

A Survey of Knowledge, Individual Perceived Risk, General Perceived Risk, and Behavioral Intentions Regarding Hepatitis B among Students in the Faculty of Nursing, Midwifery and Health at Shahrekord Islamic Azad University in 2014

Zohreh Karimiankakolaki,¹ Mohammad Hossein Baghianimoghadam,² Sakineh Gerayllo,¹ Nadia Sheikh Samani,^{3,*} and Hajar Hadipour³

¹School of Health, Shahid Sadoughi University of Medical Sciences, Yazd, IR Iran

²Department of Health Services, School of Health, Shahid Sadoughi University of Medical Sciences, Yazd, IR Iran

³Nursing student, Department of Nursing, Faculty of Nursing and Midwifery, Shahrekord Branch, Islamic Azad University, Shahrekord, IR Iran

*Corresponding author: Nadia Sheikh Samani, Nursing student, Department of Nursing, Faculty of Nursing and Midwifery, Shahrekord Branch, Islamic Azad University, Shahrekord, IR Iran. Tel: +98-9138818814, E-mail: n.sh.samani2014@gmail.com

Received 2015 November 27; Revised 2016 June 05; Accepted 2016 June 15.

Abstract

Background: Hepatitis B is the most common cause of liver disease, and medical students are a risk group for the disease given their future occupations.

Objectives: The aim of the study was to assess of predictors of hepatitis B in the Faculty of nursing, midwifery and health at Shahrekord Islamic Azad University in 2014.

Materials and Methods: This cross-sectional study was conducted with 300 students from the Faculty of nursing, midwifery and health at Shahrekord Islamic Azad University. The students answered questionnaires with items covering demographic characteristics, individual knowledge, public risk perception, perceived personal risk, and behavioral intentions regarding hepatitis B. The data were analyzed with SPSS version 18 software.

Results: The mean knowledge score of the students was 4.77 ± 1.71 , the mean public risk perception score was 24.22 ± 3.44 , the mean perceived personal risk score was 6.51 ± 1.97 , and the mean behavioral intention score was 12.06 ± 2.97 . There were significant differences in the mean knowledge scores in terms of gender, level of awareness, and level of education. There were also differences in the mean behavioral intention scores in terms of gender and field of study, the mean perceived personal risk scores in terms of level of education and field of study, and the mean public risk perception scores in terms of field of study.

Conclusions: According to the results of this study, it is necessary to implement educational intervention in order to allow students to identify risk factors and overcome barriers to understanding the implications of the disease in this context.

Keywords: Knowledge, Perceived Risk, Behavioral Intentions, Students, Hepatitis B

1. Background

Hepatitis is a common disease that causes inflammation of the liver. It is caused by viruses, drugs, alcohol, fat tissue replacement, and other factors. Hepatitis B has occurred throughout the world, and there are more than 400 million people with its chronic form. In Iran, the occurrence rate of this disease within the general population is between 1.4% to 6.5%, which is considered to be a moderate outbreak (1). The distribution of cases is different in various parts of the country, so some areas, such as the province of Fars, have an occurrence rate of 1.7%, whereas the rate in Sistan and Baluchestan has reached 5% (2). Iran, among other countries, is endemic for hepatitis, and the prevalence of chronic carriers of hepatitis B in the country is between 2.5% and 3.6% (3).

Hepatitis B is the most important cause of liver disease and the main cause of deaths from hepatitis in Iran (4). Hepatocellular carcinoma is one of the ten most common causes of cancer in the world, which can be caused by hepatitis B. The virus persists in all bodily fluids, and its means of transmission include sexual contact, intravenous injection by drug users, transmission from mother to child, hemodialysis, sharing of dental devices, contamination of blood and blood products, tattooing, cupping, acupuncture, and occupational exposures among medical staff (5). The power of transmission is 100 times higher than that of HIV, and unlike HIV, the hepatitis B virus can survive in dried blood outside of the body for more than a week (6).

Hepatitis B is the most common virus transmitted among health personnel (4). About 40% of cases of hepatitis B and C in the health care industry around the world

are caused by occupational exposure (7). Health care personnel and medical students are therefore at high risk of infection, and hepatitis B is one of the most serious threats to employment and the most common blood-borne infection among staff (8). The most infections caused by occupational exposure occur at the time of using needles that may contain blood (9).

