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Evaluating the Effect of Occupational Health Education on Workers Knowledge

Rateb Ahmed Mohammad Abuzeid*, Ahed Al Najjar, Nabeel Abdulqader

Prince Sultan College for Emergency Medical Services, King Saud University, Riyadh, Saudi Arabia

***Corresponding authors:** Rateb Ahmed Mohammad Abuzeid, Prince Sultan College for Emergency Medical Services, King Saud University, Al Hawwari, Az Zahra, Riyadh 12812, Saudi Arabia. Tel: +966550328988; Email: rrrrrrateb@hotmail.com/rabuzeid@ksu.edu.sa

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Abstract

Background: Studies show that about 90% of accidents occur because of unsafe behavior and human errors. Even if workers do not have the right knowledge toward safety measures in a safe workplace, all efforts for an accident-free workplace will be in vain. Maintaining a safe working environment is reflected on a healthy worker. Some reasons for not implementing the safety policy by most developing countries is lack of basic professional training in occupational health and safety.

Objective: The purpose of the study is to assess the impact of the Occupational Health Education Program on the worker's knowledge.

Methods: A quasi-experimental, nonequivalent control group pretest-posttest design was used to assess the impact of the Occupational Health Education Program (OHEP) on the worker knowledge. A convenience sample of a total of 38 workers participated in the study, with 20 in the experimental group and 18 in the control group.

Results: The findings from the study indicate that OHEP did have significant positive impact on the Jordanian worker's knowledge, but it didn't have comparable impact on the Foreigner worker's knowledge. A comparison of means for the Jordanian experimental group pretest (M =14.25) and posttest (M =18.60) revealed a significant improvement in mean scores (df = 9, Tukey a = 2.98), whereas the control group pretest (M = 14.40) and posttest (M = 14.90) did not statistically significantly (df = 9, t =.64). Findings shows that both the Jordanian and Foreigner experimental and control groups were comparable in relation to their occupational health knowledge before the implementation of the OHEP.

Conclusion: The findings support the need for implementation of the OHEP within this population. This study shows that nurses can design, implement and evaluate Health Education Programs for targeted population.

Introduction

Each year workplaces provide many hours of training for employees, including Occupational Health and Safety (OHS) training. Training is widely acknowledged as an important component of occupational hazard control and risk management programs. Increasingly, business owners want to know whether training can meet its goals of decreasing injury and illness, and whether the cost of training programs can be justified. This is important in view of the millions of injuries and illnesses, and thousands of deaths, that are reported annually in workplaces throughout North America and globally. Studies show that about 90% of accidents occur because of unsafe behavior and human errors. Even if workers do not have the right knowledge toward safety measures in a safe workplace, all efforts for an accident-free workplace will be in vain. Maintaining a safe working environment is reflected on a healthy worker. Some reasons for not implementing the safety policy by most developing countries is lack of basic professional training in occupational health and safety [1]. Workers from many different occupations and industries are at risk because they may enter confined spaces to perform work related tasks, unaware that they are entering a potentially hazardous

environment [2]. Jordan has been an agricultural country for many decades. In the last two decades, the country witnessed emergency in industrialization. However, the industrial production before many years was dependent only on a small number of manual industries that were managed by their owners and used a few number of employees [3]. Fatal occupational hazards constitute a problem in Jordan with a total population of about 4 Million in 1993. A number of 911,000 workers are from the Labor-force and 350,227 persons are insured by social security which is about 38.4% of the total labor-force [4].

In literature review with this study, there is an urgent need to address this occupational health problem through the design, implementation, and evaluation of occupational health education programs for worker's population.

Purpose of the Study

The purpose of the study is to assess the impact of the Occupational Health Education Program (OHEP) on the worker's population in Jordan.

Statement of the Problem

There is a great need to address the health problem related to occupation through the design, implementation and evaluation of Occupational Health Education Program for worker's population.

Hypotheses

- Workers are participating in the (OHEP) will demonstrate a significant improvement in knowledge scores compared with workers not participating in the (OHEP).
- The occupational health knowledge of Jordanian workers will not be significantly different from the occupational health knowledge of foreigner workers before the implementation of the OHEP.

Methods

A quasi-experimental, non-equivalent control group design, pretest-posttest was used for both the Jordanian and the Foreigner worker groups. The study held in a suburb community at Al-Mwaqer of 10.000 individuals located 35-km southeast of the Capital of Jordan. A convenience sample of 38 workers in two classrooms in the small factory participated in the study. The sample consisted of two groups in the company. Each of the two groups was assigned to experimental or controls group. There were 20 subjects in the experimental group and 18 in the control group; 24 subjects resided of the Jordanian workers, 14 subjects resided of the Foreigner workers. A total of 38 subjects or 100% were male. Workers mean age group is 21.55 year, have interest to join and participate in the program, have good learning ability, and their educational level is 1st and 2nd high school, able to read, write and able to share in discussion. The program contains eight complete and detailed teaching plans that address, definition of the occupational health, concept of industrial safety, injuries and accidents in Jordan, classification and causes of accidents in Jordan, types of industrial hazards, occupational diseases, chemical health hazards, human health hazards and nutrition program. The program incorporates an experiential approach to learning that involves person-to-person interaction and peer group discussions. Experiential learning involves a series of educational experiences with learning objectives that require active involvement by participants. Educational strategies used in the OHEP include lectures, audio-visual experiences, posters, pamphlets and group discussion. Each of these strategies is appropriate for nurse health educators to implement with the worker population [5].

