

THE EFFECT OF HEALTH EDUCATION IN PROMOTING HEALTH OF HAIRDRESSERS ABOUT HEPATITIS B BASED ON HEALTH BELIEF MODEL: A FIELD TRIAL IN YAZD, IRAN

M. H. Baghiani Moghadam^{*1}, S. S. Mazloomi¹ and M. H. Ehrampoush²

1) Department of Health Services, School of Health, Shahid Sadughi University of Medical Sciences, Yazd, Iran

2) Department of Environmental Health, School of Health, Shahid Sadughi University of Medical Sciences, Yazd, Iran

Abstract- Hepatitis B (HB) is an infectious disease occurring worldwide which can be transferred by some professions, including hairdressers. Health education is an essential component of public health campaign about this disease. The purpose of this study was to test the utility of the health belief model (HBM) in understanding and predicating the intention of hairdressers in prevention of HB in their clients. A quasi-experimental study was conducted to 140 hairdressers (70 men and 70 women) in Yazd, Iran. All subjects were divided into two groups: case group (35 men and 35 women) and control group (35 men and 35 women). A researcher designed questionnaire according to the framework of HBM was developed, pilot-tested and then completed before and after intervention. There was significant difference between the mean grade scores of knowledge of case group before and after intervention ($P < 0.0001$). The perceived threat of case group were also increased from 9.8 to 10.61 after intervention, but the perceived threat of control group were decreased from 9.97 to 9. The HBM may offer an effective foundation for development of an educational intervention program in hairdressers for prevention of HB in their clients.

Acta Medica Iranica, 43 (5): 342-346; 2005

Keywords: Hepatitis B, hairdressers, health belief model, health education

INTRODUCTION

Hepatitis B (HB) is a relatively common disease occurring worldwide with varying incidence and prevalence rates (1). The prevalence rates in United States and East Asia are 1-5% and 5-20%, respectively (2, 3). In Iran, it's frequency ranges from 2 to 3 percent (4, 5). The most important transmission routes of HB are blood transfusion, using non-sterilized tools in medical practice, surgery, dentistry, immunization, tattooing and towel (6,7).

In HB, like any other disease, primary prevention can be considered as the most effective and desirable way for the confrontation with disease. Since HB can be transferred by some professions, including hairdressers, it is very important to educate these professionals to prevent HB in their clients.

The health belief model (HBM) is one of the most widely used models in public health theoretical frameworks. It can explain health behavior modification and can function as the foundation for health education intervention (8). Social psychologists developed the HBM during the 1950s to predict why individuals do not participate in preventive health behaviors such as immunization (9). The model assumes a value expectancy approach, postulating that behavior depends upon the expected outcome of an action

Received: 31 July 2004, Revised: 3 May 2004, Accepted: 23 May 2005

*** Corresponding Author:**

M. H. Baghiani Moghadam, Department of Health Services, School of Medicine, Yazd University of Medical Sciences, Yazd, Iran
Tel: +98 351 6245900, Fax: +98 351 6238555
E-mail: baghianimoghadam@yahoo.com

and the value an individual places on those outcomes (8,10).

The evaluation of theory-based health education programs requires valid measurement instruments to assess a program's impact on the theoretical mediating variables. Failing to develop and use the valid and reliable instrument can cause spurious findings (11,12).

The HBM has six constructs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, self-efficacy and cues to action (8, 10-12). Researchers have successfully applied the model's constructions in explaining a variety of preventive health behaviors, sick-role behaviors and clinic utilization behaviors (9, 10, 13).

We assessed the content and concurrent validity of some of constructs of HBM scales to evaluate safer choices by hairdressers for prevention of HB in their clients. In our study, we used 4 construction which are classified into two categories (perceived threat and perceived benefits and barriers) that are considered to be more relevant to the perceived health behavior changes, which to date, has not been applied in predicating the role of hairdressers in prevention of HB in their clients. The purpose of this study was to test the utility of the HBM in understanding and predicting the intention of hairdressers in prevention of HB in their clients.

