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Effect of Educational Intervention Based on the Health Belief Model on the Improvement of the Health Performance of Female Hairdressers in Qom, Iran

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Background & Aims of the Study: Beauty salons as public places can be responsible for the transmission of various diseases. Among them, infectious diseases transmitted through the blood, such as AIDS, hepatitis B and C, which can lead to death, are more significant than others. In this regard, the present study aimed to determine the effect of educational intervention, based on the health belief model (HBM), on the improvement of health-related behavior of female hairdressers in Qom, Iran in 2018.

Materials and Methods: The present intervention study was performed on 88 subjects who were selected using multi-stage random sampling. The participants were divided into two groups of intervention (n=44) and control (n=44). The data collection tool was a health status checklist and a researcher-made questionnaire based on the HBM whose validity and reliability were confirmed. The intervention group was subjected to educational intervention sessions and after three months, both groups completed the same questionnaire. The collected data were analyzed in SPSS software (version 21), descriptive statistics (absolute and relative frequency, mean, and standard deviation), and inferential statistics (Chi-squared test, Mann Whitney, independent t-test, and paired t-test). It should be noted a p-value of less than 0.05 was considered statistically significant.

Results: The mean and standard deviation of age in the intervention and control groups were 33.36±8.3 and 36.31±10.3 years, respectively. At the beginning of the study, no significant difference was observed between the groups regarding their demographic characteristics, the HBM constructs and performance model were not significantly observed at the beginning of the study between the experimental and control groups ($P < 0.05$). However, based on the results, after the intervention, the mean score of knowledge and HBM constructs (except for the perceived barriers after the educational intervention) increased significantly in the interventional group, compared to the control group ($P<0.001$). Moreover, before the intervention, there was no significant difference between the mean scores of health-related behaviors and checklist results of the two groups ($P<0.05$). However, three months after the intervention, the mean scores of health-related behaviors and checklist of the intervention group were significantly higher than that of the control group ($P<0.001$).

Conclusion: Given the significant change in the level of knowledge and HBM constructs as well as the improvement in the health-related behaviors of the intervention group after the educational intervention, it can be concluded that the HBM can be used as a framework in designing special training programs for hairdressers.

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Background

Beauty salons are public places that provide cosmetic and hairdressing services, and sometimes also offer other services, such as removing moles and tattoos (1). These places have considerable potential for the transmission of various diseases that sometimes pose the risk of death (2). The cause of this transmission in beauty salons is usually the direct contact of several customers with the same apron, use of the same towels to dry the hair and face of different customers, nail implants, face threading without adherence to hygienic principles, the use of illegal cosmetics, and minor cuts by scissors and razors during the processes. All of these factors can cause fungal infection, skin rashes, as well as the transmission of bloodborne pathogens, such as AIDS and hepatitis B and C among individuals (3). Among these, the importance of infectious diseases transmitted through the blood, such as AIDS and hepatitis B and C, which can be transmitted in beauty salons, is greater than others.

The World Health Organization has estimated that more than two billion people worldwide have serological markers of hepatitis B (4). In Iran, on average, 2-3% of people are carriers of the hepatitis B virus (HBV) (5). Moreover, 170 million people worldwide are infected with the hepatitis C virus (HCV), and about 3-4 million people are newly infected with HCV each year. In Iran, the rate of HCV infection is reported to be about 0.2-1.5% less than HBV (6). The above-mentioned statistical information emphasizes the importance of adherence to health principles in beauty salons. A study conducted by Honarvar et al. in Shiraz, Iran found that the prevalence of HBV and HCV was higher in hairdressers, especially those who dealt with sharp tools, such as scissors and needles, or did body piercing (1). Currently, the HIV/AIDS epidemic is one of the deadliest threats to human health as well as the development of society (7).

