

ORIGINAL ARTICLE

Evaluating the Viewpoints of Postgraduate Health Students of Qazvin University of Medical Sciences toward the Effectiveness of Health Safety and Environment Workshop in 2020

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ABSTRACT

It is necessary for managers in all types of organizations to take an appropriate training approach in order to maintain and promote health, achieve safety, and prevent environmental damages. We aimed to evaluate the effectiveness of Health Safety and Environment training workshops from the students' point of view to inform the relevant officials about the participants' opinions and make efficient decisions in order to improve the quality of training courses in the field of health, safety, and environment. A qualitative study was conducted using face-to-face or telephone interviews with a purposeful number of 37 students studying at the faculty of the health of Qazvin University of Medical Sciences. To analyze data, thematic analysis using a framework approach was applied. Findings related to the students' viewpoint about the effectiveness of the HSE workshop were presented in six main themes including satisfaction with the educational content, awareness about HSE concepts before the workshop, the importance of HSE subject in the participants' field of study, important topics presented in the workshop, experience from HSE workshop, major workshop problems, and solutions. Based on the study results, one of the key objectives of all medical universities should be training their students about health and safety matters to potentially prepare them for future job positions with maximum safe behaviors in workplaces. In fact, medical universities play a key role in developing the health and safety knowledge of students helping them in protecting themselves while working in hazardous working conditions.

KEYWORDS: *Health, Safety, Environment, Workshop, Effectiveness, Students*



INTRODUCTION

Nowadays, despite all the advancements in technology, the necessity of preserving the health of human beings, society, and the environment has been neglected due to improper use of natural resources. The consequences of such ignorance might lead to fire, poisonous pollution, destructive and heavy explosions, and accidents which altogether result in a high burden of death and disabilities in the workplace and cause extensive damages to the ecosystem [1]. According to annual statistics, unsafe actions due to non-compliance with the principles of safety and health in the workplace cause the death of 2.2 million people worldwide. Some other sources determined the costs of these deaths and work-related illnesses about 4% of a country's annual gross domestic product (GDP) [2].

Therefore, managers in all types of organizations should take an appropriate approach to control these harmful outcomes and establish a proper structure in order to maintain and promote health, achieve the necessary safety, and prevent health and environmental damages [1]. Health, Safety, and Environment (HSE) as one of the specialized fields in this regard consists of three different and inseparable parts of occupational health, safety, and environment [3]. Occupational health is a branch of health science that identifies measures, evaluates, and controls harmful factors at the workplace [4]. The purpose of the safety branch is to prepare and compile the necessary instructions for risk assessment and prevention. So, it helps to protect individuals, facilities, and equipment in the occurrence of accidents from injury and adverse events. Therefore, having specialized training workshops on health and safety matters might be a useful strategy to assure the compliance of the existing conditions with the national and international safety standards [1].

Due to the complexity of activities and working processes in the field of health sciences, it is of particular importance to training interdisciplinary specialties. So, they can study and work in a safe educational and working environment. In that sense, some educational institutions and universities have offered specialized HSE workshops certificate to individuals in related short-term courses. These courses, by different methods of fire extinguishing

practice, prepare students to organize their activities with at least accident [1-3]. Therefore, the courses assessment committee should take into consideration the effectiveness of such short-term courses in educational curricula [6].

Due to the impact of higher education in the development and provision of human resources in countries [7]. It is of particular importance to provide an environment for training committed, knowledgeable, skilled, and safety-oriented students. Thus, organizations tend to heavily invest in training their staff with the latest methods of such programs [8].

The main concern of the executors of the higher education system has always been the quality of education during the past few years. The existence of various regulations and instructions guarantees this issue from the relevant ministry [9]. Teaching is a two-way interactive process that is both inclusive and instructive. Moreover, there are various methods to evaluate the effectiveness of teaching methods [10]. The results of an accurate and principled evaluation of teaching approaches can be an important source of information for many decision-making situations and educational programs to promote the strengths and reduce the weaknesses to increase the academic level of students and professors [7]. According to the results of study conducted by Aultmon, professors teaching evaluation by students is a valuable way for upgrading the quality of their education as it provides quick feedback. It also provides an opportunity to improve teaching methods and the quality of learning approaches among students and learners [11].

Major issues in all occupational societies included the lack of coordination between what is learned and the professional needs in the workplace. Teaching is not simple and various factors affect its quality and effectiveness. Identifying the shortcomings and weaknesses in this area requires a process-interactive approach with a systematic process of actions [7].

