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The Effect of Interactive Multimedia Education on Knowledge and Attitude of High School Teachers About Prevention of Health-Risk Behaviors

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Abstract

Background: Health risk behaviors among teenagers are common and schools considered as an ideal place for conducting preventions programs.
Objectives: The current study aimed at determining the effect of interactive multimedia on knowledge and attitudes of high school teachers regarding prevention of students' health-risk behaviors.
Patients and Methods: A total of 150 high school teachers were randomly assigned to intervention and control groups. Data were collected using a written test on knowledge and a rating scale for attitude towards health-risk behaviors. The educational contents were presented as booklets and multimedia CD-ROMs to the control and intervention groups, respectively. Pretest and posttest were administered before and four weeks after the intervention, respectively.
Results: There was no significant difference between the intervention and control groups regarding the pre- and post-test knowledge and attitude mean scores. However, posttest mean scores of knowledge and attitude showed a significant increase in the two groups.
Conclusions: Interactive multimedia, similar to booklets, could enhance teachers' knowledge and improve their attitudes toward the prevention of health-risk behaviors.

Keywords: Knowledge, Attitude, Health-Risk Behaviors, Pamphlets, Multimedia Education, Teachers

1. Background

The prevalence of health-risk behaviors among teenagers and young people is globally growing at an alarming rate (1).

Schools could be considered as an ideal place to teach knowledge and skills required to prevent health-risk behaviors since children and adolescents spend almost half of their day at schools (2). The results of a study indicated that training teachers on students' health-risk behaviors could favorably change their knowledge, attitude, and practices (3).

Considering teachers' busy schedules and principles of adult learning, self-learning methods can be recommended. Electronic learning, including web-based learning and multimedia CD-ROMs, is commonly used. The results of a study revealed that using CD-ROM resource improved teachers' knowledge, and also increased their satisfaction and comfort (4).

In addition to adequate knowledge, attitude has a decisive effect on individuals' knowledge and performance (5). So far, only a few studies addressed the effects of teacher training on prevention of high-risk behaviors through e-learning methods (6, 7).

2. Objectives

The current study aimed at assessing the effects of using multimedia CD-ROMs on knowledge and attitudes of high school teachers regarding prevention of such behaviors.

3. Patients and Methods

The current quasi-experimental study was conducted in Eghlid, Fars province, Southwest Iran. Based on the protocol of a similar study (7), the sample size was set to 150 participants; 11 participants were excluded and finally 139 participants were eligible for analysis (69 in the intervention and 70 in the control groups).

The study data were collected using a demographic questionnaire, a rating scale for attitude, and a written test on knowledge about such health-risk behaviors. The attitude scale assessed the teachers' attitudes towards students' high-risk behaviors and the effects of education on prevention of such behaviors.

Content validity of the knowledge test was assessed by an expert panel consisting of five university professors. The reliability of the scale was also evaluated using test-retest method with a two-week interval (r = 0.86).

The validity of the attitude rating scale was determined using Content Validity Index (CVI) by Waltz and Bausell (8). Relevance, simplicity, and clarity of each item were assessed on a four-option Likert scale by five nursing and education specialists. After calculation of CVI, items with CVI < 0.70 were omitted (8). Face validity was confirmed by five experts and five teachers. Its reliability was evaluated by test-retest method (r = 0.79) and Cronbach's alpha coefficient of 0.87.

The attitude scale was scored on a four-option Likert scale ranging 1 (strongly disagree) to 4 (strongly agree), and its total score ranged 21 to 48.

The educational contents presented to both groups included some information about high-risk behaviors among adolescents and the methods of preventing, detecting, and dealing with such behaviors. The contents were verified by 10 faculty members of health education and nursing departments of Shiraz University of Medical Sciences (SUMS). The content of multimedia CD-ROM was presented in three sections with two or three questions at the end. If the users selected the correct answer, they could see the next section.

After the pre-test, the educational contents were presented as booklets and multimedia CD-ROMs to the control and intervention groups, respectively. Posttest was taken by both groups simultaneously four weeks after execution of the educational program.

The current study protocol was approved by the ethics committee of SUMS (No. CT-9371-7361).

4. Results

The mean ± SD scores of knowledge and attitude in the pre-test showed no significant difference between the intervention and control groups. However, the results of paired samples *t* test showed a significant increase in the two groups' mean ± SD scores of knowledge in the post-test (P = 0.001). Nevertheless, the results of independent *t* test demonstrated no significant difference between the two groups regarding the post-test knowledge scores (Table 1).

Also, the results of paired samples *t* test showed a significant increase in the two groups regarding the mean ± SD scores in the attitude post-test (P = 0.001). Nevertheless, the results of independent *t* test showed no significant difference between the two groups regarding the post-test attitude scores (Table 1).

5. Discussion

The current study findings indicated that teacher education, through either booklets or interactive multimedia, could improve their level of knowledge and attitudes regarding high-risk behaviors and the prevention methods. Employment of multimedia can be as effective as booklets, which is the most common delivery method of continuing education. Some studies approved these findings (9-11). However, some studies showed that e-learning could improve knowledge to a higher extent in comparison with booklet education (12, 13).

E-learning could help learners overcome the limitations of space and time. On the other hand, educational booklet is a cost-effective and easily available educational tool. Nevertheless, the reader may face difficulties in understanding some concepts (14).

Acquisition of knowledge through educating and informing individuals about the benefits and risks of a behavior can change their beliefs, feelings, and attitudes towards that behavior. In fact, knowledge results in maintenance of attitude (15).

