

Effect of Computer-Aided Education for the Prevention of Drug Misuse and Abuse

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Abstract

An attempt of this paper is to determine the effect of computer-aided education for the prevention of drug misuse and abuse. The subjects consisted of 302 patients in a general hospital located in urban area from September 1, 2011 to December 31, 2011. The pairwise t-test was done to compare the drug misuse and abuse before and after computer-aided education. The present research showed that drug misuse and abuse decreased to 54.9-67.1% by the computer-aided education. This paper resulted in significant positive effects in quality of life of patients with drug misuse and abuse and its implications could be used as the basic data for developing further systematic materials on computer-aided education.

Keywords: *Computer-aided education, Effect, Drug misuse, Drug abuse, Prevention*

1. Introduction

Drug misuse and abuse have been increasing constantly in Korea. Drinking, smoking and using the anti-hypnotics drug rapidly increase until now [1]. Adolescence specially has the weak point about drug abuse. Recently, drug dependency rate among Korean was 46.8%. 63.3% of them had the experience of drug misuse [1, 2]. This is the serious problem. Drug misuse and abuse not only make the psycho-physiological decrease but also self-work and ego development problem [3, 4, 5]. Moreover, danger of suicide occurs too. Prevention of drug misuse and abuse is more important than treatment of it. Therefore, drug misuse and abuse need social concern and total countermeasure to prevent it. In the case of foreign advanced program, both the parents and their children become the subjects of the programs, and these programs offer not only the various contents of parents training to the parents but also home study to both of them [6, 7, 8]. On the contrary we don't have any national program at all. In order to solve the urgent program, we should look for the practical plans. We should construct the environments to eradicate the drug misuse and abuse, that is revitalizing the prevention education and practicing it. There were few studies to deal with the effect of computer-aided education to improve the quality of life in patients with drug misuse and abuse until present in Korea.

To overcome this situation, this paper performed effective health education based on medicine information system for management and prevention of drug misuse and abuse. This paper is designed to develop the short-term health education program and ultimately to analyze the educational effect through its application. That is, this paper is to develop prototype of medicine information system based on education for management and prevention of drug misuse and abuse.

Therefore, the purpose of this paper is to identify the effect of computer-aided education for the prevention of drug misuse and abuse, and to examine their satisfaction for the education. This will prepare a foundational material to reveal the impacts of systematic computer-aided education on the patients related to their quality of life and drug misuse and abuse behavior.

2. Materials and Methods

2.1 Materials

This survey was conducted with 302 patients who have visited neuropsychiatry of a general hospital which was located in urban area from September 1, 2011 to December 31, 2011. Contents of computer-aided education for patients with drug misuse and abuse were performed using video, CD-ROM, teaching, case study, discussion, and others for eight hours during four months by researchers [Figure 1]. On the other hand, time assigned for computer-aided education was the motivation of drug misuse and abuse, improving quality of life, reducing costs from drug misuse and abuse, practice in the prevention of misuse or abuse of medical service, evaluation of impact damage by using drug misuse and abuse and others [Figure 2].

And then the education effect was estimated by the reduction in drug misuse and abuse after computer-aided education and compared with education effect for before and after education. In this work, the reduced value in drug misuse and abuse rate after computer-aided education was plotted as a function of time elapsed after education by genders : 30, 60 and 120 days. After computer-aided education, the researcher implemented the evaluation about education to each participant.

2.2 Methods

Basic information of study subjects was measured by percentage and number. The pairwise t-test was done to compare the drug misuse and abuse before and after computer-based education. And then average and standard deviate were obtained. The chi-square test was used for the examination of differences in the satisfaction of patients after computer-aided education between two genders.

The validity of the scale was tested by experts according to the content validity index calculated. The items were grouped into 3 categories: 6 items about basic information of study subjects, 7 items about information of drug use according to kinds of drugs, 4 items by gender 4 items about evaluation of the satisfaction after computer-aided education by gender. The significance level was 0.05 and this data was analyzed with statistical package the SAS software.