The effectiveness of HSE training can be addressed by promoting the safety culture and the knowledge of students regarding health, safety and environmental areas and the impact of these courses on their future careers. Despite the great importance of this course, not too much research has been conducted

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to evaluate the effectiveness of this course from the viewpoints of students so far. Therefore, in the present study, we aimed to evaluate the effectiveness of HSE training workshops from the students' point of view. Hence, this evaluation can be used to inform the relevant officials about the participants' opinions, efficient decision-making, and better planning to improve the quality of the workshop.

MATERIALS AND METHODS

This was qualitative research with ethical code IR.QUMS.REC.1399.051 that conducted through interviews with 37 students studying master of sciences in five majors, including healthcare management, environmental health engineering, occupational health engineering, food safety and health sciences, and general health who had participated in the HSE workshop between February 2020 and February 2021.

The sample size was based on data gathering to reach data saturation. To do so, we asked the person in charge of holding the workshop to prepare a complete list of students who participated in the training workshop. The interview questions were designed to prevent the participants from being mentally distracted through specific and predetermined answers. Therefore, the interviewees were asked to express their experiences and provide detailed explanations about the topics. In that sense, we reviewed similar studies and collect experts' opinions to get a broad view of the topics. Accordingly, six questions about the purpose of the study were designed to collect their comments and express complementary ideas at the end of each interview.

Interviews were conducted between February and March 2021 through telephone or face-to-face interviews. At the beginning of the interview, a brief explanation of the subject, study objectives, and the method of study was described to the interviewees. Moreover, the respondents were assured about the confidentiality of the collected information. Each interview was 20 minutes and interviews record permission was obtained. After data collecting, all the information was recorded by the research team. The MAXQDA software version 10 was used to analyze the obtained information. The process of data analysis consisted of five stages, including familiarization, the development of a thematic framework, indexing, charting, and interpretation of the analysis. Furthermore, in order to ensure validity, the member check strategy was used to check the congruence of our results considering students' opinions [12-13].

RESULTS

A total of 37 master's degrees students in one of the five majors, including healthcare management, environmental health engineering, occupational health engineering, food safety and health sciences, and general health in the public health faculty at the Qazvin University of Medical Sciences participated in this qualitative study. The mean age of participants was 30.10 years. All participants were asked about their viewpoints on the HSE workshops held at the college and expressed their views without any interference or bias from the interviewer.

The demographic information of the participants has been presented in Table 1. Also, the number of participants by field of study has been shown in Figure 1.

Table 1. Demographic information of the participants.

		Number	Frequency
Sex	Man	15	40.5
	Woman	22	59.5
Job	Employed	21	56.8
	Unemployed	16	43.2

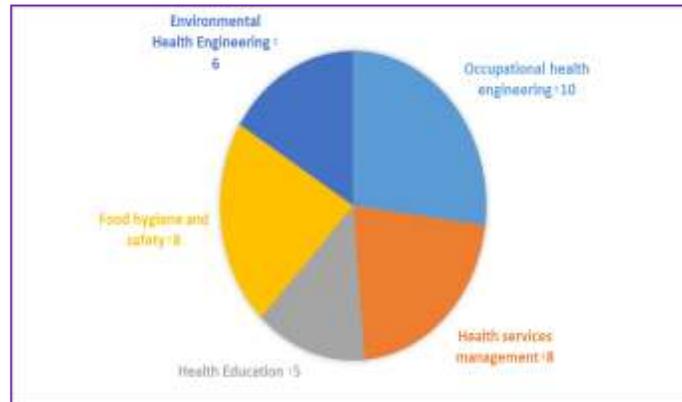


Fig 1. The number of participants in each field of study

Figure 1 shows that among the participants there were 6 environmental health engineers, 10 occupational health engineers, 8 health and food safety, 5 health education, and 8 health services management.

Responses and comments in the interview were summarized into seven main topics (see Table 2).

☐ Satisfaction with the educational content

- ☐ Awareness about HSE concepts before the workshop
- ☐ The importance of the HSE subject in the participant's field of study
- ☐ The main topics presented in the workshop
- ☐ Experience from HSE workshop
- ☐ Major workshop problems
- ☐ Suggested solutions

