International Journal of Advanced Biotechnology and Research (IJBR)
ISSN 0976-2612, Online ISSN 2278–599X,
Vol-8, Issue-4, 2017, pp380-389
http://www.bipublication.com

**Research Article**

# A Study on the Effect of Education Based on the Health Belief Model on Male Smoking Students in Reducing Cigarette Smoking in Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

**Masoud Lotfi[1], Kobra Dostifar[2],**

**Mohsen Dashtban[3] and Hamid Kassiri[3]***

[1]Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
Abdanan Health Center, Ilam University of Medical Sciences, Ilam, Iran.
[2]Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
Department of Health, Shooshtar School of Medical Sciences,
Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
[3]Department of Medical Entomology, School of Health,
Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
Corresponding author E-mail: Hamid.kassiri@yahoo.com

## ABSTRACT

Deaths caused by tobacco use are alone higher than deaths resulting from abuse of the rest drugs, AIDS, suicide, murder and traffic accidents. One of the models can be used on an individual level to change behavior and in fact one of the most popular theories and patterns of health education and health promotion is the health belief model. According to the history of this model and its usability in issues, it was decided that this study be done aimed to assess the effect of education based on the health belief model in reducing smoking in Ahvaz Jundishapur University of Medical Sciences male smoking students in the dormitories . This semi-experimental study was conducted on 55 male smoking students from Ahvaz Jundishapur University of Medical Sciences. The data collection tool was a questionnaire, including demographic questions and questions based on the health belief model structures. Its validity and reliability was determined by the content validity and of the re-test and on the basis of it the pre-test was performed. Educational intervention was done through a speech along with the pamphlet. A month after the intervention, the post-test was performed using the same questionnaire. Data obtained were analyzed using SPSS version 18 by the t-test and ANOVA. A significance level of $P<0.05$ was considered. The results indicated that 56.4% of the samples studied have a history of smoking at ages 16-25. The average score for the components of the health belief model, including the perceived intensity ($P<0.0001$), perceived benefits ($P= 0.02$), the perceived barriers ($P< 0.0001$) and guide to action (($P<0.043$) after the educational intervention significantly increased than before, but the average score of the perceived sensitivity did not show significant differences ($P= 0.37$). The results of this study suggest the impact of educational intervention based on health belief model structures male smoking students in Ahvaz Jundishapur University of Medical Sciences.

**Keywords:** Cigarette Smoking, Health Education, Medical Students, Males, Iran

## INTRODUCTION

Mortality caused by tobacco use alone is more than of all deaths caused by the misuse of the drug, AIDS, suicide, killing others and accidents (1).

Recently, the World Health Organization divided the cigarette among addictive drugs and addicts to cigarette among psychiatric patients (2). Nicotine is a stimulant drug that is found in tobacco products like cigarette. Nicotine stimulates the**nervous** system and is addictive (3). The rate of morbidity and death is directly related to the amount of cigarette smoking and deep inhalation of cigarette smoke, nicotine content found in cigarette and the duration of cigarette smoking (4).

Many studies in the world have shown that the prevalence of cigarette smoking in both sexes is increasing especially among young people, means age of cigarette smoking is decreasing (5-8).

Currently, there are about a billion smokers in the world that has been estimated that by 2030 one other billion people of younger adults will start smoking the cigarette. 47% of men and 12 percent of women smoke in the world (9).

Smoking the cigarette is raised as one of the important danger factor and increasing the total burden of diseases in the world, especially in relation to chronic diseases and none communicable diseases such as cardio - vascular, respiratory diseases, cancer and stroke.

These diseases beside obesity and diabetes in total are responsible for 59% of the 57 million deaths and 46% of the total burden of diseases in the world by 2010 (10). Large epidemiological studies in the world also have shown that cigarette smoking is strongly associated with the occurrence of many non-communicable diseases (11).

Tobacco is the biggest cause of preventable death the world (12-13). In this regard, it has been estimated that smoking cigarette causes 4 million deaths per year in worldwide.

