Priorities of Occupational Health, Safety, and Environment Issues based on National Programs and Regulations from the Perspective of Occupational Health Experts in Kashan City in 2017

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Abstract

Background: Safety, health, environment is one of the most important issues of human societies in the current and future. Prioritization is one of the important issues affecting the prevention of diseases and occupational accidents and environmental hazards; therefore, the aim of this study, prioritize current programs and regulations entrust to occupational health experts. Methods: The present study is a cross-sectional study of the descriptive type that was conducted on 151 occupational health experts of Kashan City in 2017. The data collection tool was a questionnaire that made by the researcher. Data analysis was conducted with (SPSS 16) and descriptive and analytical statistics. Results: The results showed that there is a statistically significant difference between items in the executive and supervisory sectors and the highest priorities are based on the mean and standard deviation of the scores assigned by occupational health experts: controlling mechanical factors and ergonomics within the context of occupational health controls in the executive sector. Priorities are based on the average and standard deviation of total scores allocated by occupational health experts: the most important priorities are safety in the protection of machines shield and fire safety, chemical safety, and electrical safety. Conclusion: The most important priority for all those present in the research, safety in the protection machine gears shield (transmission parts for gear belt buckles, etc.) should be considered as an important priority for officials and observers of the executive and supervisory sectors, and to maintain and to enhance safety at the workplace machine safeguarding is very important.

Keywords: Community participation, health, safety and environment, prioritization

INTRODUCTION

Safety, health, environment, and preservation and improvement of human health are one of the most important issues of human societies in the present and future. It is a matter of prioritizing the five most harmful factors in the work environment such as physical and harmful chemical agents, and harmful mechanical factors and harmful psychological and biological agents in any occupational it is better with counseling. Occupational safety and health studies state that management, commitment, and prioritization of safety to prevent unsafe behaviors and incidents are interconnected. Occupational illnesses and accidents derive from unsafe conditions and unsafe acts. Unsafe act and unsafe conditions cause damage to the worker and the environment. This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms. For reprints contact: reprints@medknow.com

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employer. Moving toward reducing work-related illnesses and work accidents and maintaining and improving the health of the workplace leads to sustainable development, increased productivity, and the growth of workforce and the prevention of direct costs from diseases and accidents. Prioritizing ergonomics in the workplace, for example, adjusting shift work and working hours per shift, and the impact on safety and health problems, which often result in the loss of useful working days and the reduction of the effectiveness of employees at work are in fact the supervisory health and well-being of the community in a healthy environment. In a survey in the United States, a priority list of risks of toxic and hazardous industrial chemicals materials used to deploy forces and military operations it is taken that the forces and agents of operations operate according to the priority given. Prioritization in the sense the distribution of resources and requests is one of the most important tasks in health planning. Prioritizing the choice based on resource constraints is not only related to what we must do, but also relationship with things we do not have to do in domestic studies, it has been determined that community assessment in the health system network can be an effective tool for health promotion by identifying strengths, weaknesses, and opportunities in the region. Prioritizing hazards and strategies for economic development and adaptation to the environment is the basis for policy makers to prioritize the prospective control measures of pollutants among different sectors, including electricity generation, associated resources, industry, exposure, population, penetration and health risks, and comparison of how control strategies pollutants are spread across different parts of the air. This increase in perceptions of safety is one of the priorities of the work environment, with the company’s size. The size of the company is an alternative variable for other variables that affect the performance of occupational safety and health. In today’s society, which is often used by complex systems, disabling a system or occurring events can cause disruptions at different levels, and even as a threat to society and the environment. This is because everyone is on a safe and low-risk system. It is here that prioritizing health and environmental safety risks through risk management programs can be effective in prioritizing and reducing risk. In recent years, the health, safety, and environmental management system has been considered as a tool for improving issues in all development and industrial projects. Prioritizing safety and health indicators are an effective and functional approach. Safety and health priorities in the construction industry. In small buildings, priority is given to the use of personal protective equipment, and in high buildings, priority is given to noise, scaffolds, potholes, and uplifts.