The most important ways to prevent the disease in the community is to provide the necessary training and active immunization for groups at risk. For prevention and pre-intervention training, it is important to examine the knowledge, attitudes, and practices of the target group (10), including an assessment of the health belief model, which focuses on changes in beliefs and behavior in relation to a perceived threat (in terms of sensitivity and severity). People must feel threatened by a problem and then understand the depth of the risk and its consequences. On the basis of the behavioral intention model, the most important determinant of the behavior of an individual is behavioral intention, which includes the decision to ask for special treatment (10).

2. Objectives

The aim of this study was to determine the knowledge, perceived risk, and behavioral intentions regarding hepatitis B of students in the Faculty of Nursing, Midwifery and Health at Shahrekord Azad Islamic University.

3. Materials and Methods

This was a descriptive study (cross-sectional) that was conducted with students from the Faculty of Nursing, Midwifery and Health at Islamic Azad University of Shahrekord. The participants were selected by simple sampling according to the formula of $n = Z^2 \times S^2 / D^2$ (given a confidence level of 95%, an estimation error of 2 units per mean, and with the knowledge score $S = 17$ and $d = 2$). It was estimated that 277 students would be needed, and factoring in the probability of loss, 300 questionnaires were completed. The data collected in this study were questionnaires that contained two sections: the first section included demographic information, and the second section included eight questions about knowledge (score range: 0 - 8, with the score for the correct answer being 1, and the score for the wrong answer or "don't know" being zero), seven questions about general perceived risk (score range: 7-35), two questions about individual perceived risk (score range: 2 - 10), and four questions about intentions (score range: 4 - 20). The questions were measured with a 5-point Likert scale from "strongly agree" to "strongly disagree."

The validity and reliability of the questionnaires was confirmed by the study of Nasirzadeh et al. (10) with Cronbach's alpha coefficient (knowledge = 0.8, perceived risk = 0.86, and behavioral intention = 0.62) and the use of health professionals and other experts. The questionnaires were completed by having students respond to a self-report. The data were analyzed by using SPSS version 18 software with a correlation test, a t-test, and ANOVA.

4. Results

The total number of students participating in this study was 300, with an average age of 21.45 ± 2.47 , and the ages ranged from 18 to 38 years. About 88 (29.3%) were male and 212 (70.7%) were female. The degrees that they were pursuing included nursing ($n = 100$), midwifery ($n = 100$), family health ($n = 50$), and health and disease ($n = 50$). The mean knowledge score of the students was 4.77 ± 1.71 , the mean general risk perception score was 24.22 ± 3.44 , the mean personal risk perception score was 6.57 ± 1.97 , and the mean behavioral intention score was 12.6 ± 2.97 (Tables 1 and 2).

Table 1. The Distribution of Levels of Knowledge, General Perceived Risk, Individual Perceived Risk, and Behavioral Intentions of Students Regarding Hepatitis B

Variable/Level	No. (%)
Knowledge	
Weak	28 (9.4)
Moderate	156 (52.3)
Strong	114 (38.3)
General perceived risk	
Weak	7 (2.4)
Moderate	184 (62)
Strong	106 (35.7)
Individual perceived risk	
Weak	56 (18.7)
Moderate	129 (43.1)
Strong	114 (38.1)
Behavioral intention	
Weak	67 (22.6)
Moderate	165 (55.6)
Strong	65 (21.9)

The results showed that there was a significant difference between the scores for knowledge ($P = 0.002$), personal perceived risk ($P = 0.001$), and behavioral intention ($P = 0.009$) depending on the grade of training (Table 3).

Table 2. The Distribution of Mean, SD, and Range Acquisition of Scores for Knowledge, General Perceived Risk, Individual Perceived Risk, and Behavioral Intention of Students Regarding Hepatitis B

Variable	Mean \pm SD	Range Acquisition
Knowledge	4.77 \pm 1.71	0 - 8
General perceived risk	24.22 \pm 3.44	7 - 35
Individual perceived risk	6.51 \pm 1.97	2 - 10
Behavioral intention	12.06 \pm 2.97	4 - 20

The data presented in Table 4 revealed that there was also a significant difference in the scores for knowledge and behavioral intention depending on sex ($P = 0.05$). The results also indicate that there was a significant difference between the mean scores of knowledge, general perceived risk, personal perceived risk, and behavioral intention depending on the field of study of the participants.