Given the variety of diseases that can be transmitted in beauty salons, it should be noted that many factors contribute to this issue, the most important of which is the lack of knowledge of hairdressers about essential health principles, lack of adherence to environmental health principles, lack of sufficient sensitivity in customers about the hairdressers' adherence to hygienic principles, lack of disinfection of work tools, or their incomplete and unprincipled disinfection (8). Each of the above-mentioned factors plays an undeniable role in the control and prevention of diseases; however, the disinfection of work tools is one of the most important preventive measures, which, if done properly, will greatly reduce the risk of disease transmission (1).

Various studies have emphasized the importance of following the principles of infection control, such as proper handwashing, use of gloves, use of disposable razors, disinfection and sterilization of the equipment before and after the usage for each customer, as well as proper disposal of the relevant materials (5, 6, 9). Moreover, based on the results of most cross-sectional studies that have been conducted in our country, the level of knowledge and attitude of hairdressers regarding infectious diseases and their control was low (1, 10). Therefore, considering the important role of knowledge in changing behaviors, it seems necessary to implement effective intervention programs regarding this issue.

Therefore, one of the methods for the improvement of health-related behaviors is the provision of educational interventions. Educational effectiveness requires the appropriate use of behavioral science theories. For this purpose, researchers have used theories and models to change behavior, one of which is the health belief model (HBM), which considers behavior as subordinate to one's knowledge and attitude. The components of this model cause people to understand health threats and lead their behavior towards health (11). This model

is one of the oldest theories of health behavior, and various experts in various fields of behavioral science have used it in designing and evaluating behavioral interventions.

According to this model, one's decision and motivation for the adoption of a health-related behavior is based on three distinct categories of perceived susceptibility, modifying variables, and the cues to action. Perceived susceptibility refers to factors that affect the perception of illness or disease, as well as the consequences of health behavior. Modifying variables include demographic variables, perceived threats, and guidelines, which play a role in the emergence of perceived susceptibility (12). Due to the few numbers of studies performed in this field, the present study aimed to determine the effect of educational intervention based on the health belief model in improving the health-related behaviors of female hairdressers in Qom, Iran.

Materials & Methods

This interventional study was performed on female hairdressers who worked under the supervision of Qom Health Center, Iran in 2018. The subjects were selected using a multistage randomized sampling method. For this purpose, Qom city was divided into six regions based on the geographical map and four regions were selected randomly. The sample size was determined according to the following formula and factors.

$$n = \frac{(Z_1 + Z_2)^2 (S_1^2 + S_2^2)}{d^2}$$

- Z1: reliability coefficient of 0.95
- Z2: test power coefficient of 0.80
-S1 and S2: estimation of the standard deviation of performance score, the maximum of which was determined to be 15 points.
- d: the minimum difference is the change of the mean score between the two groups, which indicates a significant difference and was considered 10. As a result, the sample size was estimated to be 44 cases in each group which made a total of 88 cases.

First, a list was prepared of female hairdressers who worked under the supervision of the city health center in the selected areas. Subsequently, the samples were assigned to the groups randomly so that the first selected person was enrolled in the intervention group and the next person in the control group. This process continued until the sampling was complete. The inclusion criteria consisted of coverage by health care centers, literacy, and Iranian nationality. On the other hand, the exclusion criteria were unwilling to continue participation in the study, as well as the non-participation in any of the intervention sessions. However, there was no attrition due to the exclusion criteria.

In this study, the data were collected using four researcher-made questionnaires and one checklist, namely A) a demographic characteristics form, including 9 items, B) knowledge questionnaire consisting of 15 three-choice items, C) HBM construct questionnaire which was scored based on a 5-point Likert scale, D) performance questionnaire consisting of 10 self-report items.

In the knowledge questionnaire, the correct and wrong answers were scored 1 and 0, respectively. Therefore, the total range of the achievable score was 0-15 points. The HBM construct questionnaire consisted of five sections, namely perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and self-efficacy, each of which included 5 items. These items were scored based on a 5-point scale, according to the correct answer. Therefore, the range of the total achievable score for each structure was 5-25.