MATEIRALS AND METHODS

This was a quasi-experimental study to test the utility of the HBM as a common theory in understanding and predicting the intention of hairdressers in prevention of HB in their clients in Yazd, Iran.

In total, 140 individuals (70 men and 70 women) were randomly selected from the list of hairdressers in the health center of Yazd. They were divided into two groups: case group (35 men and 35 women) and control group (35 men and 35 women). The education as intervention factor was performed using face-to-face and group teaching methods. HBM was used to explain health behaviors and design intervention. Data were collected by using a researcher making questionnaire, before and after intervention, in case and control groups, all of which were

completed in their workplace by interview and direct observation. The aim of direct observation was to see the behavior of hairdressers in exchanging the shaver and sterilization of tools of hairdo. HBM constructs were measured using five-point Likert scales (strongly agree = 5 through disagree = 1). The perceived threat construct (range: 3-15) was measured by summing participant's responses to 3 statements, with a higher score reflecting higher perceived threat for prevention of HB in their clients.

The perceived benefits and barriers constructs (range: 2-10) was measured similarly. To ensure the clarity of questionnaires, pilot testing of the questionnaire was also performed using the coherence and consistency upon 10 hairdressers who were not included in the survey. Then after, the questionnaire was modified on the basis of their feedback. Content-validity was established by four experts who were either academic staff or practicing health educators. To determine the internal reliability, a Cronbach's alpha was calculated for each scale ($\alpha = 0.65$ for knowledge scale, $\alpha = 0.81$ for perceived threat and $\alpha = 0.73$ for barriers and benefits scale). All data which were collected before and after intervention (two months after education) were transferred directly into SPSS (statistical package for social sciences). For data analysis, Chi square, Man-Whitney, Wilcoxon and *t* test were used and the level of confidence interval was 95%.

We obtained informed consent from all participants; in addition, the participants were assured that their responses were confidential.

RESULTS

We conducted interview with 140 hairdressers and observed their workplace in 2002. Majority of participants were educated in which 55% of them were higher than guidance school. They were generally young; the age of 70% ($n = 87$) of them ranged from 25-44 years old.

The results showed that the intervention caused an increase in knowledge of case group: the knowledge of 24% of case group and 19% of control group was high before intervention; after intervention, the knowledge of 83% of case group and 23% of control group was high. Although after intervention an increase in correct

Health education in hairdressers based on Health Belief Model

Table 1. The comparison of mean grades score of knowledge, perceived threat, perceived benefits and barriers before and after intervention in case and control groups*

	Case Group (n = 70)	Control Group (n = 70)	P Value
Knowledge			
before intervention	6.3 (1.71)	5.96 (1.62)	0.20
after intervention	9.12 (2.09)	6.7 (2.11)	0.04
P value	0.00001	0.34	
Perceived threat			
before intervention	9.8 (2.02)	9.97 (2.24)	0.18
after intervention	10.61 (1.78)	9 (3.29)	0.04
P value	0.26	0.01	
Perceived benefits and barriers			
before intervention	6.78 (0.97)	6.8 (0.99)	0.57
after intervention	8.8 (1.82)	6.4 (1.5)	0.29
P value	0.00001	0.98	

*Data are given as mean (SD).

responses per subject were observed in both groups, it was very little in control group (Table 1). There was significant difference between the knowledge of case group before and after intervention ($P = 0.00001$).

The perceived threat were measured by summing the participants response for comparing the susceptibility and severity of the perceived threat before and after intervention. As table 1 presents, the perceived threat increased after intervention in case group whereas it decreased in control group. Mans-Whitney test revealed significant difference between the perceived threat of case and control groups after intervention ($P = 0.02$). The perceived benefits and perceived barriers construct were measured by summing participants responses to related questions. In case group, the mean grade score was 6.78 and 8.8 before and after intervention,

respectively (Table 1). Wilcoxon test revealed significant difference between perceived benefits and barriers of case group before and after intervention ($P = 0.00001$).

The intervention basis on constructs of HBM improved in the practice of participants for prevention of HB in their clients. The practice of hairdressers led to the improvement of the environmental health condition of barbers and the prevention of HB in their clients.

