

RESEARCH ARTICLE

Comparison of Teaching about Breast Cancer via Mobile or Traditional Learning Methods in Gynecology Residents

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Abstract

Introduction: Mobile learning enables users to interact with educational resources while in variable locations. Medical students in residency positions need to assimilate considerable knowledge besides their practical training and we therefore aimed to evaluate the impact of using short message service via cell phone as a learning tool in residents of Obstetrics and Gynecology in our hospital. **Methods:** We sent short messages including data about breast cancer to the cell phones of 25 residents of gynecology and obstetrics and asked them to study a well-designed booklet containing another set of information about the disease in the same period. The rate of learning derived from the two methods was compared by pre- and post-tests and self-satisfaction assessed by a relevant questionnaire at the end of the program. **Results:** The mobile learning method had a significantly better effect on learning and created more interest in the subject. **Conclusion:** Learning via receiving SMS can be an effective and appealing method of knowledge acquisition in higher levels of education.

Keywords: Breast neoplasm - cancer education - medical education - mobile learning - small message service

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Introduction

Learning methods are undergoing rapid developments due to the considerable progress in the availability of electronic and mobile resources. As a consequence, distance learning programs are becoming increasingly popular at academic institutions among the college students. These are held in a non-classroom setting and students can generally participate in course discussions and exercises (Islam, 2005). On the other hand, mobile learning is increasingly being used around the world to access a huge amount of information and enables users to interact with educational resources while away from their place of learning and in variable locations (Mellow, 2005; Davies et al., 2012). One of the most popular distance learning mobile devices are cell phones because they can easily be used in various times and places (Mellow, 2005; Lu, 2008; Jeng, 2010).

Cell phones are being more and more frequently used for teaching and learning purposes in Asian countries. (Motlik, 2008) Second to voice communication, the short message service (SMS) is one of the major capacities of this device that help students learn more easily, especially when sent at optimal intervals in predetermined times with distributed repetition (Lu, 2008).

It is already known that medical students need to assimilate considerable information during their studies. They should not only keep a lot of knowledge in mind, but also update it continuously. It is therefore extremely

important to identify the problems related to the learning process in medical students and help in the increment of their enthusiasm in this nonstop route (Davies et al., 2012). This entry does not merely involve the junior students. Reaching higher academic degrees in medicine and getting trained in a more specialized field warrants retaining the massive scientific material that is presented. Residents in diverse fields of specialty need to learn the science besides their practical training. Proceeding with innovative methods of learning can probably improve this situation.

The objective of this study was to evaluate the impact of using the short message service (SMS) via cell phone in improving the knowledge about breast cancer in residents of Obstetrics and Gynecology in our hospital and comparing it with a paper-based method.

Materials and Methods

The study population was a group of 25 residents of Gynecology and Obstetrics in different years of study in Arash Women's Hospital, a teaching hospital affiliated to Tehran University of Medical Sciences. The disputed subject was breast cancer and all the participants were aware of the research process 3 days prior to the beginning of the study.

A questionnaire including 20 multiple choice questions about breast cancer was designed as pre-test. The topic of the first 10 questions was the epidemiology, screening,

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manifestations, diagnosis and staging of breast cancer and the second 10 questions regarded issues related to treatment of the disease.

All the residents took the pre-test at the same time. In order to discourage them to consult each other on the answers, they were asked not to write their names. Ten days later, useful information regarding the first set of subjects (epidemiology, screening, manifestations, diagnosis and staging), handled in 54 messages, was sent via cell phone to the residents during 17 days. Two or 3 SMS were sent daily at approximately exact times. The same residents also received a 7-pages booklet handling the second set of subjects and were asked to study it in the same 17-day period. The booklet was beautifully designed, the topics were written as bullet phrases and the scientific points were written in a concise manner such that it could be read and reviewed easily (a user-friendly booklet).

In the next step, 5 days after the last message, the post-test exam was undertaken, which harbored the same questions as the pre-test. The residents also responded to a questionnaire about their satisfaction with the two methods. The score (number of correct answers) in the first and second 10 questions in the pre- and post-tests were calculated and compared.

We analyzed our data by the SPSS software using independent sample T test and paired T test.

Results

The median overall score of the residents was 4.91 and 6.39 out of 20 in the pre-test and post-test, respectively. The median score of the first 10 questions rose from 5.04 to 7.04 in the 2 tests. These figures were 4.74 and 5.74 for the second 10 questions. The increase in the score of the SMS method was statistically significantly higher than the paper-based method (p value=0.02).

Sixty percent of the residents said that they were looking forward receiving the next SMS, 32% stated that they were indifferent to it, and 8% remembered awaiting the end of the program. Sixty percent of the residents felt to had been better motivated by the SMS than the booklet, and the same number found the SMS more interesting.

Discussion

Our study comprised residents of obstetrics and gynecology, who are generally highly intellectual and intelligent. In Iran, learning via electronic methods in residency degrees of medical subspecialties is limited to problem-oriented medical databases search; knowledge management has almost always been paper-based in these levels. As a consequence, we expected our residents to be quite acquainted with the booklets and be pleased with their smart designs. Nonetheless, the mobile learning method had a significantly better effect in their learning and had produced more interest in the subject. The residents had been better motivated by the SMSs and were more eager to continue with the process.

In a study done by Woods et al in South Africa, essential points from the perinatal education program were sent weekly as 26 SMS for 2500 midwives, a process

which took 6 months. Thereafter, 50 of the SMS recipients were asked 7 questions about the effect of the sent data and their personal feelings about them. The results showed that the majority of the participants considered the SMS as a way to improve their knowledge and liked to receive additional messages on other subjects. (Woods, 2012)

In their papers in 2005, Islam et al first review the real shortage of technology in some countries and mean to compensate this deficit by fairly simple methods in terms of education. Their well-designed study was conducted in Bangladesh where at that time the anticipated figure for internet users was about 13%, and the educational facilities were scanty in rural regions. The study aimed to study how SMS in conjunction with a live television program can simulate classroom circumstances, necessitating evidently a cell phone and access to national television for each participant. To imitate a live class, there was complete interaction via the SMS between the students and the teacher in the time of the related television program, permitting to exchange questions and answers and even ask questions from the students randomly. The comparison of this method with a true classroom confirmed the similar effectiveness of this type of education with face to face learning. (Islam et al., 2005)

In their study on learning foreign language, Saran et Seferoglu compared the results of sending English vocabulary lessons via multimedia messages to cell phones of students of an English preparatory school in Turkey with paper-based or personal computer web-based identical materials. The results showed that the cell phone method had caused a high level of vocabulary learning and had helped students in memorizing the words (Saran, 2012). In conclusion, our study shows that mobile learning is not only a good option for learning, but also that even in higher levels of education and in intelligent people who had previously been acquainted with old printed material in their studies, the SMS method can be superior to paper-based methods.

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