The external and internal guide to action section included a five-choice question that aimed to measure the most prominent source of information on preventive behaviors. The subjects were allowed to choose more than one

option, and finally, the results were shown in frequencies. The health-related behaviors of the subjects were evaluated through a self-report questionnaire including 10 yes/no questions and a performance checklist containing 16 items that were completed by the observer. In this section, the correct behaviors were scored 1, while the incorrect behaviors were scored zero. Therefore, the scope of the achievable score of performance questions (self-report) was 0-10 and the scope of scores that could be obtained from the checklist was 0-16.

Due to the lack of a standard questionnaire on the subject of research, an extensive review was conducted and the necessary information was gathered in order to prepare a question bank appropriate to the model constructs. Afterward, the questionnaire was approved by 6 experts in this field (professors of health education, environmental health, biostatistics). Furthermore, in a pilot study, the questionnaires were distributed among 20 female hairdressers, other than subjects, to check the reliability of the tools in each section using the internal consistency method and with the help of Cronbach's alpha coefficient. The obtained consistency coefficient for each construct was at least 0.7.

The researchers informed the officials of Qom University and Health Center to obtain a license to enter the beauty salons and conduct the study. Moreover, they introduced themselves to the hairdressers, stated the purpose of the research, and obtained their written informed consent (if they were willing to participate in the research). They respected the ethical standards (volunteer completion of the questionnaires and the right to leave the study) and kept the personal information of the subjects confidential).

After completion of the questionnaire and checklist by both groups in the pre-test stage, the intervention group received two 90-minute group sessions of intervention (where the occupational health education classes are usually held) and one 45-minute individual session at their beauty salon. The intervention sessions included a review of all the communicable diseases common in this profession, widely used disinfectants, proper disinfection methods of tools and the salon environment, solution making, personal hygiene tips, and introduction of disposable items that can be used in this profession.

In these sessions, the researchers used different tools, such as short educational videos, pamphlets, and manual for making solutions, as well as various methods, such as question and answer, counseling, and practical exercise. The used content was derived from the resources used by the Deputy Minister of Health in this regard. Moreover, by creating a channel in social media that the members could join, it was possible for them to ask questions and share useful and related content. Three months after the last intervention session, the questionnaire and checklist were completed again for both the intervention and control groups. The collected data was analyzed in SPSS software (version 21) using the independent t-test and paired t-test, Chi-square test, and Mann-Whitney test. It must be noted that a p-value of less than 0.05 was considered statistically significant.

Results

The present study was performed on 88 female hairdressers in Qom who were randomly allocated to intervention (n=44) and control (n=44) groups. The mean and standard deviation of the age of the intervention and control groups were 33.36±8.3 and 36.31±10 years, respectively. According to the independent t-test, this did not result in a significant difference between the two groups (P=0.135). Moreover, the two groups were compared in terms of the years of their work experience. The mean and standard deviation of the years of their work experience were 9.38±7.41 and 11.8±50.08, respectively and the

t-test did not reveal any statistically significant difference in this regard (P=0.205). Other demographic characteristics of the participants were not significantly different between the two groups (P<0.05) (Table 1).

According to the results of the independent t-test, before the intervention, there was no significant difference between the two groups regarding the mean and standard deviation of the knowledge score (P=0.806). However, after the intervention, this difference was significant (P<0.001) (Table 2).

According to the results, before the intervention, there was no significant difference in the mean scores of the HBM constructs between the two groups (P<0.05). However, this difference was statistically significant after the intervention (P<0.05) (Table 3).

Regarding the cues to action, according to the participants, after the educational intervention, the most important external cues were customers (88.6%), health personnel (77.3%), and colleagues (43.2%). Moreover, they believed that the most important internal cues were work conscientiousness (98.9%) and fear of contracting certain diseasesو such as AIDS and hepatitis B and C (97.7%).