These features could be applied in teachers' continuing education and in-service training on health-risk behaviors as their knowledge about such behaviors. Such issues are more tangible in countries such as Iran, where the youth and adolescents constitute a significant portion of the population (16).

5.1. Conclusion

Developing the educational programs on prevention of health-risk behaviors could enhance the teachers' knowledge and improve their attitudes towards such issues, which could be effective in prevention and early detection of students' high-risk behaviors.

Table 1. Comparison of the Scores of Knowledge and Attitude Between the Two Groups[a]

Group	Pretest	Posttest	Mean Difference	P Value[b]
		Knowledge		
Control	29.16 ± 4.172	35.81 ± 4.528	6.66 ± 6	0.0001
Intervention	28.94 ± 3.661	34.94 ± 4.494	6.252 ± 5.198	0.0001
P value[c]	0.665	0.381	0.869	-
		Attitude		
Control	62.54 ± 7.119	69.64 ± 5.019	7.100 ± 8.117	0.0001
Intervention	62.29 ± 5.563	69.71 ± 4.929	7.420 ± 8.467	0.0001
P value[c]	0.790	0.973	0.822	-

[a]Values are expressed as mean ± SD.
[b]Paired *t* test.
[c]Independent *t* test.

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Footnote

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References

1. Jeon KC, Goodson P. US adolescents' friendship networks and health risk behaviors: a systematic review of studies using social network analysis and Add Health data. *PeerJ*. 2015;**3**. e1052. doi: 10.7717/peerj.1052. [PubMed: 26157622]. [PubMed Central: PMC4493707].
2. Tabatabai M, Atash Nafas E. Evaluation of risk factors and preventive social damage in adolescents. *Q Growth Consult Train*. 2011;**6**(4):8–16.
3. Kaushal P, Singh T, Padda AS, Deepti SS, Bansal P, Satija M, et al. Impact of Health Education on The Knowledge, Attitude and Practices of Teachers Regarding Reproductive Health of Adolescents of Amritsar, Punjab. *J Clin Diagn Res*. 2015;**9**(5):LC18–21. doi: 10.7860/JCDR/2015/13583.5985. [PubMed: 26155502]. [PubMed Central: PMC4484094].
4. Goncalves Tdos S, Crenitte PA. Development of a CD-ROM on written language for the continuing education of elementary school teachers. *J Appl Oral Sci*. 2011;**19**(6):560–6. doi: 10.1590/S1678-77572011000600004. [PubMed: 22230988]. [PubMed Central: PMC3973455].
5. Cheng SH, Sun ZJ, Lee IH, Shih CC, Chen KC, Lin SH, et al. Perception of premenstrual syndrome and attitude of evaluations of work performance among incoming university female students. *Biomed J*. 2015;**38**(2):167–72. doi: 10.4103/2319-4170.138319. [PubMed: 25179727].
6. Gorman-Smith D. Effects of teacher training and consultation on teacher behavior toward students at high risk for aggression. *Behav Ther*. 2003;**34**(4):437–52. doi: 10.1016/s0005-7894(03)80029-1.
7. Malekshahi F, Momennasab M. [The effect of education on the prevention of risk behaviors, knowledge and attitudes of elementary school health educators Khorramabad]. *J Lorestan Univ Med Sci*. 2007;**9**(1):47–54. Persian.
8. Waltz C, Bausell B. *Nursing research: design statistics and computer analysis*. Philadelphia: Davis co; 1981.
9. Zarshenas L, Keshavarz T, Momennasab M, Zarifsanaiey N. Interactive Multimedia Training in Osteoporosis Prevention of Female High School Students: An Interventional Study. *Acta Med Iran*. 2017;**55**(8):514–20. [PubMed: 29034648].
10. Orhan E. The effects of multimedia learning material on students' academic achievement and attitudes towards science courses. *J Baltic Sci Educ*. 2014;**13**(5):608–21.
11. Kennedy MJ, Hirsch SE, Rodgers WJ, Bruce A, Lloyd JW. Supporting high school teachers' implementation of evidence-based classroom management practices. *Teach Teach Educ*. 2017;**63**:47–57. doi: 10.1016/j.tate.2016.12.009.
12. Mohamadirizi S, Fahami F, Bahadoran P. Comparison of the effect of multimedia and illustrated booklet educational methods on women's knowledge of prenatal care. *Iran J Nurs Midwifery Res*. 2014;**19**(2):127–31. [PubMed: 24834080]. [PubMed Central: PMC4020020].
13. Cornoiu A, Beischer AD, Donnan L, Graves S, de Steiger R. Multimedia patient education to assist the informed consent process for knee arthroscopy. *ANZ J Surg*. 2011;**81**(3):176–80. doi: 10.1111/j.1445-2197.2010.05487.x. [PubMed: 21342392].
14. Noorian C, Aein F. Comparative investigation of the effectiveness of face-to-face verbal training and educational pamphlets on readiness of patients before undergoing non-emergency surgeries. *J Educ Health Promot*. 2015;**4**:45. doi: 10.4103/2277-9531.157231. [PubMed: 26097859]. [PubMed Central: PMC4456875].
15. Petty RE, Krosnick JA. *Attitude strength: Antecedents and consequences*. New York: Psychology Press; 2014.
16. Jamalimoghadam N, Yektatalab S, Momennasab M, Ebadi A, Zare N. Hospitalized adolescents' perception of dignity: A qualitative study. *Nurs Ethics*. 2017:9.6973301772083E+14. doi: 10.1177/0969733017720828. [PubMed: 28805113].