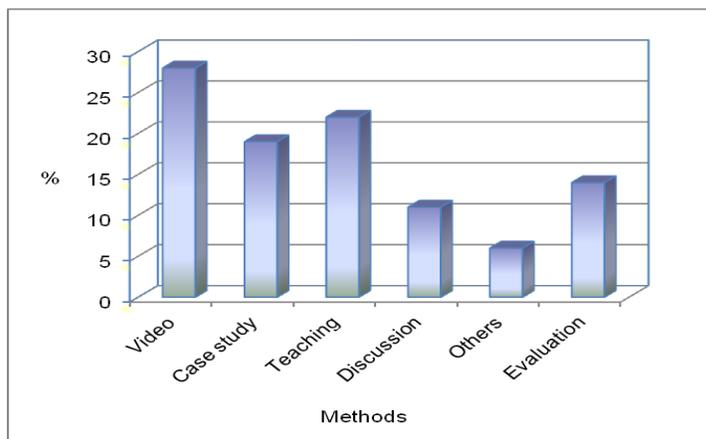


Figure 1. Contents of Computer-Aided Education

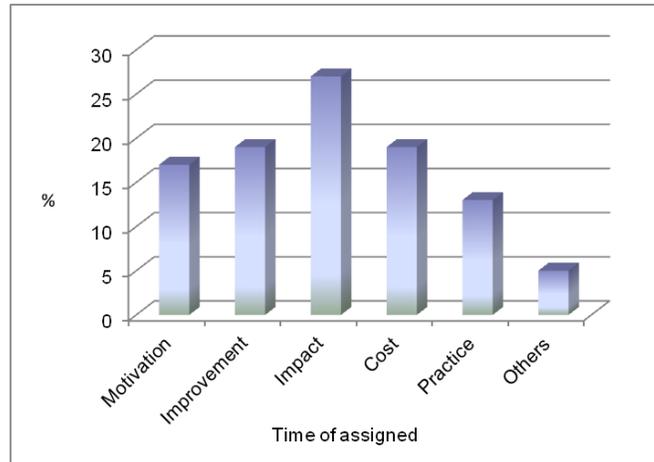


Figure 2. Time Assigned for Computer-Aided Education

3. Results

3.1 Basic Information of Study Subjects

Table 1 presents basic information of study subjects. 51.0% of male was higher than 49.0% of female according to genders. In marital status, it was higher in married subjects (69.5%) than in unmarried subjects (30.5%). In the examination of religion, the groups that don't have a religion (40.1%) were the highest score, and then Christianity (24.5%), and Buddhism (15.9%), in order. From the investigation for information of drug use, subjects who purchased drugs after contact mass-media were the most with 75.2%, and then information from friend or relatives was 13.6% , in order.

Table 1. General Characteristics of Study Subjects

Variables	N(%)	Variables	N(%)		
Gender	Male	154(51.0)	Buddism	48(15.9)	
	Female	148(49.0)	Catholic	43(14.2)	
Age	≤29	31(10.3)	Others	16(5.3)	
	30-39	52(17.2)	Drug information	Mass-media	227(75.2)
	40-49	86(28.5)		Book	6(2.0)
	50-59	94(31.1)		Friend/relatives	41(13.6)
	≥60	39(12.9)		Others	28(9.3)
Marital status	Unmarried	92(30.5)		Education	Under middle
	Married	210(69.5)	High school		145(48.0)
Religion	Non-religion	121(40.1)	Over college		98(32.5)
	Christianity	74(24.5)			
Total	302(100.0)	Total	302(100.0)		

3.2 Information of Drug Use According to Kinds of Drugs

Table 2 presents information of drug use according to kinds of drugs. 68.5% of the subjects was current cigarette smokers. 87.4% of the subjects had taken inhaler such as glue or gas sniffers. 82.7% of the respondents used hallucinogenic drugs. Motives of drug misuse and abuse were the highest with 33.0% in curiosity, and then 28.4% in troubles, 22.3% in stress relax, respectively.

Table 2. Information of Drug Use According to Kinds of Drugs

Variables		N(%)	Variables		N(%)
Cigarette smoking	Smoking	207(68.5)	Hallucinogen	Yes	280(92.7)
	Non-smoking	95(31.5)		No	22(7.3)
Alcohol drinking	Yes	229(75.8)	Hypnotic	Yes	293(97.0)
	No	73(24.2)		No	9(3.0)
Motives of smoking	Urging by Friends	62(30.0)	Motives of drug abuse	Urging by friends	24(9.1)
	Troubles	7(3.4)		Troubles	75(28.4)
	Stress relax	34(16.4)		Stress relax	59(22.3)
	Curiosity	89(43.0)		Curiosity	87(33.0)
	Others	15(7.2)		Others	19(7.2)
Inhaler	Yes	264(87.4)			
	No	38(12.6)			
Total		302(100.0)	Total		302(100.0)

3.3 Comparison of the Drug Use Before and After Computer-Aided Education

Table 3 was compared the drug use before and after computer-aided education. The results verified the significance of health education on the subjects' inhaler shown after education as compared before education ($t=-27.94$, $p=.004$). The attitudes of the subjects who used drugs changed markedly more after computer-aided education.