Prior to the intervention, the results of the independent t-test showed no significant difference between the two groups regarding their health-related behaviors scores (self-report) (P<0.05). However, after the intervention, the mean scores of behavior and the checklist (self-report) of the intervention group were more than those of the control group. (Table 4)

According to the obtained results before the educational intervention, 76.1% of all the hairdressers participating in this study considered the hepatitis B and Td vaccine (diphtheria and tetanus) vaccine necessary for the beauty salon staff. However, only 22.7% of the participants had a hepatitis B vaccination card. On the other hand, after the intervention, 84.1% of all the hairdressers considered vaccination necessary and the number of people with vaccination cards (received at least once) reached 51.1% (P<0.001).

Results of the direct observation obtained from the checklist in the pre-intervention phase indicated that in the control group, 25% and

Table 1) Comparison of the frequency distribution of demographic characteristics of intervention and control groups

Variable	Intervention group		Control group		p-value
	Number	Percentage	Number	Percentage	
Marital status					
Unmarried	13	29.5	13	29.5	1.00
Married	31	70.5	31	70.5	
Level of education					
Elementary	3	6.8	4	9.1	0.874
Junior high school	8	18.2	6	13.6	
High school	26	59.1	25	56.8	
Academic	7	15.9	9	20.5	

Table 2) Comparison of the mean and standard deviation of pre- and post-intervention knowledge scores in the two intervention and control groups

Group	Pre-intervention		Post-intervention		Paired t	Mean difference	
	Mean	Standard deviation	Mean	Standard deviation		Mean	Standard deviation
Intervention group	12.09	1.81	14.18	0.54	P<0.001	2.09	1.65
Control group	12.18	1.64	11.75	1.68	P=0.001	-0.43	0.72
Independent t	P=0.806		P<0.001		-	P<0.001	

11.2% of the subjects knew the correct way of washing their hands and disinfecting them, respectively, while none of the subjects in the intervention group knew the correct way of washing their hands and disinfecting them (P=0.44) (P=0.021). After the educational intervention, 93.2% and 95.45% of the participants in the intervention group were able to show the correct way of washing hands and disinfecting them, respectively (P<0.001). Moreover, in this stage, 27.3% and 15.9% of the participants in the control group knew how to properly wash their hands and disinfect them, respectively (P<0.001).

The results of the present study revealed that all the studied beauty salons were equipped with a sharps waste bin for the collection and separation of sharp wastes from the others. However, only a few number of hairdressers knew how to properly disinfect and dispose of them. It was reported that 36% and 38.6% of the participants in the intervention and control groups knew the correct method while others disposed of them like other wastes. After the provision of the educational intervention, 63.6% of the experimental group learned the

Table 3) Comparison of mean and standard deviation score of health belief model constructs before and after intervention in intervention and control groups

Health belief model constructs	Group	Pre-intervention		Post-intervention		Paired t	Mean difference	
		Mean	Standard deviation	Mean	Standard deviation		Mean	Standard deviation
Perceived susceptibility	Intervention group	20.54	2.99	22.81	1.75	P<0.001	2.27	2.34
	Control group	20.04	2.88	20.13	2.29	P=0.72	0.09	1.72
	Independent t	P=0.427		P<0.001		-	P<0.001	
Perceived severity	Intervention group	21.81	2.36	24.06	1.12	P<0.001	2.25	2.09
	Control group	21.95	2.75	21.31	2.35	P=0.019	-0.63	1.72
	Independent t	P=0.8		P<0.001		-	P<0.001	
Perceived benefits	Intervention group	23.27	1.94	23.88	1.12	P=0.016	0.61	1.61
	Control group	22.59	2.47	22.00	1.95	P=0.017	-0.59	1.57
	Independent t	P=0.15		P<0.001		-	P<0.001	
Perceived barriers	Intervention group	9.75	2.39	9.52	1.75	P=0.5	-0.22	2.23
	Control group	10.34	2.85	12.22	2.56	P<0.001	1.88	1.65
	Independent t	P=0.29		P<0.001		-	P<0.001	
Perceived self-efficacy	Intervention group	21.25	2.63	22.20	1.81	P=0.003	0.95	1.98
	Control group	20.77	2.95	20.43	2.50	P=0.25	-0.34	1.94
	Independent t	P=0.42		P<0.001		-	P=0.003	