The prioritization of safety and health indicators is an effective and practical approach. In the construction industry, in small buildings, the priority is given to the use of personal protective equipment during work, but in large structures the priority is given to noise, scaffolds and high-ups. Previous studies on needs assessment society in advanced countries has shown that noncommunicable diseases such as diabetes are a burden and cardiovascular diseases and etc., were among the priorities of the health system. Health education, healthy lifestyle, healthy nutrition, self-care, and the provision of free health services were the most important health issues, but in previous studies, more than everything, environmental issues, such as road pavement, inappropriate waste disposal and tobacco use, are reported by the community. With regard to the lack of resources and the difference between the priorities expressed by community authorities and the benefits of community participation, it is better to determine health and environment priorities with community participation. Participation of the community is the process of utilizing individual or group stakeholder’s capacities to achieve a goal. In this process, conscious behavior, collective will, collective acceptance, choice, and the existence of common needs are important. What is important in a successful partnership process is the need to resolve a problem, to recognize the problem, and to feel the need for teamwork based on the level of knowledge and ability of individuals and their knowledge of existing capabilities and capabilities and their maximum use. In the review previously, in general, interviewing people and using quality methods to identify community health needs and prioritize them, while the country’s current programs and regulations on occupational safety and health at work and the environment a top-down approach by experts at different levels of the ministry of health, the ministry of welfare, the cooperative work, and social affairs; the environmental time is determined and communicated. In this study, considering the importance of current programs and regulations in the field of occupational health, safety in the workplace and the environment in the field of industry and their importance from the point of view of occupational health experts, they seek to prioritize programs and the current regulations of the country on occupational safety and health in the workplace and the environment announced by the center for health and environment of the ministry of health and the ministry of social work and social welfare and the environmental organization to occupational health experts, while prioritizing, the results are with the views of various groups related to the subject, experts, and health experts you will be working in the executive and supervisory sectors. The study aims to determine the priorities of occupational health, safety, and environment issues based on national programs and regulations from the perspective of occupational health experts in Kashan city in 2017, to informing authorities in the supervisory and executive part of priorities and change policy and manage health safety environment services and timely scheduled performance is essential for urgent and important actions for prevention of occupational disease and accidents in the workplace.
Methods
This cross-sectional study was conducted on the statistical population consists of occupational health experts working in Kashan city in 2017, with a total of 151 people, contain occupational health experts working in the executive sector of KASHAN and occupational health experts working in the supervisory sector of KASHAN University of Medical Sciences which were selected by census method. The data gathering tool was a reliability questionnaire. Calculation of content validation by Lawshe method. In this method, the validity of the content was determined by the content validity index (CVI) and content validity ratio (CVR) and by the opinion of 10 occupational health professors in terms of simplicity, relevance and comprehensiveness. Being, the CVI of questions for each criterion was higher than 70%, and CVR, the 48-item validity ratio index was >62% from the Lawshe table. The internal consistency of the questionnaire with Cronbach’s alpha coefficient was 0.949, which indicates the validity and reliability of this questionnaire. Fore determine the priorities of occupational health, safety and health in the workplace and the environment based on national programs and regulations of the country, questionnaire, consist of two parts: the first part of the demographic information includes six questions about (age, sex, marital status, education, work record, and type of employment). Moreover, the second part of the questionnaire with 48 priority setting items that has seven general areas (occupational health control, surveillance safety, occupational health plans, disaster mitigation, occupational health services, environmental protection and emergency health and work environment). This questionnaire was designed in 48 items of five options (very little to very much) and scored by Likert method from 1 to 5. All occupational health experts working in the supervisory and executive with 1 year or more work experience providing occupational health care services in KASHAN city province were fully informed and fully satisfied with this study. The occupational health experts who did not work did not enter the study. The data used is kept confidential, and each of the databases from which the data is extracted are indexed in the article text and the desired referral report of the beneficiary organization. In addition, before the start of the study, the research objectives were explained to the target group, and the participants were informed with informed consent. At all stages of the project, the researchers are committed to complying with the principles of the Helsinki Treaty, and the sample information is reserved for project executives. Questionnaires were completed in two groups include occupational health experts working in the supervisory and executive were asked to complete the questionnaires, and then, the questionnaires were collected. For each item, the score that the individual responded was calculated, then the obtained scores were analyzed using descriptive and inferential statistics and parametric methods, and obtaining the central indexes of mean and standard deviation. Statistical tests were used in this study that included Mann-Whitney and Kolmogorov-Smirnov. Data were analyzed using SPSS. Ver. 16 software (South Wacker Drive, Chicago, IL). Attendance criteria were at least 1 year of work experience, employment, and satisfaction to enter the study.

