

The Factors Affecting the Occupational Health-Safety Practice of the Hospital Workers with the Knowledge-Attention Status

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Abstract: Occupational health and safety in the health sector has gained more importance over recent years. Education and work in hospitals that are involved in the 'very dangerous workplaces' class are valuable in supporting prevention of workplace accidents and occupational diseases. The aim of the study is to determine knowledge status of non-physician health personnel, to receive their opinions about their work and working environment, and to evaluate the occupational health and safety education within the context of the "Occupational Health and Safety". The study was conducted with non-physician employees in a university hospital. It was considered sufficient to reach 80% of the employees without using any sampling method. A questionnaire form was prepared as a data collection tool. Before the training, the questionnaire and the 'Occupational Safety Scale for Hospital Health Care Personnel' were completed. Interactive training was provided by the researchers later on. After the training was completed, a final test was conducted with 26 questions in the preliminary test. Descriptive statistics and tests appropriate for distribution of the variables were used to analyze the data. The limit value for significance was accepted as $p < 0.05$. 61.7% of the participants were nurses and 38.3% were other hospital employees. 74.7% of the participants stated that there were laws to transport and raise patients in the hospital. The mean Health Safety Scale score was 134.4 ± 34.3 for the hospital health care staff. There was a significant difference between the participants who stated that the use of masks and gloves was necessary before and after training ($p < 0.05$). Before training, knowing the replacement was the lowest percent before the education by 19.6%, and the most known was definition of occupational safety by 92.1%. Knowing the definition of occupational occupational safety after training was found as 96.4%, while knowing what to do in the case of an electrical installation with highest percentage of 97.0%, and knowing the meaning of replacement was the least known by 40.5%. Information on occupational health and safety after the training was higher than before the training ($p < 0.05$). The score on the occupational safety scale is not high. Although the general information on the occupational health and safety of employees is not very low with the support of previous training, the knowledge point of the last training was higher than before the training. This once again reinforced the importance of making periodic trainings.

Keywords: Occupational Health and Safety, Hospital, Education.

INTRODUCTION

Occupational health and safety works are the activities including determination of the danger and risk factors in workplace, taking measures against the risks, providing a safe and healthy work environment both for employees and employer, and discharging the responsibilities [1-4]. In our country, 6333 numbered "Occupational Health and Safety" law exhibits a preventive against work accidents and occupational diseases, and also imposes obligation for education of

the employees on this issue within the scope of preventive approach [5]. Within this context, organization and realization of occupational health and safety implementations and training is of importance also in health care workers. Because the hospital are included in the "very dangerous workplaces" class [6].

Health care workers may encounter many risks of danger, accidents and diseases due to several reasons such as infections, blood/blood fluid infected

material, medicines, dangers from the materials, water products, over workload and sharp objects injuries [7-11]. Therefore, regulations for patient and worker safety within the context of Health Department Hospital Service Quality Standards included criteria regarding provision of worker safety in addition to patient safety [12, 13]. Occupational health and safety services should be accelerated in order to protect both patient and worker health. Within this context the objective of this study was to determine knowledge status of non-physician health personnel, to receive their opinions about their work and working environment, and to evaluate the occupational health and safety education within the context of the "Occupational Health and Safety".

MATERIALS & METHODS

This study was designed as an interventional study and conducted in a high-capacity university hospital which also delivers care for the patients presenting from the surrounding cities and is localized in Konya province between January 2016 and April 2016. Non-physician health care personnel working in an university hospital constituted the study sample. Since it was aimed to reach the entire sample, no any sampling method was used, and reaching to 80% of the employees was considered sufficient. The study was conducted with the permission and support of the head physician during the training given by the researchers within the concept of occupational health and safety work. The necessary approval was received from the ethics committee before beginning of the study (Decision no: 2016/426). A survey form of 40 questions was prepared as a data collection tool for using in the study by screening the relevant literature, and the form included questions regarding participants' sociodemographic features, years of employment, department of work, status of being trained on occupational health and safety, status of using personal protective equipment, and having knowledge about work accidents and occupational disease. Pilot implementation of the survey was conducted on 10 persons. The survey was first conducted before the training. Then the "Occupational Safety Scale for Hospital Health Care Personnel" which was designed to interrogate whether occupational safety of the hospital workers is provided, and to evaluate of the activities performed for the occupational safety, and to determine health problems that may occur when occupational safety is not provided in line with the opinions of health care personnel was filled. Following the survey and scale application, obligatory training about the occupational health and safety was given to the employees by the researchers as interactive education. After the training was completed, a post-test including the 26 questions that were involved in the pre-test was carried out. Since the participation was on a volunteer basis, persons who accepted to be included filled the questionnaire.