Table 2. Students' responses in the interview with respect to the main domains

Main themes	Sub themes
Satisfaction with the educational content	Satisfaction Dissatisfaction
Awareness about HSE concepts before the workshop	Have enough background knowledge about HSE concepts Lack of prior knowledge and awareness about HSE concepts Having some acquaintance with HSE concepts
The importance of HSE subject in the participant's field of study	Significant importance Relative importance No matter How to work with chemicals The right way to manage accidents/adverse events Principles of safety in the laboratory Safety guidelines in terms of fire or radiation
Important topics presented in the workshop	Care protocols Ergonomics University safety First aid laboratory chemistry and microbiology Accidents and burns The importance of safety culture and staff awareness Practical safety training
Experience from HSE workshop	Optimal and constructive experience A relatively desirable and constructive experience Unfavourable experience and waste of time Forgetting the presented topics Interference of the workshop with classroom times
Major workshop problems	Inappropriate and insufficient time of holding workshops Unpreparedness of teachers Lack of attention to the problems Large number of workshop participants
Solutions	Evaluating the quality of workshops from the students' point of view in order to notice pitfalls Being ensure about the quality and adequacy of materials required to hold the workshop in a proper manner Using a variety of facilities and teaching techniques to hold the workshop qualitatively Selection of teachers from different study fields in order to enrich teaching contents Use pre-test and post-test techniques to evaluate the efficacy of the workshop Dedicating more time to first aid techniques Hold the workshop more practically and based on the students' needs of future career

Satisfaction with the educational contents:

64% of the participants were satisfied with the educational content presented in the workshop and declared that the content motivated their curiosity. Therefore, it conveyed adequate knowledge and awareness toward the HSE concepts, their objectives, and applicability in the workplace.

“I believe that the educational concepts presented in the workshop were comprehensively included a broad range of areas including safety matters and environmental issues.”

Awareness about HSE concepts before the workshop:

46% of people were already familiar with the HSE concepts, 34% were relatively familiar, and 20% did not have any knowledge about the related topics.

“Before the workshop, I didn't even know what HSE stands for”.

The importance of the HSE subject in the participants' field of study:

A large percentage of students (84%) highlighted the importance of HSE principles in their field of study and future workplace, while 14% of them agreed on the relative importance of the issue; and the remaining 2% thought that safety matters were insignificant.

“Familiarity with this subject is important for all fields of study, including mine. As I am studying healthcare management. I believe that in my future career working in healthcare institutions as a manager has significant importance to consider HSE matters”.

“My field of study is occupational health engineering which mostly deals with laboratory conditions. Thus, it is obligatory to adhere to international health and safety guidelines in both learning and working environments in order to minimize possible hazards. We have heard about several accidents and adverse events which had occurred due to negligence to these standards”.

Important topics presented in the workshop:

In this section, we tried to identify the most important and practical issues arising in the HSE workshop from the participants' point of view. One of the important issues mentioned by the students was

how to work with chemicals in a proper manner with minimum hazard.

“In the workshop, most of the issues related to the safety of laboratories and people working in such environments were important to me, and the rest were mostly focused on specialized concepts belonging to occupational health engineering and were not addressed to all the students who attended the workshop”.

“While we are working with chemicals in the laboratory, we must first carefully study the MSDS chemicals that are essential, or how to deal with it if, God forbid, something happened.”

Another issue in this section was incident management. From the participants' point of view, HSE workshop topics would be helpful in managing accidents.

“Proper management of burns and accidental inhalation of hazardous chemicals is a key knowledge that would be useful for all of the students regardless of their field of study and future job position”.

“Managers of organizations can predict and control unwanted events if they get enough information about the HSE concepts, principles, and techniques”.

The next issue was promoting safety in the laboratories. Most of the students in the field of environmental health and laboratory sciences mentioned the importance of HSE principles in learning and working environments.

“Awareness and observance of safety tips for students in the field of environmental health engineering guarantee their health”.

Experience obtained from HSE workshop:

“It was a good experience totally, but it would be much more fruitful if more realistic and tangible examples were presented”.

“The workshop included new ideas which inspired almost all students to follow the whole parts of the training course. Furthermore, being familiarized with first aid skills through promoting actual process practices increased the applicability of concepts. I believe that a useful way in teaching is using hands-on skills which give students an opportunity to test new methods and be expert in teaching materials”.

Major workshop problems:

In this part, the main problems related to holding the HSE workshop were expressed by the participants

“In my opinion, teachers presented a lot of important and practical contents in a few hours, which was a bit tedious. It would be more desirable if the workshop had been held at separate sessions”.

“Considering the workshop size and plan for an appropriate time frame can have an influential effect on its quality. I believe that one of the major problems of the workshop was its insufficient time. Other students also agreed with me and mentioned that an intensive workshop with few dedicated hours is not suitable, particularly for this volume of contents”.

Solutions:

At the end of the interview, students were asked about the strategies which could resolve the existing drawbacks of the workshop. The most important solution mentioned by them was the necessity to evaluate the quality of workshops and improve them based on the gathered information.