As shown in table 2, the rate of performing environmental health condition of barbers in case group increased from 52% to 85.8% after intervention. In control group, in contrast, no improvement was observed after intervention (55.7% vs 51.4%). Chi square test revealed significant difference between the environmental health condition of barbers of both groups before and after intervention ($P = 0.009$).

Table 2. The comparison of environmental health condition of the hairdressers, before and after intervention in case and control groups

Groups		Environmental Health condition							
		Good		Medium		Bad and very bad		Total	
		No	Percent	No	Percent	No	Percent	No	Percent
Case	before intervention	37	52.8	30	42.8	3	4.4	70	100
	after intervention	60	85.7	10	14.3	0	0	70	100
Control	before intervention	39	55.7	27	38.5	4	5.8	70	100
	after intervention	36	51.4	31	44.2	3	4.4	70	100

DISCUSSION

This study establishes preliminary confirmation of the feasibility of applying the HBM to predict and understand the intention to permanently follow practical activities by hairdressers in prevention of HB in their clients. The HBM provides a foundation to understand the population's attitude, behaviors and educational needs, and therefore can be used as a practical tool to develop effective intervention strategies (14).

Study have identified several basic educational needs in participants which increase their knowledge and change their practice for prevention of HB in their clients. It was shown that the awareness of individuals about HB appeared low, and over 75% of case group and 82% of control group did not know about HB. Increasing the participants' awareness of the need for prevention of HB through educational campaigns is likely to improve the participants' intention in prevention of HB. The awareness of individuals about HB significantly increased after intervention in case group.

The findings of this study are consistent with the observations of Bocking *et al.* who described the increase of AIDS knowledge after intervention (15) and the finding of Tan *et al.* who found that the HbA_{1c} in diabetic patients declined when their awareness increased (16). The increase of awareness in this study is also consistent with the finding of Lin *et al.* who observed the change and improvement of behavior of individual in vaccination rate of HB (17).

Perceived threat, as one of the constructs of HBM, was increased in case group, suggesting that education may have influence upon the participant's behaviors. The results of this study are consistent with the finding of Troein who found the increase of perceived threat and habitual practice (18). It is also shown that perceived threat, can be used to prevent and control the brucellosis (19).

In practice, perceived barriers and benefits have an important role for control and prevention of disease in patients who had the first infarction (20). A study carried out in nurses with less than two years professional experience showed that those who followed the recommendation of not

recapping needles have less barriers and more benefits (7). Our finding showed that both perceived barriers and benefits construct were significantly increased after intervention in case group but not in control group ($P < 0.00001$).

In addition, significant differences of the conditions of environmental health of barbers between control and case groups are concordant with previous studies which demonstrated that practice can be increased after intervention (21-25). All of these findings imply that the specific intervention may cause the changes and improvement of behavior in participants. However, traditional strategies that provide only general information to all people, disregarding the attitude of the segment of the target audience being served, will likely be ineffective in changing behavior. Using public health theories to tailor intervention to the target population can overcome this problem. The HBM has potential for providing the foundation to educational intervention at the individual and community.

It can be, therefore, recommended that the application of this model may prevent different diseases including HB.

REFERENCES

1. Park JE. Textbook of preventive and social medicine. Translated in persian by Shodjai Tehrani H. First edition. Rasht: Gilan medical university press; 1991. p. 179-183.
2. Deinstag JL, Isselbacher KJ. Acute viral hepatitis. In: Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL, editors. Harrison's principles of internal medicine. 16th edition. New York: McGraw-Hill; 2001. p. 1822-1837.
3. Beasley RP, Hwang LY, Lin CC, Chien CS. Hepatocellular carcinoma and hepatitis B virus. A prospective study of 22 707 men in Taiwan. *Lancet*. 1981 Nov 21;2(8256):1129-1133.
4. Daryaii N. [Viral hepatitis and utoimmunity]. First edition. Tehran: Tayeb company;1999. p.105-108.
5. Malekzadeh R. [Viral hepatitis in Iran and world. *Journal of Nezampeseshky*]. 1997; 15:183-200.
6. Sohrabi Sadeh A, Mokhtariazad T, Mahmoudi M. [Seroepidemiological study of hepatitis B in the laboratory personnel of Tehran]. *Behdasht-E-Iran*. 1995; 25 (1-2): 55-60
7. Brevidelli MM, Cianciarullo TI. [Application of the health belief model to the prevention of occupational