Estimation of The World Health Organization is that this number will be ten million mature people in 2030 because half of these cases of deaths occurs in middle-aged and generator people, can cause reduce 20 to 25 years of the age of people of 35-61 years old (14-15).

Obviously, community needs for education about addictive quality of tobacco that nurses of health community can act well in this regard (16).programs depends on the effectiveness rate of these programs and effectiveness of these programs as well as a lot depends on proper use of theories and models of health education; in other words, the existence of good theoretical ax along with the basic needs of health, will cause more effective of health education programs (17).

One of the useable patterns to change behavior at the individual level and in fact one of the most widely used theories and models of health education and health promotion is Health Belief Model (18-19). This model has 6 structures of perceived susceptibility, perceived severity, perceived benefits, perceived barriers, guidelines for action and self-efficacy (14).

Health belief model is used in relation to the prevention of substance abuse in high-risk groups for years in the world (21- 24). The effectiveness of this model has been reported so far on issues such as breast self-examination (25) and AIDS prevention (26).

In domestic studies has been investigated its effect on cases such as creating the behavior if breast self-examination in health communicators (27), foot care in patients with type 2 diabetes (28) and patients with unstable pectoral angina (29).

Also, in another research that was conducted by Sharifirad and et al on 248 people of first year high school students by using Health Belief Model in relation to the prevention of smoking cigarette at the city of Bukan, It was found that there has had a significant difference before and after the intervention in the performance of experimental group about preventing smoking cigarette (30).

Considering that so far has not been conducted a study to evaluate the effect of health belief model among people with university education in Iran and due to increase the Tobacco use in them, it was decided this study is conducted in order to investigate the effect of health belief model-

based education in reducing cigarette smoking among male students of University of Medical Sciences of Jundishapur in Ahvaz.

## MATERIALS AND METHODS

The present study is a quasi-experimental interventional study that has been conducted on male smoking students on the dormitory of the University of Medical Sciences, in Jundishapur of Ahvaz. Smokers were identified with the use of the initial questionnaire containing demographic specifications and history of Tobacco use and 55 of them had inclusion criteria.

The criteria for inclusion were (students of university who live in dormitory and a history of cigarette smoking). Exclusion criteria for samples included lack of desire to continue to participate in the study and also lack of participation in training sessions.

In this study smoker was applied for persons that have smoked a total of 100 yarns and more, regardless of their current consumption[25]. The tools of data collecting in this study were the questionnaire that was made by researcher and included 63 questions. The content validity was used to provide scientific validity of tools and for Survey was given at the disposal of eight experts in this field and their views were applied in the questionnaire that finally was confirmed after fixing its some validity problems. The reliability of the mentioned questionnaire was measured through Cronbach's alpha test method on 20 students of university who were similar in terms of demographic characteristics with studied population that the amount of Cronbach's alpha coefficient was calculated 0.80. Alpha coefficient for different structures (perceived susceptibility 0.81, perceived benefits 0.79, perceived barriers, 0.83 and guideline for action 0.85) were calculated.

The questionnaire has been set in two parts. The first part is related to demographic specifications (20 questions); the second part is related to components of the Health Belief Model including perceived susceptibility (8 questions), perceived severity (8 questions), perceived benefits (10 questions), perceived barriers (9 questions) and guideline of action (8 questions).

In the section related to the Health Belief Model structures was used a Likert scale. So that the score of components of health belief model was given based on I agree two points, no idea one score and I disagree zero point. Since these sections have been designed in the opposite direction to prevent inducing answers of some questions, so scoring these questions also was calculated reverse.

Training program was designed and developed after the collection and analysis of data of questionnaire based on the health belief model. Then this group was exposed to the educational intervention. The training program was performed by using methods of lecture with asking and answering during the three sessions and each session of 40 minutes and distribution of Pamphlet.