Table 4) Comparison of the mean and standard deviation of the score of health-related behaviors (self-report) and checklist before and after intervention in the two groups

Variable	Group	Pre-intervention		Post-intervention		Paired t	Mean difference	
		Mean	Standard deviation	Mean	Standard deviation		Mean	Standard deviation
Questionnaire (self-report)	Intervention group	7.65	1.71	8.56	1.30	P<0.001	0.9	1.11
	Control group	8.18	1.64	7.40	1.46	P<0.001	-0.77	0.85
	Independent t	P=0.14		P<0.001		-	P<0.001	
Checklist	Intervention group	6.04	1.23	10.97	1.13	P<0.001	4.93	1.14
	Control group	6.90	2.55	7.56	2.22	P<0.001	0.65	1.01
	Independent t	P=0.046		P<0.001		-	P<0.001	

correct method of decontamination of the sharps waste bin and proper disposal of its waste (P<0.001).

Discussion

The main focus of the present study was on the improvement of the health performance of female hairdressers in Qom province using the HBM. The results indicated that the design and implementation of an educational program in accordance with the HBM can significantly increase the level of knowledge, change health-related beliefs, and improve self-efficacy which would finally lead to a change in health-related behaviors of hairdressers. This finding was in line with that of a study performed by Sadeghi in Sirjan, which found that educational intervention based on the health belief model is effective in improving the level of knowledge and scores of model structures in the intervention group compared to the control group.

In the present study, the participants obtained more than half of the score of knowledge before the educational intervention, which indicates their satisfactory level of knowledge about diseases, such as hepatitis B and AIDS, ways of their transmission, and the need for the use of disposable tools. Two other comparable studies conducted by Ghaneian (14) on the knowledge, attitude, and performance of female hairdressers in Yazd and Shalaby (15) on the prevalence of hepatitis B and C among hairdressers in Egypt revealed similar results.

However, studies carried out by Bawany (16) in Pakistan, Mutocheluh et al. (17) in Kumasi, Ghana, and Adoba (18) in Ghana all indicated a low level of knowledge about occupational diseases in hairdressers. However, the satisfactory level of knowledge of subjects in this study can be due to compulsory participation in occupational health education classes that are held by health centers for various jobs. A study conducted by Panahandeh (19) on the impact of occupational health education classes on female hairdressers in Rasht, Iran regarding the transmission and prevention of HBV and AIDS revealed that the level of knowledge of the trained hairdressers was not higher than that of other hairdressers.

The post-intervention mean score of the perceived sensitivity underwent an increase in the intervention group. This increase indicates that hairdressers become sensitive to the consequences of non-compliance with health principles and found themselves and their customers at the risk of occupational diseases. While in the control group, no significant difference was observed before and after the intervention in this regard. A significant increase in the score of perceived sensitivity after the intervention had been observed in several other studies, including the studies performed by Bastami (20) and Sadeghi (13). It seems that the educational program made the participants realize the dangers that are exposed to themselves and others.

Based on the results of the present study, the score of perceived severity in the intervention group increased significantly after the intervention. This could be due to the fact that the intervention sessions were based on the HBM, which attracted the attention of hairdressers to the side effects and adverse consequences of non-adherence to preventive behaviors, such as contracting some fungal or skin diseases (e.g., baldness and trachoma) and bloodborne pathogens (e.g., AIDS and hepatitis B and C) as well as high treatment costs and even death.

It also seems that the presentation of images related to some diseases overshadowed the seriousness of transmitted diseases for the subjects in the experimental group. The results of this study were consistent with those of various studies (22, 21) about the use of HBM and the effectiveness of educational interventions on increasing the perceived severity by the individuals. However, they were not in line with the results of a study carried out

by Tussing (23) which could be due to the use of educational materials and methods tailored to the needs of the subjects, including the use of video files and various brochures about the consequences and adverse effects of some bloodborne diseases in this study.