5. Discussion

The results of this study showed that the mean score of awareness of participants about hepatitis B was moderate, which is consistent with the results reported by Ghiasi et al. (11) and Ahmadi et al. (12). These results were different, however, from the results of Nasirzadeh et al. (10), Zolghadr et al. (13), Hwang (14), and Jokhio et al. (15), where the knowledge of the participants was reported as low. The data presented in the study by Wiecha (16) showed that the knowledge that American immigrant adolescents had about hepatitis B was low, and the results of the research presented by La Torre et al. (17) revealed that the awareness of high school students about hepatitis B was not satisfactory, and therefore the need for more health education programs was stressed. According to results of a study by Zabihi (18), the majority of people, fear this disease due to lack of information, false news, or general unawareness, and an appropriate solution would be to draw more awareness to it. In addition, the data of the study by Gonzales et al. (19) revealed that a small number of young people aged 18 to 24 have no information about hepatitis. The results of the research of Razi et al. (20) stated that 80% of biology students answered the knowledge-related questions about hepatitis B correctly. According to the various results that have been reported, people need to be better informed about hepatitis B.

The results of this study showed that the mean score of general perceived risk for the participants was 24.2 ± 3.44 , which is consistent with the results reported by Nasirzadeh et al. (10) and Baghianimoghadam et al. (21), but different from the data reported by Gonzales et al. (19).

One of the factors influencing this difference can be attributed to the different target groups in two studies. It seems that students of the medical sciences may be more aware of their risk of hepatitis B than others.

The present research also revealed that the mean score of personal perceived risk was 6.51 ± 1.97 out of a possible 10, which is consistent with the results of Nasirzadeh et al. (10), Baghianimoghadam et al. (21), and Tibdewal et al. (22). However, these results are also different from the data presented by Gonzales et al. (19), and the disparity can perhaps once again be attributed to the difference in the target groups. The results also revealed that the mean score of intentional behavior of the participants was moderate, which is consistent with the results reported by Baghianimoghadam et al. (21) and Gonzales et al. (19).

Based on the behavioral intention model, the most important determinant of individual behavior is the person's intention. Milne et al. (23) have shown that a specific behavior is more likely to occur in situations where the relationship between the intention and behavior is stronger. More studies are needed in this area to exclude the possibility of other known factors from influencing behavioral intentions.

There was also a significant difference between the mean scores of knowledge, general perceived risk, and behavioral intention depending on the semester of study of the participants. During each semester, students acquire more experience, which leads to greater awareness and understanding of personal risk and behavioral intentions. These results correlate with those reported by Nasirzadeh et al. (10); however, they are once again different from the results reported by Gonzales et al. (19).

The correlation results revealed that there was a direct correlation between the mean scores for knowledge and behavioral intentions and other studies showing similar results (13, 24). Intention is involved in the pre-operative stage of practice, and during this stage, the person is ready to act, but this does not always translate into behavior because various factors can impede the translation of individual intention into conduct.

The results of the demographic variables revealed that the mean score for knowledge was higher for women than for men, which is consistent with the results of the studies by Ghiasi et al. and Ahmadi et al. (11, 12); however, these results were inconsistent with the results of the study by Zabihi et al. (18). In addition, the proportion of higher consciousness of intentions among the women is consistent with the findings of other studies (10, 13, 14, 19, 20). It seems that female students engage in more preventative activities than male students, which leads to the assumption that women consider the importance of diseases, complications, and care more seriously than men.

Table 3. Results of the Pearson Correlation Between General Knowledge, Individual Perceived Risk, and Behavioral Intention With the Variable of Semester of Study

Variable	Knowledge	Individual Perceived Risk	General Perceived Risk	Behavioral Intention	Semester
Knowledge	1				r = 0.177**
Individual perceived risk	r = 0.155 **	1			r = 0.183**
General perceived risk	r = 0.145*	r = 0.259 **	1		r = 0.025
Behavioral intention	r = 0.357 **	r = 0.215 **	0.083	1	r = 0.152 **

Table 4. Distribution of Results of T-Test and ANOVA for Knowledge, Individual and General Perceived Risk, and Behavioral Intentions Based on Demographic Variables

Variables	Age	Sex	Grade of Education	Field of Education
Knowledge	> 0.05	0.0001	0.004	0.003
General perceived risk	> 0.05	> 0.05	> 0.05	0.008
Individual perceived risk	> 0.05	> 0.05	0.0001	0.001
Behavioral intention	> 0.05	0.001	> 0.05	0.002

The present study also revealed that there was a significant difference between the mean scores for knowledge and individual perceived risk based on the degrees of the participants, which is consistent with the results reported by Nasirizade et al. (10), Zolghadr et al. (13), and Thomson et al. (25). The results of the study by Thomson, which was conducted in Canada, showed that the awareness of literate women concerning hepatitis B was generally lower than others with higher education.