The OHEP was implemented in eight 45-minute health education classes in the course. The control group was tested on the same day as the experimental group, with 30 to 40 minutes being given to complete the Occupational Health Knowledge Questionnaire used in this study was a true or false and multiple choice questionnaire. Test-retest reliability of the Questionnaire was established and considered satisfactory in Arabic according to Jordan Safety and Occupational Health Institute, 2001). Knowledge scores were calculated by giving one mark for each correct response. The total questions were thirty questions, on all sections involving occupational health hazards. Significant differences between means were determined by using t-test and Tukey's Honestly Significant Difference (HSD) test.

Results

The pre-test occupational health knowledge mean scores of the 38 workers who participated in this study could be considered to be less than adequate for informed decision making. The Jordanian workers (n=20) and Foreigner workers (n=18) Occupational Health Knowledge pretest mean scores were low (M=14.25+5.73 and M=14.11+5.04, respectively, out of a possible 30 marks), but there was no significant difference between Jordanian and Foreigner occupational health knowledge pretest scores (df = 19, t =.44). These results indicate that the two groups had a comparable level of occupational health knowledge before the implementation of the OHEP. These results support the second null hypothesis that the Occupational Health Knowledge of Jordanian workers will not be significantly different from the occupational health knowledge of Foreigner workers before the implementation of the OHEP. These findings also lend strong support to implementation of the program with this population. There was a comparable level of knowledge on the pretest between the Jordanian workers experimental (n = 10) and control groups (n = 10, df = 9, t =0.17) and Foreigner worker's experimental groups (n = 9) and control groups (n = 9, df = 8, t =0.19). These findings show that both the Jordanian and Foreigner experimental and control groups were comparable in relation to

their occupational health knowledge before the implementation of the OHEP.

A comparison of means was analyzed to determine whether the program had an impact on the occupational health knowledge mean scores of the Foreigner experimental group, pretest (M = 14.11) versus posttest (M = 14.33). There was a small difference in means, that difference not statistically significant (df = 8, t = 331.53). These findings may be by the fact that there was a large standard deviation on the pretest, which indicated a lack of homogeneity of the group. A comparison of means for the Jordanian experimental group pretest (M =14.25) and posttest (M =18.60) revealed a significant improvement in mean scores (df = 9, Tukey a = 2.98), whereas the control group pretest (M = 14.40) and posttest (M = 14.90) did not statistically significantly (df = 9, t =.64). The Jordanian workers who participated in the OHEP significantly improved their occupational health knowledge scores as measured by the OHKQ. It appears that the OHEP did have a positive impact on the Jordanian worker's knowledge but not on the Foreigner worker's knowledge. The findings only partially supported the first hypothesis that workers participating in the OHEP will demonstrate a significant improvement in knowledge scores compared with workers who did not participate in the OHEP.

Conclusion

Health education programs are one of the most appropriate strategies for educating workers about occupational health. The findings from this study indicate that both workers had a deficiency in their occupational health knowledge before implementation of the OHEP. These findings lend strong support to implementation of this Occupational Health Education Program in this population. The findings also indicate that participation in the OHEP had a positive impact on the occupational health knowledge of the Jordanian workers. These findings support the need for further evaluation of the OHEP with an emphasis on assessment of the impact of the program on health attitudes and behaviors. In an Australian survey of 270 workplaces in the hospitality industry, the need for improvement in induction training for young workers was highlighted (Hicks, 2009) [1,6] Indeed, the importance of providing occupational safety education in the secondary school setting has been widely recognized Mostafa NS and Momen M 162 (Davis and Pollack, 1995, National Institute for Occupational Safety and Health (NIOSH), 1999 and Schulte, et al. 2005) [1,7].

This study dated 2010 revealed a significant improvement of student›s knowledge regarding general occupational law, chemical and noise hazards. Several researchers reported that the majority of workers have good Occupational Health and Safety Training 163 knowledge about protective measures in Cement industry in United Arab of Emirates (Ahmed and Newson-Smith, 2010), and among farm workers in Gaza (Yassin, et al, 2002), [8] whereas Kripa, et al. (2005) in India reported that all the salt workers had some knowledge of protective measures to protect them while working in brine [1]. A review of literature by NIOSH showed that majority (87%) of those who used knowledge test to assess the effect of training revealed improvement (Cohen and Colligan, 1998) [9]. A training on paper mill workers in the United States in 2007, demonstrated that workers' knowledge of hand injury prevention techniques can be significantly improved with safety training. This finding is similar to studies which evaluated the effectiveness of safety training among teleworkers (Harrington and Walker, 2004) and food service workers (Sinclair, et al. 2003). Finally, the findings support the expansion of the health educator role of the provider to include the design, implementation and evaluation of health education programs for targeted populations [10-12]. Health care providers must continue to show leadership in the field of health promotion by designing, implementing and evaluating health education programs for targeted populations. In general, it can be concluded that it is of highest importance to educate workers regarding the fact that they had low level of knowledge about occupational health and safety [13]. Instructing workers about the safety regulations and environmental hazards reduces workers' unsafe behavior. These activities require providers who are "willing to take on new responsibilities and become the central figure in school health services" [14-16].

Recommendation

Recommendations for future study include replication with a large sample of workers, measurement of workers' satisfaction, and assessment of the impact of the program on behaviors and attitudes, and evaluation of pre-implementation training for nurse health educators.

Limitations

- The sample size was selected according to accessibility to the researcher.
- The use of convenience sample has limitations in the extent to which the results can be generalized to the total population.

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