Educational used tools consisted of educational pamphlets and slides. After passing the appropriate time, means one month (17) after implementation the educational program, was again collected information by same questionnaire. Research morality was observed with taking satisfaction of the educational units and also keeps confidentiality the information of respondents. Scores of each one of model structures were categorized into 3 levels of weak (less than 50% of maximum score), medium (50 to 75% of maximum score) and good (more than 75% of score). Data analysis was performed by using the SPSS18 software and Chi-square tests, t-tests and one -way variance analysis were used based on the objectives. The significance level was considered at less than 5 percent.

## RESULTS

Based on levels of school, level of associate degree with (23.6%), level of B.S (72.7%), and levels of M.S and Ph.D degrees with

(3.7%) of surveyed population were studying. The results of research showed that 92.7% of smoker students were single, 5.5% were married and 1.6% of students were divorced.

According to the location of residency of families of students, 50.9 of the students lived in the city and 40% in rural areas. Education of father of studied samples was more (45.5%) in primary school and the least frequency (1.8%) of educational level of fathers of students was at the university level.

Education of mothers of most of the studied students (30.9%) was in elementary level and least frequency (3.6%) educational levels of mothers of students were at university level. 12.7% of students were working besides studying and the rest of the students had just studied. From the dimension of smoking history in the family of the studied population, 24% of their fathers, 14% brother, 1.8 %sister and 1.8% of the mother, 11.1% two persons of their family had smoking history and 47.3% of students had not been smoking history among their families. 74% of smoking students have said that they are roommates by smokers and the rest of them there are not smoker in their room. History of smoking in smokers shows 38.2% of the samples, have smoked their first cigarette under 15 year, 56.4% between the ages of 16-25 years old and 5.4 % over 25 years.

**Table 1:** Comparison between the mean and standard deviation of health belief model components before and after the educational intervention (by using T-test) in male smoking Students Ahvaz Jundishapur University of Medical Sciences

| P-Value | After intervention | Before intervention | Variable group |
|---|---|---|---|
| P=0.37 | 10.0± 2.8 | 9.76± 2.36 | Perceived sensitivity |
| P=0.0001 | 12.95± 3.1 | 10.36± 3.7 | Perceived severity |
| P=0.022 | 9.36± 1.7 | 8.29± 2.8 | Perceived benefits |
| P=0.0001 | 11.0±3.3 | 9.3±1.7 | Perceived barriers |
| P=0.043 | 4.36± 4.6 | 4.36±4.6 | Guide for action |

**Table 2:** Comparison between scores of health belief model components before and after the educational intervention (by using T-test test) in male smoking Students of Ahvaz Jundishapur University of Medical Sciences

| Variable group | Score | Before the intervention (%) | After the intervention (%) | P-Value |
|---|---|---|---|---|
| Perceived sensitivity | Weak | 0.0 | 0.0 | P=0.37 |
| | Average | 63.6 | 69.1 | |
| | Good | 36.4 | 30.9 | |
| Perceived severity | Weak | 11.0 | 1.8 | P=0.0001 |
| | Average | 54.5 | 30.9 | |
| | Good | 34.5 | 67.3 | |
| Perceived benefits | Weak | 5.4 | 0.0 | P=0.022 |
| | Average | 25.5 | 12.7 | |
| | Good | 69.1 | 87.3 | |
| Perceived barriers | Weak | 34.5 | 16.4 | P=0.0001 |
| | Average | 65.5 | 74.5 | |
| | Good | 0.0 | 9.1 | |
| Guide for action | Weak | 63.6 | 36.1 | P=0.043 |
| | Average | 25.5 | 13.6 | |
| | Good | 10.9 | 50.3 | |

The mean score of components of health belief model including perceived severity, perceived benefits, perceived barriers, and guideline to action had significant increase after educational intervention than before, but the mean score of perceived sensitivity found no significant difference (P= 0.37). Dimensional Analysis of health belief model showed separately.

**Perceived sensitivity**

The mean score of perceived sensitivity before introversion was 2.26± 9.76and after introversion 2.18±0.10 (Table 1). The highest percentage of achieved score of perceived sensitivity before and after the intervention was 63.3% and 69.1% at moderate level respectively , there was no significant differences between the score before and after the intervention by using the t test (P= 0.37) (Table 2).