It was also shown that the mean scores for knowledge, general perceived risk, individual risk perception, and behavioral intentions of students studying midwifery were higher than the scores of the other groups. Since this field is considered to involve treatment, such individuals may have been educated differently as well as being required to deal with patients with the disease, leading to the relatively higher scores than those for the other disciplines. Similarly, the data presented by Nasirizadeh et al. (10) also showed that students in midwifery programs had higher awareness about hepatitis B than others.

A limitation of this study was the cross-sectional design, which limits the generalizability of the results. For more complete and accurate results, it is proposed that a similar study be done on a more extensive campus. Furthermore, the lack of motivation to respond to the questionnaire by the students may have also affected the results of study.

References

1. Shahri L, Ali-asghari F, Tanomand A, Reaghi S, Barzegar S. Evaluation of immune response against hepatitis B vaccine in North Khorasan Uni-

versity of Medical Sciences female students,Bojnurd in 2013. *J North Khorasan Univ Med Sci.* 2013;**5**:1057-61.

2. Parmar Z, Khadivi R, Sadeghi B, RAHIMI M. Immunization following hepatitis b mass vaccination in the 18 years old students in chaharmahal va bakhtyari province in Iran. *J Shahrekord Univ Med Sci.* 2011;**13**(4):35-41.

3. Zangeneh M, Valikhani MD. Evaluation of immunogenicity of hepatitis B vaccination in health workers. *Medical Science Journal of Islamic Azad University-Tehran Medical Branch.* 2004;**14**(1):13-22.

4. Kazemeini SK, Owlia F. Determination of hbs antibody titre in vaccinated health care workers of shahid sadoughi burn hospital in yazd in 2011. *Tolooe Behdasht.* 2013;**12**(1):155-63.

5. Lavanchy D. Hepatitis B virus epidemiology, disease burden, treatment, and current and emerging prevention and control measures. *J Viral Hepat.* 2004;**11**(2):97-107. [PubMed: 14996343].

6. Ayatalahi J, NavabAzam A, Ezodini Ardakani F. Hepatitis B. *J Shaeed Sdoughi UnivMed Sci Yazd.* 2006;**14**(2):94-103.

7. Golshiri P, Badrian M, Badrian H, Tabar Isfahani M, Meshkati M. Survey of Occupational Injuries and Knowledge on Standard Precautions about AIDS and Hepatitis among Faculty Members, Students and Educational Staff of Dentistry School in Isfahan University of Medical Sciences. *Iran J Health Syst Res.* 2011;**7**(6):858-65.

8. Hadadi A, Afhami S, Kharbakhsh M, Hajabdoulbaghi M, Rasoolinejad M, Emadi H, et al. Epidemiological determinants of occupational exposure to HIV, HBV and HCV in health care workers. *Tehran Univ Med J TUMS Public.* 2007;**65**(9):59-66.

9. Anbari K, Ghanadi K, Nazer M, Dortaj F, Mahdavian A. Study of occupational exposure to blood and body fluids of patients and related factors in health care workers employed in Khorramabad Shohada Ashayer hospital. *Yafteh.* 2013;**14**(5):5-11.

10. Nasirzadeh M, Hafezi Bakhtiari M, Mirzaei Alavijeh M, Mostafavifarani F, Dostmohammadi P. A Survey of Knowledge, Risk perceptions and Behavioral intentions in the students of Isfahan University of Medical Sciences regarding Hepatitis B, 2012. *J Health Syst Res.* 2013;**9**(11):1178-85.

11. Ghiasi M, Nasery Zadeh MR, Khamirchi R, Akaberi A. Survey knowledge, attitude and practice barbers (man and woman) Sabzevar to Hepatitis B in 87 years. *J Sabzevar Univ Med Sci.* 2009;**14**(3-4):15-20.

12. Ahmadi Z, Hossein Moghadam MM, Yaghmaie F. Survey of knowledge, attitude and practice regarding hepatitis B service workers in teaching hospitals Labbafinejad. *J Nurs Midwifery.* 2007;**16**(57):43-9.