The hairdressers had the same status regarding the perceived barriers in the way of preventive behaviors in both groups before the intervention so that even the independent t-test did not show a significant difference between the two groups in this regard. After the educational intervention, the score of perceived barriers in the intervention group underwent a reduction, which could indicate the positive effect of training on the intervention group. However, the results of the paired t-test did not show a statistically significant difference between the mean score of the perceived barriers of the intervention group before and after the intervention. However, the mean score of the perceived barriers in the control group increased by 1.88 which caused the paired t-test to show a statistically significant difference between the mean score of the perceived barriers in the control group before and after the intervention. These findings are consistent with the results of a study performed by Zhang in China. The effect of training on the removal of the perceived barriers to performing preventive health behaviors has been confirmed in several studies (22, 21, 13).

Most of the perceived barriers by both intervention and control groups at both stages of completing the questionnaire were the difficulty of the preparation and usage of disinfectants, the financial cost of using disposable items to prevent the transmission of lice and skin and fungal diseases, and time-consuming process of the disinfection of sharp objects given the large number of customers. Therefore, according to the results of this study, holding periodic training sessions seem essential in order to teach the proper methods of disinfecting tools, introduce new, easy, fast, and effective disinfectants with high efficiency to prevent the transmission of bloodborne viral diseases by health centers, promotion of the use of personal hairdressing kits by customers, emphasis on the severity of inspections and effective health monitoring on the performance of hairdressers by health centers. This was in line with the findings of the studies performed by Sadeghi (25) and Hazrati (26).

Researchers have declared that perceived benefits pave the way for action. In this study, before the educational intervention, the status of both groups regarding the perceived benefits of preventive behaviors was better more than average, which improved after the educational intervention in the intervention group. The increase in the score of perceived benefits was consistent with the results of several studies (27, 22, 21). However, the easiness of measures that should have been taken by the subjects provided the needed benefits for them to take action.

According to the participants in the study, after the educational intervention, the most important external cues for action were customers, health personnel, and colleagues. Moreover, the most important internal cues for action were work conscience and fear of contracting certain diseases, such as AIDS and Hepatitis B and C. Based on the findings of a study conducted by Barzegar Mahmoudi (28) on hepatitis B disease, television, healthcare staff, books and publications, physicians, family and acquaintances, radio, and the internet were the most important external cues, in that order. Increase of self-confidence, fear of contracting diseases, and the sense of calmness caused by timely action in dealing with hepatitis B were identified as the most important internal guides, in that order. In this regard, 54% of hairdressers in Damghan city declared that their main source of health information was health personnel (29).

Therefore, the importance of the position of health personnel should be emphasized as a strong supporter of the motivation, guidance, and stimulus of hairdressers for adherence to

preventive measures. Obviously, the selected education method, tool, and media will have a huge impact on the reception of health-related information and the likelihood of behavior change. Therefore, due to the importance of hairdressing and the possibility of disease transmissions, such as AIDS, hepatitis B, and C and other similar diseases, it is necessary to use mass media (e.g., radio and television), educational classes, comprehensive and understandable educational pamphlets to improve the level of knowledge and health-related behaviors of hairdressers.

According to the results of the current study, the score of perceived self-efficacy in the intervention group increased significantly after the intervention. The self-efficacy construct should be considered important as well since it can strongly affect the emergence of behavior, since merely knowing how to perform a behavior and its causes is not enough, and one must see oneself capable of performing that behavior (30).

Therefore, this study aimed to improve desirable behaviors, such as preparation of a regular daily or weekly schedule for environmental disinfection, familiarization with disinfectants of various levels, the ability to detect tools that need to be replaced or disinfected before reuse, and performance of essential instructions. Therefore, the hairdressers would be able to maintain their health-related behaviors under any circumstances, including the lack of awareness of the customers, expenditure of time and money, and customer overload. Sadeghi (13) and Khani (21) in their studies found that after the implementation of the educational programs, the self-efficacy of male hairdressers regarding the performance of AIDS preventive behaviors increased.