**Perceived severity**

The results showed that the average of perceived severity before and after the intervention in the studied sample, was respectively 3.7±10.0and 3.1±12.95; this increase of score statistically was significant with t-test (p< 0.0001) (Table 1).

In terms of qualitative ranking, the highest frequency with a frequency of 54.5 in the average level before the intervention and post-intervention the highest frequency with 67.3 was located in the good group (Table 2).

**Perceived benefits**

The mean obtained score of perceived benefits increased before intervention 2.8±8.29and after intervention this score increased to 1.7±9.36.

This increase was not statistically significant with the t test (P= 0.022) (Table 1). Based on qualitative grouping the highest percentage obtained score before and after the intervention respectively 69.1% and 3.87% was at good level (Table 2).

**Perceived barriers**

The mean score of perceived barriers before and after was intervention 1.7±9.3 and 3.3±11.0 and this increase statistically was significant with t-test (p< 0.0001) (Table 1).

In terms of qualitative dividing the highest percentage of achieved score of perceived barriers, before and after the intervention respectively was 65.5% 74.5% at moderate level; before the intervention, none of them had good knowledge of the perceived barriers but after the intervention 9.1% of people had good knowledge and there was significant difference with t-test between the scores before and after the intervention (P< 0.0001) (Table 2).

Guide for action: the mean score of before the intervention increased to 4.6± 4.36 and after the intervention increased to 4.7±7.27. This difference was statistically significant with t test (p=043) (Table 1).

## DISCUSSION

The present study indicates that implementation of the health belief model-based education had been effective in improving the smoking preventive behaviors in studied individuals.

The results of the study of Rahimikian and et al and study of Karimi and et al also are corresponded with the results of this study and show the effectiveness of education based on health belief model in adoption expected behavior or performance (31- 33).

The results showed that there was no significant difference between the inserted score of sensitivity before and after training (P= 0.37). The study of Sharifirad and et al also shows that the mean score of factors of Health Belief Model after educational intervention has found than before the intervention significantly in whole factors with the exception of perceived sensitivity (30).

No difference is observed in mean score of perceived sensitivity in the study of Eschvar and Hanoynker (34); but in multiple studies, has been observed the increase of mean scores for perceived sensitivity in the stage after the intervention in the case group (34-37).

The results also show that in the structural part of the perceived severity, the mean score of studied group reached 12.95after the intervention that this amount showed statistically, statistical significant difference with score of the stage before the intervention (P< 0.0001).

This increase there is also in the studies Aljasem (38) and Cerkoney (39) that can be due to involving the patients in the classes of

care of the foot; So that the use of images of the diabetic foot to illustrate being the serious and complication nature of this complication and attention of the patients to lose health, creating disability and high treatment cost, important factors in order to improve the level of perceived severity is in this regard.

The perceived benefits increased after intervention of acquired score in case group and this increase was statistically significant (P= 0.022). Increasing the perceived benefits Can have an important role in the prevention of harmful health behavior.

Simsekoglu showed that increase the perceived benefits by people can be very important predictor in use of seat belt while driving in them (40).

The study of AmalQadri and colleagues based on the health belief model to the prevention of breast cancer with self-examination by nursing students in Alexandria, Egypt, was confirmed the increase in the score of perceived benefits in the experimental group after the educational intervention in significant form (41).

In the present study the mean score of perceived barriers has increased after the intervention in experimental group and there was a significant difference between the scores before and after perceived barriers in the case group (P< 0.0001).

In a study in America perceived barriers showed behavior of avoid environments containing tobacco smoke in non-smokers and the increase of presence in environments containing tobacco smoke among smokers (42).

So the perceived barriers are potential factors in preventing the adoption of prevention function of smoking cigarette that cause that person does not accept the suggestion of smoking cigarette and performs a kind of analysis about the usefulness of action against the costs, risks, complications and time and adopts health behavior based on it.

Mean of guide scores for action after the intervention has had a significant increase (P= 0.043). Results of the study of Lajunen showed that guide to action has strong predictor in order to use of helmet among adolescents so that emphasis of parents and educational materials published In this context, have been caused a significant increase in the use of the helmet (43).