“Setting a goal at the first step of the lecture, presenting the teaching materials in a practical way, using efficient and various teaching techniques, and questions and answers time are among important key issues that I believe are constructive”.

“I think the participation of students during the workshop was very low. It is better to explain the importance of the workshop through listing the tangible outcomes and provide a list of activities that can be done in a team to achieve the training objectives”.

“As the time of the workshop was very short and intense, it is recommended to dedicate at least 2 days to it”.

Another factor that was raised in this section was the selection of a workshop instructor among the professors of health faculty.

“In my opinion, the HSE workshop is more related to the field of occupational health, and it is better to choose a workshop instructor among the professors in this field so that he can teach more practically”.

DISCUSSION

The present study was aimed to investigate the students' viewpoints who participated in the HSE workshop on the effectiveness of this course at the Qazvin University of Medical Sciences. Based on the research findings, about two-thirds of the participants in this workshop were satisfied with the quality of the provided content. In addition, most of them knew that participating in this workshop would raise their awareness and skills. In several studies, similar results were obtained. In research conducted by Ramezani et al., the importance of holding the HSE workshop among faculty members and students was highlighted. They mentioned that giving necessary information to the participants in terms of health, safety, and environment can effectively increase the level of awareness and understanding of learners [3]. In the study of Hong et al., nursing students were trained about safety matters with the purpose of promoting their awareness and understanding towards practicing in a safe manner. Moreover, according to the findings, the students got necessary information about the causes of the error to use the knowledge in designing safe systems with a minimum frequency of adverse events [14].

From the participants' point of view, the importance of HSE was highlighted due to the necessity of observing safety principles to prevent accidents in high-risk laboratory environments while working with harmful chemicals. In fact, it is crucial to provide adequate information for students of all study fields regarding health and safety guidelines. In hazardous work environments such as hospitals and medical centers, students in most majors attend internship units which put them in risky conditions. Thus, the university authorities should pay special attention to their health and ensure their well-being by familiarizing them with the safety standards and protocols. In line with our findings, Wu's study emphasized the necessity of HSE training due to the complexity and danger of educational environments such as laboratories [15]. Moreover, in the study of Ramezani et al., it was found that holding the HSE workshop could increase the level of knowledge and understanding of learners about health, safety, and environmental issues [3].

Furthermore, our results revealed that the main topics presented in the workshop included how

to work with chemicals? how to act in case of danger? how to effectively manage adverse events? and how to apply the safety principles in laboratories?. In a study by Darabi et al., the most important topics to increase the skills of participants in the field of safety matters were how to comply with health, safety, environmental standards and requirements, and recognize emergency situations and apply crisis management methods in a proper way [1]. Accordingly, in Minter's study, the results showed that in addition to learning the necessary technical principles, individuals must also acquire the necessary management skills to solve problems. Thus, the teaching materials and workshop contents should be organized in a way to contain managerial skills including situation analysis, appraisal, evaluation, and control [16].

Our study also revealed that almost half of the participants stated that they had a relatively good experience of participating in the workshop. Some of the main drawbacks of the workshop were lack of attention to the real needs of students, the tightness of the workshop, and a large number of participants which reduced the practicality of the workshop. Students also added that such problems can be solved through the use of modern and varied facilities and teaching techniques, selection of proper teachers, dedicating sufficient time to the workshop, and planning for continuous training. In a study by MorgatiKhoi et al., it was suggested to assess educational programs in order to apply new teaching techniques aiming to promote students' learning abilities and their satisfaction toward the courses [17]. In Wu's study, the results indicated that in order to convert the HSE workshop to a practical format, the teaching method should go from lecturing-oriented to interactive styles. Moreover, using practical sessions and participatory teaching methods such as discussions with safety experts can be useful in this regard [15]. Todd et al., also indicated that one of the effective methods in teaching case-based activities was a combination of individual and group approaches to actively participate the students in classrooms [18].

CONCLUSION

Based on the results of the study and the importance of safety, health, and prevention of potential risk factors in hospitals and medical environments, one of the key objectives of all medical

universities should be training their students about health and safety matters to potentially train future workforces with maximum safe behaviors in the workplaces. In fact, medical universities play a key role in developing the health and safety knowledge of students that help them in protecting themselves while working in hazardous working conditions.

Suggestions for Future Research:

It would be interesting that a similar study in other universities and by participating other students in different fields of study may provide a broader view about the quality of HSE's workshops.

Given the importance of the HSE issue in the field of employment, it is better to conduct in-depth interviews with students who are employed.

Researchers should simultaneously conduct quantitative and qualitative studies on the evaluation of HSE workshops.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article.

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