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Research Article

Theoretical Knowledge Difference Between Internet-Based and Digital Storytelling Education About Breast Cancer

Meme Kanseri Hakkında Internet Tabanlı ve Dijital Hikaye Eğitimi Arasındaki Teorik Bilgi Farkı

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Abstract

Aim: Previous research has identified the theoretical knowledge about breast cancer early diagnosis of nursing students and stated that new methods are needed in education. To evaluate the effect of education on the theoretical knowledge of students through internet-based or digital storytelling.

Material and Method: Quasi-experimental study with comparison groups and pre- and post-measurements. In the internet-based education group 68 and digital storytelling videos 66 undergraduate nursing students have included in the study. Data for the study were gathered, before education and after eight weeks. The percentages were calculated for every measurement, the test was used for the data whose conformity to normal distribution, and was used to detect the statistical significance of changes between measurements.

Results: The increase in knowledge scores was more often statistically significant in internet-based education than in the digital storytelling video.

Conclusion: This research shows that it is possible to create changes in teaching breast cancer early diagnosis methods by using the developing technology.

Keywords: Nursing education, internet-based education, digital storytelling, theoretical knowledge

Öz

Amaç: Yapılan araştırmalar hemşirelik öğrencilerinin meme kanseri erken tanısı konusundaki bilgi donanımlarını artırabilmek için eğitimde yeni yöntemlere ihtiyaç duyulduğunu belirtmektedir. Bu araştırma meme kanseri erken tanı yöntemlerine ilişkin bilgi artırmada internet tabanlı ya da dijital hikaye anlatımının etkisini belirlemeyi amaçlamaktadır.

Materyal ve Methot: Araştırma ön ve son test ölçümleriyle yarı deneysel çalışma niteliğindedir. İnternet tabanlı eğitim grubunda 68 ve dijital hikaye videoları grubunda ise 66 hemşirelik lisans öğrencisi araştırmaya dahil edildi. Araştırmanın verileri eğitim öncesi ve eğitimden sekiz hafta sonra iki aşamalı olarak toplandı. Her ölçüm için yüzdeler hesaplandı. Ölçümler arasındaki değişiklikleri belirleyebilmek için normal dağılıma bakıldı ve istatistiksel olarak anlamlılıkları test edildi.

Bulgular: İnternet tabanlı eğitimde bilgi puanlarındaki artışın dijital hikaye anlatımı videosundaki artıştan daha fazla olduğu ve bu farkın istatistiksel olarak anlamlı olduğu belirlendi.

Sonuç: Bu araştırma meme kanseri erken tanı yöntemlerini öğretmede gelişen teknolojiden yararlanılarak değişiklikler oluşturmanın mümkün olduğunu göstermektedir.

Anahtar Kelimeler: Hemşirelik eğitimi, internet tabanlı eğitim, dijital hikaye anlatımı, teorik bilgi

INTRODUCTION

Different technological products are used in the continuation of nursing education (1). The nurse must know about theoretical and medical technology to work and manage in a highly complex patient care environment (2). For this reason, it is important to provide permanent information and to train nurses who actively use technological products (3). In addition, the use and dissemination of different education methods in nursing education is an attempt to increase the quality of education.

Digital storytelling is one of the most widely used educational tools today (4). In the literature, the process of creating digital storytelling; students' creative

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thinking skills, imagination, research skills, improve their technological competencies, motivation, and academic (5-7), the achievement is supported to support peer learning (8). However, there are limited resources on the use of this method in nursing practice education.

Internet-based education cannot be confronted with different types such as patient education, and game education for students (9). It is seen that it creates the desired effect in the education groups used, they are an easy-to-accept and useful educational tool (10). In addition, it is seen that adding different support products to the information equipment placed in it, it makes the information attractive (11). In this context, it is seen that it is an educational tool that can be used as theoretical training material.

There is no clear information about which of the two training methods are used to achieve which result. Both methods have positive and negative sides themselves and have not been used sufficiently for nursing education. In this context, there is a variety of educational materials used in nursing education, but it is a discussion about which type of education can be used for the desired level. It is one of the limited studies that evaluate different methods that emerged after the use of developing technologies in the health system.