Existence no smoking parents can also act as a guide of negative action and as a pattern would encourage the use of cigarette and drug. Existence 25.8percent of smoking parents among surveyed people is worrying.

In general, the results of the present research show that the variables related to the components of model have promoted following the implementation the intervention, in the experimental group then it can be said that implemented intervention has had proportionality with health belief model.

Considering the importance of the role of education in promoting preventive behaviors of cigarette smoking in young people and by taking into account that cigarette is a gateway of entrance to other drugs, the necessity of educating in broader dimensions and with various tools will be increasingly felt in society and should be considered as one of the health priorities in public.

One of the strengths of this study is that such study has been conducted among medical students for first time and one of the weaknesses of this study can be its conducting in limited level and only among students in a university.

It is suggested to use models of behavioral study to increase the impact of health education in order to design the educational intervention and in subsequent studies is investigated the relationship between smoking friends or peers with factors of pattern and the performance of learners. Also the impact of direct and indirect components of educational programs for raising the components of model in separate way can be considered in future studies.

Also, since the medical students after graduation work in health and treatment

centers and are the first-line treatment of patients and referred people to health care centers, forming a separate training course in relation to the prevention ways of smoking are essential to them. In addition to increase students' awareness level about the harms of tobacco can be effective in reducing trend to smoking and improving performance. Therefore, understanding their needs, increase the recreational and sport centers, increasing counseling centers, intimate relationship with supervisors (guide professors) a student, preventive measures of smoking cigarette and continuity of care programs of non-communicable diseases, regulating the production, supply, sale and use of cigarette, implementation practical smoking cessation programs and providing the possibility to conduct further studies can be effective in reducing incidence.

## CONCLUSION

The results of this study indicate the effect of educational intervention based on the structures of Health Belief Model among male smoking students of Ahvaz Jundishapur University of Medical Sciences; therefore it is necessary custodians of education in universities act by adopting educational programs in order to appropriate functions to prevent smoking the cigarette.

In addition to this, educational programs should be created in order to fertilize the minds of young people than perceived sensitivity and television and among this is the most important tool for training.

## ACKNOWLEDGEMENTS

It is appreciated of the honorable research deputy of Ahvaz Jundishapur University of Medical Sciences that had the responsibility of the approval and financing of this project, with the code 87S19.

## REFERENCES

1. Ziaadini H, Kheradmand A, Nakhaee N, Taherzadeh H. Prevalence of cigarette smoking and relevant factors among school students in south of Iran. The Quarterly 7. Journal of Fundamentals of Mental Health 008; 10(39): 239-45. (In Persian).
2. Vafaei B, Shaham Far J. Effective factors in tendency towards cigarette smoking among Tabrizian high school students. Journal of 8. Babol university of Medical Sciences 2005; 7(25): 57-62.
3. Philip HM, Randy M. Comprehensive School Health Education. McGraw-Hill, 2007: 24.
4. Alexander LL, LaRosa JH, Bader H, Garfield 9. S. New Dimensions in Women's Health. 4th ed.Sudbury MA: Jones and Bartlett 2007. P 522-524.
5. Babanov SA. The epidemiological 10 characteristics of tobacco smoking.Vestn Ross Akad Med Nauk 2006: 27-29.
6. Nierkens V, de Vries H, Stronks K. Smoking in immigrants: do socioeconomic gradients follow the pattern expected from the tobacco epidemic. Tob Control 2006; 15: 385-91.
7. Fakhfakh R, Hsairi M, Belaaj R, Ben Romdhane H, Achour N. (Abstract) Epidemiology and prevention of smoking in Tunisia: current situation and perspectives. Arch Inst Pasteur Tunis 2001; 78: 59-67.
8. Ramlau R, Didkowska J, Wojciechowska U, Tarkowski W. (Abstract) Tobacco smoking in Wielkopolska towards the end of 20th century. PneumonolAlergol Pol 2005; 73:128-34.
   a. The Global Youth Tobacco Survey Collaborative Group. Tobacco use among youth: a cross country comparison. Tobacco Control 2002; 11: 252-270.
9. Haenle M, Brockmann O S, Kron M, Bertling U, Mason A R,Steinbach G & et al. Overweight, physical activity, tobacco and alcohol consumption in a cross-sectional random sample of German adults. BMC Public Health 2006; 6: 233.
10. Hughes K, Choo M, Kuperan P, Ong C