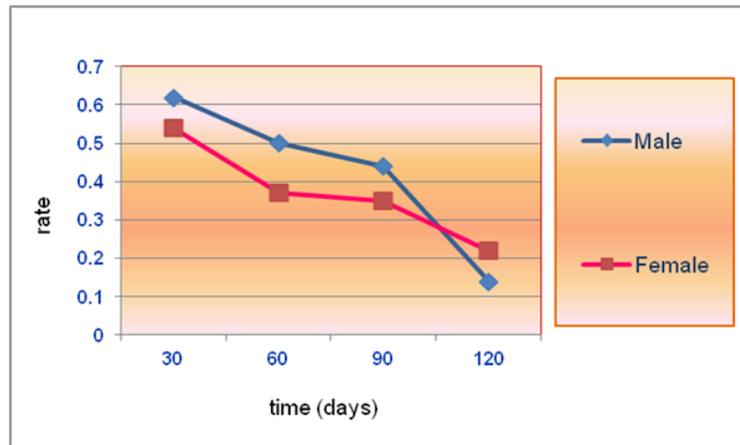
Table 3. Comparison of the Drug Use Before and After Computer-Aided Education

Items	Before education	After education	t	p
	Mean±S.D.	Mean±S.D.		
Inhaler	1.34±1.27	2.79±0.63	-27.94	.004
Hallucinogen	0.98±0.94	2.51±0.64	-21.57	.008
Hypnotic	0.71±0.91	2.68±0.59	-30.82	.006
Cigarette smoking	1.50±0.95	2.74±0.52	-19.66	.005
Alcohol drinking	1.69±0.87	2.82±0.49	-18.75	.008

3.4 Durability of Education Effect After Computer-Aided Education

Figure 3 was done to compare the durability of education effect as a function of time elapsed after computer-aided education in two gender. It was investigated that the education effect was higher in male than in female after the lapse of 30 days since the computer-aided

education. However, the education effect was lower in male than in female after the lapse of 90 days since the education.



*Slope= $\frac{\Delta Y}{\Delta X}$ Where ΔX : time interval
 ΔY : variation of reduction of drug misuse and abuse.
 *Ratio= $\frac{\Delta Ya}{\Delta Yb}$ Where ΔYb : drug use before computer-aided education
 ΔYa : drug use after computer-aided education

Figure 3. Durability of Education Effect After Computer-Aided Education

3.5 Comparison of the Drug Use According to Kinds of Drugs by Genders

Table 4 was done to compare the drug use according to kinds of drugs by genders. The result comparing the mean scores for female with 2.27 point was higher than male with 1.87 point in hypnotic and revealed the significant difference ($t=-2.71$, $p=.03$). However, male (1.49 ± 1.35) is more to take a drug than female (1.43 ± 1.35) in Hallucinogen.

Table 4. Comparison of Drug Use According to Kinds of Drug by Genders

Variables	l	Male	Female	t	P
		Mean±S.D.	Mean±S.D.		
Inhaler	1	1.62±1.19	1.95±1.07	0.06	0.08
Hallucinogen		1.49±1.35	1.43±1.16	0.09	0.10
Hypnotic		1.87±1.64	2.27±1.09	-2.71	0.03
Cigarette		1.29±1.17	1.45±0.96	-1.54	0.07

3.6 Evaluation of the Satisfaction After Education by Genders

Table 5 presents the evaluation of the satisfaction after computer-based education by genders. Understanding of education contents showed the highest scores with 46.1% of male and 58.1% of female, in terms of very high. On the other hand, methods to improve quality of life revealed the highest with 42.9% of male, in terms of appropriate education for each patient and 53.4% of female showed the most, in terms of emphasis on health importance. There was significant difference between two genders ($\chi^2=9.38$, $p<.05$).