"Occupational Safety Scale for Hospital Health Care Personnel" consists of 45 items and 7 subscales. Validity and reliability of the scale was performed by the researchers who have developed the scale, and total score of the scale ranges between 45 and 270 points. A total score near 270 points from the scale indicate that the occupational safety has been provided in the relevant hospital, while about 45 points from the scale show that occupational safety has not been provided in that hospital. When these points were divided by the number of items for comparison, 1 – 6 points are received from the overall scale and subscales, and the scale points are evaluated by this way. In addition, the scale has 7 subscales under the titles of Occupational Diseases and Complaints (F1), Health screening and Registry System (F2), Injuries and Poisonings (F3), Critical Fields Control (F4), Material, Tools, and Equipment Control (F5), Protective Instructions and Rules (F6), and Physical Medium Compatibility [14].

Data of the study were analyzed using IBM SPSS 24.0 (IBM SPSS Statistics, version 24.0, Armonk, NY: IBM Corp.). Data are expressed as number, percentage, arithmetic mean \pm standard deviation according to normality. The dependent data were compared with Mc-Nemar test, and the independent data with Mann-Whitney U test. $P < 0.05$ values were considered statistically significant.

RESULTS

Of 506 health care workers included in this study, 61.9% (n=313) were female and 38.1% (n=193) were male with a mean age of 35.5 ± 8.9 years. Of all participants, 26.7% (n=135) were high school graduates, 70.9% (n=359) college graduates, and 2.4% (n=12) were secondary school graduates. The mean years of working in the profession was 13.4 ± 8.3 years. Of the participants, 61.7% (n=312) were nurses and 38.3% (n=194) were other hospital workers. 71.9% (n=364) were working in the internal departments and 28.1% (n=142) in the surgical departments. Of the participants included in the study, 44.5% (n=364) were ward workers, 16.6% (n=84) were intensive care workers, 14.6% (n=74) were outpatient clinic workers, 13.2% (n=67) were secretary workers, and 11.1% were laboratory workers. Whereas 46.6% (n=74) of the employees were working at day and night shifts, 45.8% (n=232) were working in the day time, and 7.5% (n=38) only at night shifts. 20.6% (n=104) of the participants were continuously using drugs due to chronic disease.

Of the participants, 54.3% (n=275) stated that they have been trained previously on occupational health and safety, or even received more than one training in the relevant topics. The trainings received included hygiene-hand washing (79.4%, n=402), civil defense education (77.7%, n=393), first aid training (62.6%, n=317), the use of protective equipment (58.5%, n=296), communication training (54.5%,

n=276), correct use of the cleaning materials and protection (48.1%, n=244), taking measures against work accidents (44.9%, n=227), and maintenance and use of the equipment (43.1%, n=218). 74.7% of the participants stated that there were laws to transport and raise patients in the hospital. 56.1% (n=284) of the persons had immunization, and 77.3% (n=391) have undergone examination by the occupational physician due to their profession. 86.2% of the participants

thought that the workers have sleep disorders, 83.6% felt fatigue, and 84.4% thought to have disorders such as herniated disc.

The mean score of Occupational Safety Scale for Hospital Health Care Personnel was found as 134.4 ± 34.3. F1 and F4 subscale scores were higher in non-nurse workers, and F6 was higher in the nurses compared to the others (Table-1).

Table-1: Mean Points of Occupational Safety Scale for Hospital Health Care Personnel

Subscales	Nurse mean ± SD	Other health care personnel (mean ± SD)	Total mean ± SD	p value
Occupational Diseases and Complaints	1,7±0,8	2,4±1,1	2,0±0,9	<0,001
Health screening and Registry System	3,4±1,4	3,2±1,5	3,3±1,4	0,506
Injuries and Poisonings	3,0±1,4	3,0±1,4	3,0±1,4	0,795
Critical Fields Control	2,3±1,1	2,7±1,4	2,4±1,3	<0,001
Material, Tools, and Equipment Control	3,2±1,2	3,3±1,4	3,2±1,3	0,201
Protective Instructions and Rules	4,1±1,5	3,7±1,7	3,9±1,6	0,019
Physical Medium Compatibility	3,9±1,5	3,7±1,7	3,8±1,6	0,810

There was a statistically significant difference between pre- and post-training in stating that the use of gloves and mask is obligatory (Table-2). Before training, knowing the replacement was the lowest percent before the education by 19.6%, and the most known was definition of occupational safety by 92.1%. Knowing the definition of occupational occupational

safety after training was found as 96.4%, while knowing what to do in the case of an electrical installation with highest percentage of 97.0%, and knowing the meaning of replacement was the least known by 40.5%. Information on occupational health and safety after the training was higher than before the training (Table-3).