N, Aw T C. Cardiovascular risk factors in relation to cigarette smoking: a population-based survey among Asians in Singapore, Atherosclerosis 1998; 137: 253-58.

11. Immaura H, Tanaka A, Hirae C, Futagami T, YushimuraY,Uchida K, Kobata D. Relationship of cigarette smoking to blood pressure & serum lipid & lipoprotein in men. ClinExpPharmacolPhysiol 1996; 23: 397-402.
12. Slama K. Current challenges in tobacco control. Int J Tuberc Lung Dis 2004; 8: 1160— 72.
13. World Health Organization: Process for a Global Strategy on Diet Physical Activity and Health Geneva: World Healthorganization; 2003.
14. Smith C S, Jr, Greenland P, Grundy M S.Prevention Conference V:Beyond Secondary Prevention: Identifying the High- Risk Patient for Primary Prevention: Executive Summary. Circulation 2000; 101: 111-16.
15. Allender JA, Spradley BW. Community health nursing: Concepts and practice. 5th ed. Philadelphia: Lippincott Williams & Wilkins; 2001. P. 713-714.
16. SharifiradGh, Hasavei MM, Hasanzadeh A, et al. The Effect of Health Education Based on HBM Model on Preventive Actions of Smoking In Grade one, Middle School Students. RahavardeDanesh Journal of Arak University of Medical Sciences Health Services 2007; 17(65): 59- 66. (In Persian).
17. Butler TH. Principles of Health Education and Promotion. Wads Worth: USA. 2001;3ed:235- 42.
18. Redding CA, Rossi S, Rossi R, Velicer WF, Prochaska O, editors. Health behavior models. The International Electronic Journal of Health Education. 2000
19. AkhtarMohagheghi M. The Sociology of Addiction. 1st ed. Tehran, Iran: AkhtarMohagheghi; 2007. p. 70-5. (In Persian).
20. Kaviyan M, Lavasani F, RahimiMogher A, Hoseyni M, Gholdiyan ZH, Tehrani A, et al. Substance Abuse Prevention Guide for media practitioners. Tehran, Iran: United Nations Office for Drug Control Program (UNDCP); 2001. p. 108.(In Persian).
21. Bardsley PE, Beckman LJ. The Health Belief Model and entry into alcoholism treatment. Int J Addict 1988; 23(1): 19-28.
22. Small SA, Silverburg SB, Kerns D. Adolescents' perceptions of the costs and benefits of engaging in health compromising behaviors. Journal of Youth and Adolescence 1993; 22(1): 73-87.
23. Stockton M, McMahon SD, Jason LA. The health belief model and work site smoking cessation. Journal of Psychology and the Behavioral Sciences 1997; 11: 69-79.
24. Norman P, Brain K. An application of the health belief model to the prediction of breast self-examination in a national sample of women with a family history of breast cancer. Institute of Medical Genetics, University of Wales College of Medicine, UK. Available at: http: //userpage. fuberlin. de/~health/ materials/normanb.pdf
25. Iriyama S, Nakahara S, Jimba M, Ichikawa M, Wakai S. AIDS health beliefs and intention for sexual abstinence among male adolescent students in Kathmandu, Nepal: a test of perceived severity and susceptibility. Public Health. 2007; 121(1): 64-72.
26. Karimy M, Hasani M, Khoram R, Ghaffari M, Niknami Sh. The Effect of Education, Based on Health Belief Model on Breast SelfExamination in Health Liaisons of Zarandieh City. Zahedan Journal of Research in Medical Sciences,