Results
The demographics of participants in this study were 30.5% male participants and 69.5% of female participants were 44.4% of single people and 55.6% were married. Nearly 92.7% of

| Item | Titles | P | Mean | SD | Priority | Employed in the supervisory sector | |Priority| Employed in the executive sector | |Priority|
|------|--------|---|------|----|---------|-----------------------------------|----|-------|---------------------------------|---|
| 1    | Control of mechanical factors (ergonomy, posture, manual handling, work tools, etc.) | 0.65 | 4.34 | 0.93 | 1 | 4.3 | 0.88 | 1 |
| 2    | Control of dust, gas, steam, fume and providing ventilation in the workplace | 0.32 | 4.34 | 0.93 | 2 | 4.22 | 0.84 | 2 |
| 3    | Control of drinking water | 0.98 | 4.17 | 0.88 | 4 | 4.16 | 0.91 | 3 |
| 4    | Control of occupational exposure limits in the workplace | 0.44 | 4.1 | 1.01 | 5 | 4.06 | 0.75 | 4 |
| 5    | Control of noise in the workplace | 0.046 | 4.24 | 1.12 | 3 | 4.04 | 0.82 | 5 |
| 6    | Control of lighting in the workplace | 0.24 | 3.89 | 0.9 | 6 | 3.61 | 1.03 | 6 |
| 7    | Building control and workplace | 0.24 | 3.62 | 0.77 | 8 | 3.38 | 0.89 | 7 |
| 8    | Control of heat, cold and humidity in the workplace | 0.82 | 3.41 | 1.26 | 10 | 3.22 | 0.92 | 8 |
| 9    | Vibration control in the workplace | 0.12 | 3.34 | 1.23 | 11 | 2.99 | 1.20 | 9 |
| 10   | Radiation control in the workplace (X and gamma and UV, IR) | 0.001 | 3.75 | 1.18 | 7 | 2.95 | 1.17 | 10 |
| 11   | Control of biological agents (bacteria, fungus, virus and ...) | 0.021 | 3.41 | 1.18 | 9 | 2.86 | 1.26 | 11 |

SD: Standard deviation, UV: Ultraviolet, IR: Infrared. The results of the Mann-Whitney test show that the mean scores for clauses 3, 6 and 9 were significant between the supervisory and executive sectors. Supervisory sector experts are attach more important than to the executive sector experts for items three, noise control, radiation control at work (X-rays and Gamma, etc.), and non-ionizing UV (UV) irradiation (IR) and biological control agents (mushroom virus bacteria, etc.)
### Table 2: Mean and standard deviations of scores in the scope of safety surveillance and their prioritization regarding employment

| Item | Titles                                                                 | P    | Employed in the supervisory sector | Employment in the executive sector | Priority | SD | Priority |
|------|-------------------------------------------------------------------------|------|------------------------------------|------------------------------------|----------|----|----------|
|      |                                                                         |      | Mean | SD | Mean | SD |      |        |
| 21   | Safety of machines (service transfer parts, gear chains, etc.)          | 0.026| 4.24 | 0.78 | 4.53 | 0.78 | 5    |        |
| 22   | Fire safety                                                             | 0.078| 4.31 | 0.76 | 4.51 | 0.8  | 3    |        |
| 19   | Monitoring the use of personal protective equipment while workers       | 0.006| 4.069| 0.7 | 4.4 | 0.86 | 9    | 3      |
| 18   | Monitoring the distribution of appropriate personal protective equipment | 0.002| 3.93 | 0.79 | 4.4 | 0.86 | 12   | 4      |
| 25   | Electrical safety (electrical equipment shield, wire connections, etc.)  | 0.56 | 4.31 | 0.71 | 4.34 | 0.84 | 5    |        |
| 13   | Monitoring the services of occupational medicine                        | 0.842| 4.31 | 0.71 | 4.29 | 0.84 | 6    |        |
| 12   | Continuous occupational health inspections (factories, corporate workplace, contractors and ...) | 0.843| 4.2 | 0.77 | 4.19 | 0.88 | 7    |        |
| 14   | Surveillance of facilities and health facilities at the workplace (dining room, locker rooms bathroom and ...) | 0.021| 3.82 | 0.8 | 4.18 | 0.94 | 8    |        |
| 15   | Monitoring measuring the harmful factors of the workplace (noise, light, temperature, moisture, etc.) | 0.49 | 4.2 | 0.9 | 4.11 | 0.82 | 9    |        |
| 24   | Building safety (the machinery space, the openings, stairs and openings and abyss, and ...) | 0.76 | 4.03 | 0.77 | 3.99 | 1.08 | 10   |        |
| 20   | Provide safety, health and environmental training to workers            | 0.76 | 4.069| 0.84 | 3.97 | 0.97 | 8    | 11     |
| 17   | Issue an inquiry for the construction site                             | 0.27 | 4 | 1.03 | 3.72 | 0.93 | 11   |        |
| 23   | Chemical safety                                                         | 0.004| 4.31 | 0.76 | 3.67 | 1.09 | 13   |        |
| 16   | Issue health authority to obtain or renew a license                     | 0.29 | 3.86 | 0.83 | 3.62 | 0.91 | 14   |        |