Table-2: Status of Using Personal Protective Equipment

Personal Protective Equipment	Before training use of PPE %(n)	After training use of PPE %(n)	p value
Gloves	84,6 (428)	85,6 (433)	0,52
Mask	66 (334)	70,0 (354)	0,04
Apron	53,8 (272)	58,3 (295)	0,02
Boot	3,0 (15)	5,3 (27)	0,05
Working Clothes	24,5 (124)	23,7 (120)	0,69

Table-3: Participants' Status of Knowledge about Occupational Health and Safety

Variables	Pretest Correct Answer n (%)	Posttest Correct Answer n (%)	p value
Knowing definition of occupational safety	466(92,1)	488(96,4)	0,001
Knowing definition of work accident	407(80,4)	435(86,0)	0,01
Knowing definition of replacement	99(19,6)	205(40,5)	<0,001
Knowing that occupational diseases are preventable	357(70,6)	425(84,0)	<0,001
Knowing that protective services are of priority among the workplace health care services	450(88,9)	488(96,4)	<0,001
Knowing no 6331 law which is the basis of preventive approach in work accidents	401(79,2)	430(85,0)	0,008
Knowing responsibilities of employees in workplace	441(87,2)	463(91,5)	0,02
Knowing responsibilities of employer against employees	431(85,2)	468(92,5)	<0,001
Knowing what can be done for prevention of accidents	402(79,4)	459(90,7)	<0,001
Knowing emergency exit routes and gates	429(84,8)	465(91,9)	<0,001
Knowing that emergency exit warning signs in workplace are green	217(42,9)	332(63,6)	<0,001
Knowing that chemical substances are among the biological agents	235(53,6)	331(65,4)	<0,001
Knowing that authorized personnel should be informed in case of a failure in electrical installation	467(92,3)	491(97,0)	0,001
Knowing that fluid fire must not be intervened with water	349(69,0)	438(86,6)	0,001
Knowing that gas tubes must be vertically carried / stored	395(78,1)	441(87,2)	0,001
Knowing that oxygen tube is of blue color	438(86,6)	487(96,2)	<0,001
Knowing that measures must be taken in the environments with a noise level higher than 85dB	155(30,6)	402(79,4)	<0,001

DISCUSSION

Slightly more than half of the participants had received training on occupational health and safety. Three fourths of them had been examined by the occupational physician. The rate of being vaccinated due to their work is not much high. The rate of participants who stated obligatory use of gloves and mask was higher after the training than before the training. In a study it has been reported that personnel who had not received in service training had more accidents than the persons who had been trained [15], while in another study the importance of training has been underlined since reading of the notification about "Provision of Patient and Worker Safety" had been effective in raising awareness of the workers on occupational safety [16].

Since the participants has been trained previously before the current training by the researchers, they level of knowledge was not low also before the training during this study. While pre-training 'replacement' was the least known topic, although knowing 'replacement' was raised following the treatment, it had the lowest percentage. Overall knowledge on this issue was higher after the training compared to before. It is pleasing that knowledge of protective services are of priority in the occupational health services, and professional diseases are preventable. In a study from Ankara, scores that the householding personnel in a hospital received were higher after the training on cleaning methods, and cleaning tools and substances compared to the scores received before that training [17]. In another study by the same researchers, it was reported that entire hospital personnel had received in service training to protect their health, and training topics of cleaning substances (100%) and use of equipment (99.2%) were the most commonly stated [18]. In fact, in service training are given about worker and occupational health in each hospital. In a study conducted in different business lines in Turkey in order to evaluate role of occupational health and safety in prevention of work accidents and occupational diseases, an association was mentioned between occupational health and safety training and work accidents [19]. In another study performed in a hospital, employees stated that the responsibilities about occupational health and safety training activities have been defined [20], which is an important point to support necessity of occupational health and safety works. In a similar study, it was reported that knowledge and awareness of employees about employer and employees responsibilities, risk factors, and relevant departments should be increased through occupational health and safety training [21].

The mean score of Occupational Safety Scale for Hospital Health Care Personnel was moderate. This

suggests that informative and regulatory works are needed hereafter in providing occupational safety. In a study conducted in Trabzon public hospitals, it was stated that overall occupational safety was provided, but there are lacks in the dimensions of Occupational Diseases and Complaints (3.16 ± 1.31), Critical Fields Control (3.40 ± 1.35) [22]. In our study, these subscales were higher in non-nurse personnel compared to the nurses, although it was lower than the other study. Whereas Occupational Diseases and Complaints, and Critical Fields Control subscales were lower in the nurses compared to the other personnel, finding occupational safety sufficient in Protective Instructions and Rules was higher among the nurses. Unlike our study, in a study from Istanbul, safety climate perception of the nurses was lower than the other health care workers [23]. In another study, it was recommended that sustainability of training should be provided by continuing to training programs that are given in a university hospital at regular intervals in order to make personnel gaining positive behaviours to protect health of themselves and environmental health (20), and we also support this conclusion.

CONCLUSION

The scores received from the occupational safety scale are not high. Overall knowledge of the employees in the area of occupational health and safety is not so low owing to previous trainings they had received. However, there are still unknown issues. Knowledge points are higher compared to the pre-training scores, because content of the current training was more interactive, and post-test was carried out immediately after the training. This once again support importance of periodical trainings. Planning should be made in the hospital for the necessity of speeding up the occupational health and safety works in hospitals.

LIMITATIONS

The study included only the opinions of health care personnel working in a university hospital. Since engagement was not obligatory, as a limitation the study was conducted only with those accepted to participate.

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