When previous nursing education researches are examined, different technological products are used in nursing education, and education is supported with these products, and knowledge levels are tried to be increased (12,13). This study aimed to evaluate the comparison between internet-based education and digital storytelling video about nurses' theoretical knowledge of breast cancer early diagnosis.

The study hypothesis was: The difference in theoretical knowledge will be higher in the internet-based education program than in digital storytelling education.

MATERIAL AND METHOD

The Research Design

Quasi-experimental study design with comparison groups and pre-and post-measurements was used. Two groups of sophomore year of university second-year constituted the source of data.

Participants

Students in two different groups were invited to the study according to their order of placement at the university. A total of 134 nursing students agreed to participate. To be eligible to participate in the study, the undergraduate nursing student had to have been untrained before in breast cancer. The lottery was used to decide between include how student's internet-based and digital storytelling education groups. In the list created according to the success order, even numbers digital story, odd numbers website created. The sample size was calculated with power analysis using the openepi website (power 0.95). Based on power analysis, 60 undergraduate nurses were needed in both groups.

Creation of Educational Material

Information including early diagnosis methods of breast cancer was prepared in line with the literature. Expert opinions were taken by three academicians and two clinical nurses, and the text content was finalized. The same content was used in both the digital storytelling and the website. The sentence order and expression options of the content are the same.

Creating The Website

The ADDIE model, one of the education system design models, was used in structuring the website. This model includes a systematic approach process that includes Analysis, Design, Development, Implementation, and Evaluation processes in the development of the educational tool. Each of these stages is interrelated and serves as a flexible roadmap for designing an effective training method. These stages contain their tasks and after completion, the next stage is passed. The breast cancer early diagnosis methods training content prepared in line with the literature was converted into a website by the researcher. In the interfaces and page structure to be created in this transformation, attention was paid to the questions of "the type of product that can be used on the website that prevents learning, is there a time limit for completing the training process? How much time is needed for the participant". presented and evaluated. Changes requested during this process were related to font size, background color, and video bouts. These changes were returned to the relevant step in the ADDIE model used in structuring the training material and the process was started again. After completing the whole process, the website was submitted for the evaluation of field experts. In line with the suggestions received from the experts, the final version of the training material is ready for use. In addition, the 2D video prepared by the Ministry of Health for the BSE examination was placed under the relevant title. The animations and pictures used were informative, supportive, summative, and evaluative. care was taken. The website was opened to the use of students with a QR code.

Creation of Digital Storytelling Video

Many programs are used in preparing digital stories. It is noted that it is appropriate to use Movie Maker, PowToon, Photostory3, Imovie, and PowerPoint software to create digital stories (8). The researcher was trained to use these platforms. To prepare the video suitable for the content of the research, it was decided that the animated character should be animated and the expressions should be presented in written form with speech bubbles. Storyboard, one of the limited platforms, was used to prepare this content. The PowToon program was used to transfer the created animated character to the video and complete the video content. Digital story; It was completed using the systematic approach of creating an individual point of view, asking a striking problem, preparing emotional

content, using sound effects, using the power of music, accelerating the digital story, and creating short and understandable stories. Sound plays an important role in the emergence of effective digital storytelling, and it is stated that the points where the emphasis should be made should be determined well while writing the story (14). Support was received from academics who were experts in the field, who had previously trained with digital stories, in the conversion of the validated text content into the scenario, the vocalization, and the selection of background music. A breast care nurse was preferred because the text content should be an instructive voice and pay attention to the emphasis. Care was taken to make the background music a lively one. This music was chosen based on different educational digital stories. Completing these stages, the video was evaluated by 3 clinical nurses and 2 academicians who are experts in the field. It has been restructured taking into account the recommendations for color and video transitions. The resulting video was uploaded to YouTube and made available to students. The link to the related video was given to the students with a QR code. The training was not completed within the requested time and repeated access.