SD: Standard deviation. The results of the Mann-Whitney test show that the mean scores for items 14, 18, 19, 21, and 23 were seen between significant executive and supervisory sectors.

### Table 3: Mean and standard deviations of scores in the scope of occupational health plan and their prioritization regarding employment

| Item | Titles                                                                 | P    | Employed in the supervisory sector | Employment in the executive sector | Priority | SD | Priority |
|------|-------------------------------------------------------------------------|------|------------------------------------|------------------------------------|----------|----|----------|
|      |                                                                         |      | Mean | SD | Mean | SD |      |        |
| 34   | The plan for determining and slake hard and harmful occupations in the workplace | 0.71 | 4.13 | 0.87 | 4.16 | 0.96 | 1    |        |
| 28   | Monitoring plan for executive companies to measuring the harmful factors of the workplace | 0.71 | 3.86 | 1.12 | 3.84 | 0.9 | 2    |        |
| 31   | Silica control plan at workplace                                       | 0.25 | 4.03 | 0.82 | 3.78 | 0.9 | 3    |        |
| 26   | Purposeful inspection plan                                             | 0.019| 4.03 | 0.73 | 3.6 | 0.84 | 4    |        |
| 33   | Lead control plan in the workplace                                     | 0.024| 4.06 | 0.96 | 3.43 | 1.3 | 5    |        |
| 32   | Mercury control plan in the workplace                                  | 0.13 | 3.82 | 1.16 | 3.4 | 1.3 | 6    |        |
| 29   | Training plan for occupational health and worker hygiene               | 0.038| 3.44 | 1.12 | 2.88 | 1.31 | 7    |        |
| 27   | Government health plan                                                 | <0.001| 3.62 | 0.77 | 2.83 | 1.07 | 8    |        |
| 30   | Bagha plan, manual carpet health                                       | 0.013| 3.41 | 0.86 | 2.81 | 1.18 | 9    |        |

SD: Standard deviation. The results of the Mann-Whitney test show that the mean scores for clauses 26, 27, 29, 30, and 33 were significant between the supervisory and executive sectors.

Participants had a bachelor’s degree and 7.3% had a master’s degree and a doctoral degree, and 80.8% of the employees were employed in the executive sector and 19.2% were employed in the supervisory sector.
### Table 4: Mean and standard deviations of scores in the scope of reduction disaster effects and their prioritization regarding employment

| Item | Titles                                                                 | $P$     | Employed in the supervisory sector | $P$ Priority | Employed in the executive sector | $P$ Priority |
|------|------------------------------------------------------------------------|---------|-----------------------------------|--------------|----------------------------------|--------------|
|      |                                                                        |         | Mean     | SD       | Mean     | SD    | Mean     | SD       | Mean     | SD       | Mean     | SD       |
| 36   | Develop and prepare equipment required at the time of crisis and disasters by employer and agency officials | 0.75    | 3.86    | 0.99   | 1        | 3.89 | 1.03    | 1    |         |          |          |
| 35   | Run the educational program and organizing practitioner versus disaster  | 0.69    | 3.65    | 1.07   | 2        | 3.72 | 0.94    | 2    |         |          |          |

SD: Standard deviation. The results of the Mann-Whitney test showed that the mean scores for items 35 and 36 were not statistically significant between government and significant sectors.