Table 5. Evaluation of the Satisfaction After Education by Genders

Variables	Male	Female	Total	X ²
	Mean±S.D.	Mean±S.D.		
Understanding of education contents				
Very high	71(46.1)	86(58.1)	157(52.0)	10.28
High	48(31.2)	39(26.4)	87(28.8)	
Fair	25(16.2)	17(11.5)	42(13.9)	
Low	7(4.5)	4(2.7)	11(3.6)	
Very low	3(1.9)	2(1.4)	5(1.7)	
Appropriateness of teaching method				
Very high	58(37.7)	64(43.2)	122(40.4)	7.62
High	60(39.0)	47(31.8)	107(35.4)	
Fair	25(16.2)	21(14.2)	46(15.2)	
Low	7(4.5)	9(6.1)	16(5.3)	
Very low	4(2.6)	7(4.7)	11(3.6)	
Time assigned for education				
Very sufficient	59(38.3)	48(32.4)	107(35.4)	12.45
Sufficient	37(24.0)	64(43.2)	101(33.4)	
Fair	42(27.3)	29(19.6)	71(23.5)	
Insufficient	11(7.1)	6(4.1)	17(5.6)	
Very insufficient	5(3.2)	1(0.7)	6(2.0)	
Methods to improve quality of life				
Emphasis on health importance	49(31.9)	79(53.4)	128(42.4)	9.38*
Appropriate education for patient	66(42.9)	35(23.6)	101(33.4)	
Adoption of evaluation system	18(11.7)	20(13.5)	38(12.6)	
Understanding of patients	21(13.6)	14(9.5)	35(11.6)	
Total	154(100.0)	148(100.0)	302(100.0)	

* p<.05

4. Discussion

This experimental research has been conducted to find out the actual status of drug misuse and abuse by the patients, and then to draw up plans for preventive and recuperation from the addicted condition to improve quality of life. In addition, this paper was to evaluate the effect of education for the patients on drug misuse and abuse.

The result of this paper, motive of drug misuse and abuse was the highest in curiosity. Computer-aided education for the subjects who are taking a steroid inhaler showed higher score than the subjects who are not taking a steroid inhaler after education compared with before education. Therefore, this showed that it needs to perform systematic health education. That is, there is a need for a separate program to be implemented on the groups who characterize having lower levels of health knowledge and health promotion behavior. The present research was estimated that the education effect was higher in male than female after the lapse of 30 days since the education. Thus, year-based education should be performed

more often male than female. The present research showed that drug misuse and abuse can be reduced to 54.9-67.1% by the education, which is similar to data reported in the previous studies [9, 10]. However, it should be noted that the education effect does not maintain for so long. According, in order to maintain the education effect well, it is very important to determine adequate education period and perform various programs in consideration of patient circumstances. The present work elucidated throughout the statistical analysis how effectively the synthetic and systematic education contributes to improve quality of life. The future work should focus on the study of the education contributes to improve quality of life. The future work should focus on the study of the education effect as a classification of patient throughout more prolonged research based on a larger data base.

Appropriateness of teaching method showed the highest with 39.0% of male, in terms of high and 43.2% of female revealed the most, in terms of very high. This is similar with previous studies on the clinical education [11, 12]. Concerning the educational methods, most of the domestic programs imposed the knowledge on the drugs of adolescents through the lecture or through watching videos so far. In order to get out such a stagnant reality, however, this paper was performed the advanced methods which consist of computer-aided education, discussion, and evaluation.

In the domestic programs, the evaluation of the result depends mainly on the testimonies that the adolescents stated on the provided program. Such testimonies are limited in the consideration of the efficiency of an objective evaluation. In the case of foreign programs, they mainly pay attention to measure the dangerous behavior and the changes after using drugs [13]. The adolescents express directly in the provide programs. However, this paper presented the satisfaction of 82.2% in evaluation after patients' computer-aided education, the result of this would be the reduction of the drug abuses and the dangerous behavior. For this aim, it measured accurately their degrees. The objective measurement on the changes of the behaviors of the patients would be more valuable than more abstract testimonies that are only responses to the questions provided by the programs. Therefore, this paper was proposed important data such as computer-aided education, evaluation, control on drug misuse and abuse, the necessity of exclusive institution and tasks for efficient prevention.

This paper may be used for the planning report for drug pharmacovigilance center in the future. Based on these results, this paper proposes social skill training program and short-term concentration improvement program for patients with drug misuse and abuse problems. Thus, this paper revealed that the implemented systematic education showed significant positive effects on the life of patients and health behavior.

5. Conclusion

This paper was aimed to evaluate the effects of computer-aided education for the prevention of drug misuse and abuse. As a result of this study, we could see that the education for patients with drug misuse and information on drug treatment are very important. In addition, we could also find some items that show difference in priority order regarding education importance and offered education. Therefore, it is strongly suggested that standardized and specialized education program and education exclusive responsibility information system are necessary for more effective patients education based on their education importance.

This paper identified positive effects of education for patients with drug misuse and abuse. The computer-aided education can be used as an effective method to improve medication knowledge and to reduce drug misuse and abuse. This paper, therefore, resulted in significant improvement in the quality of life of patients with drug misuse and abuse and its implications

could be used as the basic data for developing further systematic materials on computer-aided education in patients.

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