Journal of Zahedan University of Medical Sciences (Tabib- eshargh). 2008; 10(4): 283-291. (Persian)

27. Sharifirad GhR, Hazavehei SMM, Mohebi S, Rahimi MA, Hasanzadeh A. The effect of educational programme based on Health Belief Model (HBM) on the foot care by type II diabeticpatients. Iranian Journal of Endocrinology & Metabolism. 2006; 8(3): 231-239. (In Persian).
28. Shidfar MR, Hosseini M, Shojaeizadeh D, Asasi N, Majlesi F, Nazemi S. Effectiveness of an educational program on knowledge and attitudes of angina patients in Mashhad, Iran: Results of an intervention. Journal of Birjand University of Medical Sciences. 2007; 14(1): 18-27. (In Persian).
29. Sharifirad GR, Hazavei MM, Hasanzadeh A, Daneshamouz A. The effect of health education based on health belief model on preventive actions of smoking in grade one, middle school students. Arak Medical University Journal 2007; 10(1): 79-86. (In Persian).
30. Kaplan CP, Napoles-Springer A, Stewart SL, Perez-Stable EJ. Smoking acquisition among adolescents and young Latinas: the role of socio environmental and personal factors. Addict Behav 2001; 26(4): 531-50.
31. Rahimikian F, Mirmohamadali M, Mehran A, Aboozari K, SalmaaniBarough N. Effect of education designed based on health belief model on choosing delivery mode. Hayat, Journal of Faculty of Nursing and Midwifery, Tehran University of Medical Sciences. 20082009; 14(3-4): 25-32.(In Persian).
32. Karimy M, Hasani M, Khoram R, Ghaffari M, Niknami Sh. The Effect of Education, Based on health belief model on breast selfexamination in health Liaisons of Zarandieh City. Zahedan Journal of Research in Medical Sciences, Journal of Zahedan University of Medical Sciences (Tabib-e- shargh) 2008; 10(4): 283-291. (In Persian).
33. Hanewinkel R, Asshauer M. Fifteen month follow-up results of school-based life-skills approach to smoking prevention . Health Education Research (Oxford Press) 2004,19(2)
34. Park S, Chang S, Chung C. Effects of a cognition-emotion focused program to increase public participation in papanicolaou smear screening. Public Health Nurse 2005; 22(4): 289-98.
35. Hazavehei SM, Taghdisi MH, Saidi M. Application of the health belief model for osteoporosis prevention among middle school girl students, Garmsar, Iran. Educ Health (Abingdon ) 2007; 20(1): 23. (In Persian).
36. Hazavehei SMM, Sharifirad G, Mohabi S. The effect of educational program based on health belief model on diabetic foot care. Int J DiabDevCtries 2007; 27(1): 18-23. (In Persian).
37. Aljasem LI, Peyrot M, Wissow L, Rubin RR. The impact of barriers and self-efficacy on self-care behaviors in type 2 diabetes. Diabetes Educ 2001; 27: 393-404.
38. Cerkoney KA, Hart LK. The relationship between the health belief model and compliance of persons with diabetes mellitus.Diabetes Care 1980; 3: 594-8.
39. Simsekoglu O, Lajunen T. Social psychology of seat belt use: A comparison of theory of planned behavior and health belief model. Transportation Research Part F: Traffic Psychology and Behaviour 2008; 11(3): 18191.
40. AmalKadry A, DalalAly Mohamed AR, Ibrahim Kamel L. Effect of an educational film on the health belief model and breast self-examination practice. 1997; (3): 435-44.
41. Li C, Unger JB, Schuster D, Rohrbach LA, Howard-Pitney B, Norman G. Youths' exposure to environmental

tobacco smoke (ETS): associations with health beliefs and social pressure. Addict Behav 2003; 28(1): 39-53.

42. Lajunen T, Rasanen M. Can social psychological models be used to promote bicycle helmet use among teenagers? A comparison of the Health Belief Model, Theory of Planned Behavior and the Locus of Control. J Safety Res 2004; 35(1): 115-23.