Data Collection

To prevent students from interacting with each other, the research was explained to the students on two different days. It was signed as a contract with the informed consent form that the students who were in their groups did not share the links. Data were collected using a two-part questionnaire developed by the researchers using the literature (12-14). The first part consists of 8 questions about the sociodemographic characteristics of undergraduate nurses. The second part consists of 28 questions containing theoretical information about breast cancer, risk factors, frequency of early diagnosis methods, and application steps. The second part was repeated eight weeks after the training method was presented to the students. Theoretical information in this section is scored on two points ranging from 1 point, defined as knowing, and 0 points, defined as not knowing. A total score was obtained by scoring for each item. According to the scoring system, a minimum of 0 and a maximum of 28 points can be obtained. A high score was interpreted as a high level of theoretical knowledge. Before using the questionnaire forms, expert opinions of five surgical nurses and five academicians were obtained and necessary corrections were made in line with their suggestions. After the questionnaire forms were finalized, the pre-test phase was conducted with ten students, the questions were reviewed and the research started. The Cronbach alpha reliability coefficient (α) of the questionnaire used in this study regarding knowledge and practice was found to be 0.89 for the pre-test and 0.91 for the post-test.

Data analysis

The study data were processed using the SPSS (Statistical Package for Social Sciences) 25.0 program. Data assessment was conducted using percentages, the Mann-Whitney U test, Kruskal-Wallis, One-Way Analysis of Variance, Correlation Analysis, the t-test, and the Kolmogorov-Smirnov test to determine whether or not data followed a normal distribution. Results were considered significant at $p<0.05$ and the confidence interval was set at 95%.

Ethical Considerations

Authorization was obtained from the dean of the related faculty and consent of volunteers was obtained from the participants. Ethical approval was given by the Ethics Committee of the Scientific Research Faculty of Medicine (No.24237859-569).

RESULTS

The mean age of the students participating in the study was 19.93±0.9 (min:18, max:23), of which 84.3% were women. It was determined that 5.2% of the students had breast cancer in their close relatives, mostly in the mother (2.2%) and aunt (2.2%). Students stated that they obtained the source of information about breast cancer from the television program 19.4% and the internet 10.4%. There was no significant difference between the two groups in terms of age, gender, relatives of breast cancer, knowledge of breast cancer, and screening methods (Table 1).

Table 1. Characteristics of participants, N=134

	Digital storytelling education (66)		Web-based education (68)		Analysis
	N	%	N	%	p
Age					
18-19	27	40.9	18	26.5	
20	24	36.4	39	57.4	0.52**
21-23	15	22.7	11	16.1	
Sex					
Women	54	81.8	59	86.8	0.20*
Men	12	18.2	4	13.2	
Breast Cancer					
Relatives	63	95.5	59	86.8	0.51*
No relatives	3	4.5	4	13.2	
Breast Cancer knowledge					
Yes	23	34.8	19	27.9	0.52*
No	43	65.2	49	72.1	
Breast Cancer awareness					
BSE	20	30.3	16	23.5	
CSE Mammography	3	4.5	3	4.4	0.14**
	-	-	-	-	

*Chi-square ** Kruskal-Wallis

After both education methods, it was seen that each breast screening method had a positive effect on education (Table 2). It was observed that there was a significant change in both the first and last test parameters in both of the training types at an advanced level ($p<0.0001$).

The two training methods made a significant difference between the first and last measurements (Table 3). Both methods did not make any difference in the first measurement, and there was a significant difference between them in the last measurement (p <0.05). Internet-based education creates a higher level of knowledge than digital story videos. As educational material, it was found that the internet-based material was rated 9.39±0.67, and the digital story video was rated 9.12±0.77. While the type of education had a 48.5% impact on the BSE application, internet-based education was found to be 73.5% effective. As a result of the regression analysis, it was found that the internet-based education model of the latest knowledge levels was a significant variable (p=.02) and the determination rate was 28% (R2=0.28).