13. Zolghadr R, Faramarzi H, Mahboubi M. Knowledge and Behavioral Intention about Prevention of Hepatitis B in Medical and Non-Medical College Students. *J Biol Today's World*. 2014;**3**(7):142-6.
14. Hwang JP, Huang CH, Yi JK. Knowledge about hepatitis B and predictors of hepatitis B vaccination among Vietnamese American college students. *J Am Coll Health*. 2008;**56**(4):377-82. doi: [10.3200/JACH.56.44.377-382](https://doi.org/10.3200/JACH.56.44.377-382). [PubMed: [18316280](https://pubmed.ncbi.nlm.nih.gov/18316280/)].
15. Jokhio AH, Bhatti TA, Memon S. Knowledge, attitudes and practices of barbers about hepatitis B and C transmission in Hyderabad, Pakistan. *East Mediterr Health J*. 2010;**16**(10):1079-84. [PubMed: [21222425](https://pubmed.ncbi.nlm.nih.gov/21222425/)].
16. Wiecha JM. Differences in knowledge of hepatitis B among Vietnamese, African-American, Hispanic, and white adolescents in Worcester, Massachusetts. *Pediatrics*. 1999;**104**(5 Pt 2):1212-6. [PubMed: [10545576](https://pubmed.ncbi.nlm.nih.gov/10545576/)].
17. La Torre G, De Vito E, Martellucci L, Langiano E, Ricciardi G. [Knowledge, attitudes, and practices regarding sexually transmitted diseases among students in 3 high schools in Cassino]. *Ann Ig*. 2002;**14**(3):233-42. [PubMed: [12162121](https://pubmed.ncbi.nlm.nih.gov/12162121/)].
18. Zabihi A, Hajian K. Assessment of the effect of education program on knowledge, attitude and. *Bimonth J Hormozgan Univ Med Sci*. 2004;**8**(3):133-8.
19. Gonzales R, Glik D, Prelip M, Bourque L, Yuen J, Ang A, et al. Risk perceptions and behavioral intentions for Hepatitis B: how do young adults fare?. *Health Educ Res*. 2006;**21**(5):654-61. doi: [10.1093/her/cyl047](https://doi.org/10.1093/her/cyl047). [PubMed: [16945982](https://pubmed.ncbi.nlm.nih.gov/16945982/)].
20. Razi A, ur Rehman R, Naz S, Ghafoor F, Khan M. Knowledge attitude and practices of university students regarding hepatitis B and C. *J Agric Biol Sci*. 2010;**5**(4):38-43.
21. Baghianimoghadam MH, Morowatisharifabad MA, Forghani H, Zolghadr R. Knowledge, Risk Perceptions, and Behavioral Intentions Related to Hepatitis B among Health Managers in Yazd Province (Iran). *Hepat Mon*. 2009;**2009**(4):317-8.
22. Tibdewal H, Barad P, Kumar S. Comparing Dental and Medical student's knowledge and attitudes toward Hepatitis B, C and HIV infected patients in India-A cross-sectional study. *J Int Oral Health*. 2009;**1**(1).
23. Milne S, Orbell S, Sheeran P. Combining motivational and volitional interventions to promote exercise participation: protection motivation theory and implementation intentions. *Br J Health Psychol*. 2002;**7**(Pt 2):163-84. doi: [10.1348/135910702169420](https://doi.org/10.1348/135910702169420). [PubMed: [14596707](https://pubmed.ncbi.nlm.nih.gov/14596707/)].
24. Allahverdipour H, Jalilian F, Shaghghi A. Vulnerability and the intention to anabolic steroids use among Iranian gym users: an application of the theory of planned behavior. *Subst Use Misuse*. 2012;**47**(3):309-17. doi: [10.3109/10826084.2011.633296](https://doi.org/10.3109/10826084.2011.633296). [PubMed: [22217129](https://pubmed.ncbi.nlm.nih.gov/22217129/)].
25. Thompson MJ, Taylor VM, Yasui Y, Hislop TG, Jackson JC, Kuniyuki A, et al. Hepatitis B knowledge and practices among Chinese Canadian women in Vancouver, British Columbia. *Can J Public Health*. 2003;**94**(4):281-6. [PubMed: [12873087](https://pubmed.ncbi.nlm.nih.gov/12873087/)].