialists' panel and covered the must learning subjects in oncology nursing. The level of skills was evaluated using direct observation. The MCQ and DOPS scores ranged from 0 to 30 for 10 items and 30 questions and 0 to 50 for 8 items, respectively. One score was given to each question. A minimum score of 70% on MCQ and 80% on DOPS was required for receiving a certificate. Paired t-test was used to compare the mean knowledge and attitude scores before and after the interventions. We have considered p-values less than 0.05 as statistically significant. The data was analyzed using SPSS software version 17.

RESULTS

In total, 24 nurses including 4 men (16%) and 20 women (83%) participated in this program. The mean age of

Table1. Items assessed the participants' knowledge

	Number
Chemotherapy preparation and administration	3
Chemotherapy complication	3
Chemotherapy and nutrition	2
Psychological support	2
Total	10

participants was 45 (26-54) years. The subjects' experience in different hospital departments varied from 20 years (7 individuals) to 2 years (4 subjects). The majority of the subjects (90%) were working at the chemotherapy wards. All of them were post graduate. Ten items questioned to assess the participants' knowledge showed in Table1.

Sixteen (66%) versus twenty two (91%) nurses achieved a minimum score of 70% on MCQ before and after the course respectively (p=0.03). Also three (12%) versus seventeen (70%) participants gained a minimum score of 80% on DOPS before and after the course, respectively (p=0.002). Table 2 shows the mean knowledge score of the nurses before and after the course. The mean of attitudes' score were 3.93 ± 1.7 and 4.04 ± 1.3 before and after the course, respectively, that showed a significant difference (p=0.01). Items assessing the participants' attitude and respective scores are shown in Table 3. Overall, 90% of the subjects were willing to participate in similar subsequent courses.

DISCUSSION

The results of this study showed that short educational course could be an effective way for improving the knowledge and attitude of nurses about recent advances in oncology, especially new chemotherapeutic agents and their side-effects, as well as essential nursing considerations.

Short courses offer practical and updated information which can help individuals to provide more professional services at work (12, 13). Professional courses in nursing have a long history, tailored to the needs of both under- and post-graduate nursing students. Rapid progress in oncology requires continued training in this field to increase the nurses' ability and confidence in daily practice (14, 15). Our program provided an opportunity for nurses to attain the required knowledge about recent prominent improvements in different aspects of oncology including chemotherapy,

biotherapy, nutrition, and psychological issues in cancer patients.

A similar study in a tertiary hospital in Pakistan measured the levels of nurses' knowledge and attitude after the conduction of an educational session regarding chemotherapy administration. The results showed that their knowledge and skills improved but attitude was not changed significantly (16). Unlike our study, the target group in this study was heterogeneous, have been working in the various wards with different motivations which may affect their attitudes as well as knowledge. An interventional study in London was designed at 1990 for understanding newly registered nurses' attitudes, knowledge, confidence and educational needs in relation to cancer care. Nurses participated in a workshop versus seminar program were compared to a control group who were unable to obtain any study. Data revealed that their knowledge and attitude were significantly improved among those that received study especially in nurses attending the workshop (17). However, the experienced nurses were not included in this program. The knowledge of nurses regarding the cytotoxic drugs was assessed in the study in Nepal by Ramanand CH et al. The authors found that the participants' knowledge was not satisfactory; moreover, in service training it was effective to improve their knowledge and handling practice (18). Similar to our study, all of the nurses, who participated in the Khan's study, had between 1 to more than 10 years of experience in caring cancer patients. To evaluate the influence of nurses' knowledge, attitudes and health beliefs on their safe behavior with cytotoxic drugs, Ben-Ami and colleagues designed a study in Israel. A gap was found between nurses' knowledge and their actual behavior due to lack of positive attitude. The study' findings showed the need for continuous education and training regarding to safety measures (19). The direct relation between the level of nursing education and patient care has been indicated in many studies. Robert Wood Johnson Foundation (RWJF) published an issue with an emphasis on the relation between patients' health and nurses' educational advances (20). Dante et al. in a study in 2011 found that many nurses are undereducated to meet the occupational demands and they need high-quality programs to attain the essential skills (21). The strength of this study was that it was carried out for the first time in Iran. This program is scheduled to be repeated annually in June, given its tremendous success. This program

Table 2. Nurses' knowledge means scores before and after the course

	Pre course Mean ±sd	Post course Mean ±sd	P value
MCQ	18.7±8.6	26±11	0.03
DOPS	30.3±10	45.3±14	0.004

Table 3. Items and respective scores assessed the participants' attitude

	Pre course Mean ±sd	Post course Mean ±sd	P value
I believe that chemotherapy principles must be educated to all undergraduate nurses	4.01±2	4.03±1.6	0.48
I know that chemotherapy drugs could results in adverse side effects in nurses	4.35±1.8	4.86±2.1	0.24
Working in chemotherapy wards is safe if all precautions are taken	4.02±3.1	4.24±1.5	0.02
I' m afraid of dealing with side effects of chemotherapy	2.54±1.9	2.09±0.7	0.05
I cannot help patients receiving chemotherapy to reduce their psychological distress	2.40±1.2	1.56±0.3	0.03
I have enough time and motivation to respond the patient questions about chemotherapy	3.62±1.4	3.84±0.9	0.83
Total	3.93±1.7	4.04±1.2	0.01

was ranked first at Motahari Educational Festival in May 2014. However, the impact of this short educational course on the quality and safety of patient care should be evaluated in future studies. According to a survey conducted on the final day of the program, the long duration of the course was mentioned as its main problem. The subjects believed that this program could be more condensed, allowing nurses' greater participation. In addition, insufficient attention to medication safety was another drawback of the study, which indicates its importance in future programs. The level of knowledge and attitude of nurses about chemotherapy principles is not satisfactory. Continuing education and in service training through an educational

courses could help them to improve their knowledge, skills and attitude.

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Authors' Contribution: Ali Taghizadeh Kermani, Roham Salek and Sare Hosseini designed the program. Leila Pourali collected the data and Sare Hosseini wrote this article.

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