Health education in hairdressers based on Health Belief Model

- needle accidents]. *Rev Saude Publica*. 2001 Apr; 35(2):193-201.
8. Strecher VJ, Rosenstock IM. The health belief model. In Glanz, K, Lewis FM, Rimer BK, editors. *Health Behavior and Health Education theory, Research and practice*. 2nd edition. San Francisco: Jossey-Bass; 1997. p. 41-59.
 9. Rosenstock LM. Historical origins of the health belief model. *Health education monographs*. 1974; 15: 175-183.
 10. Shilltoe RW, Andchristie MJ. Determinants of self-care: the health belief model. *Holistic Medicine*. 1989;4:3-17.
 11. Becker MH, Maiman LA. Sociobehavioral determinants of compliance with health and medical care recommendations. *Med Care*. 1975 Jan;13(1):10-24.
 12. Rosenstock IM, Strecher VJ, Becker MH. Social learning theory and the Health Belief Model. *Health Educ Q*. 1988 Summer;15(2):175-183.
 13. Janz NK, Becker MH. The Health Belief Model: a decade later. *Health Educ Q*. 1984 Spring;11(1):1-47.
 14. Kloeblen AS, Batish SS. Understanding the intention to permanently follow a high folate diet among a sample of low-income pregnant women according to the Health Belief Model. *Health Educ Res*. 1999 Jun;14(3):327-338.
 15. Bockting WO, Rosser BR, Scheltema K. Transgender HIV prevention: implementation and evaluation of a workshop. *Health Educ Res*. 1999 Apr;14(2):177-183.
 16. Tan AS, Yong LS, Wan S, Wong ML. Patient education in the management of diabetes mellitus. *Singapore Med J*. 1997 Apr; 38(4):156-160.
 17. Lin WC, Ball C. Factors affecting the decision of nursing students in Taiwan to be vaccinated against hepatitis B infection. *J Adv Nurs*. 1997 Apr; 25(4): 709-718.
 18. Troein M, Rastam L, Selander S. Health beliefs and heart disease risk among middle-aged Swedish men. Results from screening in an urban primary care district. *Scand J Prim Health Care*. 1997 Dec;15(4):198-202.
 19. Ghofranipour F. [Use of health belief model in prevention of brucellosis in Shahrecord city in Iran]. *Journal of Daneshvar*. 1997; 15: 23-28.
 20. Haidarnia AR. [Design of model in health education for prevention of secondary myocardium infarction for cardiovascular diseases]. *Special journal of cardiovascular disease*. 1994; 6: 1-5.
 21. James AS, Campbell MK, Hudson MA. Perceived barriers and benefits to colon cancer screening among African Americans in North Carolina: how does perception relate to screening behavior? *Cancer Epidemiol Biomarkers Prev*. 2002 Jun;11(6): 529-534.
 22. Aiken LS, West SG, Woodward CK, Reno RR, Reynolds KD. Increasing screening mammography in asymptomatic women: evaluation of a second-generation, theory-based program. *Health Psychol*. 1994 Nov;13(6):526-538.
 23. Bowen DJ, Christensen CL, Powers D, Graves DR, Anderson CM. Effects of counseling and ethnic identity on perceived risk and cancer worry in African American women. *Journal of clinical Psychology Medicine Settings*. 1998; 5: 365-379.
 24. Siero S, Kok G, Pruyn J. Effects of public education about breast cancer and breast self-examination. *Soc Sci Med*. 1984;18(10):881-888.
 25. Lerman C, Lustbader E, Rimer B, Daly M, Miller S, Sands C, Balshem A. Effects of individualized breast cancer risk counseling: a randomized trial. *J Natl Cancer Inst*. 1995 Feb 15;87(4):286-292.