Table 2. Correlation between among two groups' breast cancer early diagnosis methods

	Digital storytelling education				Web-based education			
	FM-sym	FM-BSE	FM-CBE	FM-mam	FM-sym	FM-BSE	FM-CBE	FM-mam
BM-sym	0.261 0.03				0.94 0.009			
BM-BSE		0.32 0.008				0.63 0.03		
BM-CSE			1.000 <0.0001				1.000 <0.0001	
BM-mam				0.38 0.002				0.98 0.003

BM: Baseline measure Sym: Symptom BSE: Breast Self Examination FM: Follow-up measure Mam: Mammography CSE: Clinical Examination

Table 3. Between among two groups' baseline and follow-up measures

	Digital storytelling education		Web-based education		
	Average	(min-max)	Average	(min-max)	p*
Baseline	8.53(SD±3.51)	(3-16)	8.53(SD±3.95)	(1-18)	0.58
Follow-up	16.08(SD±4.31)	(2-20)	14.34(SD±4.52)	(7-20)	0.007
Z	-7.06		-7.17		
p**	<0.0001		<0.0001		

*:Wilcoxon test, **: Mann Whitney-U test

DISCUSSION

Higher education institutions still strive to implement technological learning tools, and too much focus will be put on the technological materials rather than face-to-face interaction (15). It is inevitable to include technological equipment in education these days when active learning methods are emphasized in the education of nursing students (16). With this research, the effect of internet-based education and digital story videos on learning breast cancer early diagnosis methods were compared. This study was carried out as an original study by comparing technological products and evaluating their effects on education.

In the current study, with both training methods, the desired increase in knowledge level regarding breast cancer early diagnosis knowledge was determined. In a different drama-based training study, it was determined that after the training, women made a significant difference in their level of knowledge about breast cancer early diagnosis methods (17). In the other study, the digital story would be the right research to facilitate understanding of complex nursing education by student nurses (18). In another study, nursing education can be increased with internet-based education is effective, but the need for continuous education (19). It is seen that there is a need for a study that determines which method is more educational for nursing education.

In the present study, the students receiving internet-based education got a significantly higher score for breast cancer knowledge scores than those not receiving this education (Table 3). Although there is no study on nursing education where web-based education is compared with digital story videos, there is evidence that web education is used and gives positive results. In an experimental study in Taiwan, undergraduate nursing students getting web-based education has been significantly higher scores for knowledge scores and skills about intramuscular injections (20). In the other study, the nursing students offered web-based education got a significantly higher score for theoretical information than those not offered this education (21).

In this study, when nursing students are asked to evaluate the training materials they use, it is seen that they give more points to internet-based education. The type of education model appeals to students with more points than digital storytelling. This is because students are more likely to visit the site on their smartphones and visit the site for more education in their daily lives. It is known all over the world that the daily video surveillance times increase (22). However, the preference of the video as an educational material may be another topic to be investigated.

When internet-based education and digital story video were compared, it was seen that both of them produced significant changes in educational material. The training material to be used in nursing education may be suitable for both methods. however, it was observed that internet-based education between the two methods produced better results at the level of knowledge compared to the digital story. This suggests that internet-based education should be preferred when it is desired to create training material related to the level of knowledge. The use of technological products in the education of nursing students creates effective results. The use of such products is recommended, especially in the education of social issues such as cancer awareness.

Limitations

Several limitations of this study must be acknowledged. This research measured the level of knowledge eight weeks after the intervention with educational material. it does not include results about the next level of knowledge.

it also does not have information about how much it uses training material. Therefore, repeated use may have caused an increase in the level of knowledge. It is recommended to check the time spent on the site from the web site admin panel in the studies to be planned. In addition, the digital story users' repeated video views should be recorded.

CONCLUSION

The theoretical knowledge among nursing students modifies throughout the nurse education process. It is not yet clear which transfer of information how the material used in nursing education, should be supported by technological products. The research compared internet-based education and digital story education. However, there is still a need for a comparison of different technological products. Therefore, these research results are a reference for future research in other countries. In addition, the preparation of the content of the materials used in nursing education and the involvement of a health educator in the presentation of the technological product is important both in the transfer of the subject and in the preparation of the material in the preparation of effective training material.

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