The mean scores of health-related behaviors (self-report) and checklist in both groups were below average before the intervention, and there was no significant difference between the two groups in this regard. The implementation of the educational interventions for the intervention group caused a significant increase in the mean score of its behaviors and checklist, compared to the control group. The results of several studies (31-21-13) are consistent with this finding of the present study. In addition, the paired t-test revealed a significant difference in the mean score of behaviors and checklists before and after the intervention in both groups. Increase in the score of the checklist in the control group could be the result of inspections carried out during this period by environmental health inspectors.

According to the results of the present study, despite the desirable level of knowledge of hairdressers about the need for hepatitis B vaccine, only a limited number of them had received the vaccine. However, this number increased significantly after the intervention. This finding was inconsistent with the results of a study conducted by Waheed (32) in Pakistan that investigated the knowledge and risk factors associated with hairdressing regarding the transmission of hepatitis B and C. In the present study, only 39.6% of the hairdressers knew that hepatitis B and C were viral diseases, and out of the 508 participating hairdressers, only 47.8% of cases knew that hepatitis B had a vaccine. In this regard, a study was conducted by Razak (33) on the awareness and attitude of dentists about hepatitis B in Malaysia and found that 99.6% of them consider hepatitis B vaccines useful, while only 44.8% of them had received the vaccine and 71% of the recipients and 62% of those who had not received it were aware of the serious danger of hepatitis B, which was consistent with the results of the present study.

The results of a study performed by Ghanehpour (29), Ghaneian (14), Honarvar (1), and Ataei (34) also indicated a poor performance of hairdressers regarding hepatitis B vaccination, despite being aware of its necessity. Therefore, due to the necessity of this vaccine for all hairdressers and the possibility of transmitting hepatitis in beauty salons, the health network should develop a plan for the vaccination of all the hairdressers in three

rounds.

The results of direct observation, through the checklists, revealed that most of the participant hairdressers did not know the correct way of washing and disinfecting their hands. The results of a study by Honarvar (1) and Wazir (35) in Pakistan also indicated the poor performance of hairdressers in this regard. Given that all the participants have undergone occupational health education classes, it seems necessary to repeat such training periodically. Moreover, the usage of practical training methods, videos, posters, and pamphlets, instead of traditional methods of training in the courses, as well as compulsory installation of educational posters about the proper method of washing and disinfecting the hands in the beauty salons can be effective in this regard.

The results obtained from the checklists showed that most of the hairdressers who participated in this study did not know the correct way of safe decontamination and disposal of the sharps waste bin. The results of a study conducted by Sadeghi et al. (25) were consistent with those of the present study in this regard. Continuous training seems to be necessary in this regard as well since after the educational intervention, a significant percentage of the intervention group learned the correct method of decontamination of the sharps waste bin and proper disposal of its waste. Besides, responsible organizations must pay more attention to waste management and the design of a system for hazardous waste collection and principled disposal.

One of the key strengths of this study was practical training, especially the preparation of disinfectant solutions, individual training and counseling in this regard, and the preparation of checklists based on objective observations. Limitations of the present study include the use of self-reporting methods in some cases where objective observation of behavior was not feasible, possible considerations of hairdressers and their caution in saying the truth which may have affected the results, the impossibility of gathering the participants in a specific location, and the use of personal training that demanded a great amount of energy and time.

Conclusion

According to the results, usage of the HBM can improve the knowledge of hairdressers regarding health-related behaviors. This model improves preventive behaviors by increasing the knowledge of hairdressers about the risk factors and the benefits of changing behavior. Therefore, it is recommended to design and establish regular and continuous educational interventions accompanied by educational videos, practical training, revised and updated educational content according to the HBM to train hairdressers about occupational diseases, the types of disinfectants, and disinfection and sterilization methods of their equipment.

Footnotes

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Conflict of Interest

There was no conflict of interest between the authors of this article.

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