### Table 5: Mean and standard deviations of scores in the scope of environmental protection and their prioritization regarding employment

| Item | Titles                                                                 | $P$     | Employed in the supervisory sector | $P$ Priority | Employed in the executive sector | $P$ Priority |
|------|------------------------------------------------------------------------|---------|-----------------------------------|--------------|----------------------------------|--------------|
|      |                                                                        |         | Mean     | SD       | Mean     | SD    | Mean     | SD       | Mean     | SD       | Mean     | SD       |
| 41   | Supervising the establishment of industrial wastewater treatment and controlling COD and PH | 0.003   | 3.51    | 1.05   | 3        | 4.10 | 1.08    | 1    |         |          |          |
| 38   | Recognition and inspection of industries creation air pollution and introducing of offenders to concerned authorities | 0.064   | 3.62    | 1.17   | 2        | 4.04 | 0.91    | 2    |         |          |          |
| 39   | Prevention of environmental degradation factors threatened health in industries | 0.013   | 3.48    | 1.05   | 5        | 3.97 | 0.88    | 3    |         |          |          |
| 40   | Supervisory education on environmental protection and environmental improvement | 0.052   | 3.51    | 0.98   | 4        | 3.87 | 0.93    | 4    |         |          |          |
| 37   | Continual control of air pollution agents                              | 0.37    | 4       | 0.96   | 1        | 3.83 | 0.91    | 5    |         |          |          |

COD: Chemical oxygen demand, SD: Standard deviation. The results of the Mann-Whitney test show that the mean scores for items 39 and 41 were significant between the supervisory and executive sectors.

### Table 6: Mean and standard deviations of scores in the scope of occupational health service and their prioritization regarding employment

| Item | Titles                                                                 | $P$     | Employed in the supervisory sector | $P$ Priority | Employed in the executive sector | $P$ Priority |
|------|------------------------------------------------------------------------|---------|-----------------------------------|--------------|----------------------------------|--------------|
|      |                                                                        |         | Mean     | SD       | Mean     | SD    | Mean     | SD       | Mean     | SD       | Mean     | SD       |
| 43   | Complaints survey about disposal of waste and sewage in the pathways   | 0.4     | 4.03    | 1.01   | 1        | 4.21 | 0.91    | 1    |         |          |          |
| 44   | Intensity inspections and inspections at informal h and gas and steam emitted from industries | 0.043   | 3.96    | 1.01   | 2        | 3.62 | 0.9    | 2    |         |          |          |
| 42   | Complaints regarding disposal of dust pollution and gas and steam emitted from industries | 0.037   | 3.55    | 1.08   | 3        | 3.01 | 1.25    | 3    |         |          |          |

SD: Standard deviation. The results of the Mann-Whitney test show that the mean scores for items 42 and 44 were significant between the supervisory and executive sectors.

### Table 7: Mean and standard deviations of scores in the scope of workplace and environment health emergencies and their prioritization in terms of employment

| Item | Titles                                                                 | $P$     | Employed in the supervisory sector | $P$ Priority | Employed in the executive sector | $P$ Priority |
|------|------------------------------------------------------------------------|---------|-----------------------------------|--------------|----------------------------------|--------------|
|      |                                                                        |         | Mean     | SD       | Mean     | SD    | Mean     | SD       | Mean     | SD       | Mean     | SD       |
| 47   | Complaints survey about disposal of waste and sewage in the pathways   | 0.051   | 3.75    | 0.95   | 3        | 4.06 | 0.94    | 1    |         |          |          |
| 48   | Intensity inspections and inspections at informal h                    | 0.017   | 3.55    | 0.98   | 4        | 3.99 | 1.09    | 2    |         |          |          |
| 45   | Complaints regarding disposal of dust pollution and gas and steam emitted from industries | 0.42    | 3.82    | 0.88   | 1        | 3.9  | 0.93    | 3    |         |          |          |
| 46   | Complaints involving the building and setting up factories             | 0.37    | 3.75    | 0.83   | 2        | 3.82 | 0.88    | 4    |         |          |          |

SD: Standard deviation. The results of the Mann-Whitney test show that the mean scores related to Clause 48 between the supervisory and executive sectors were significant.
Table 8: Overall priorities, according to the mean rank and standard deviation of items assigned scores for both groups of executive and supervisory health experts

| Item number | Item titles                                                                 | Priority | Mean   | SD     |
|-------------|------------------------------------------------------------------------------|----------|--------|--------|
| 21          | Safety in the protection of machine tools (transmission parts of the gear chain belt and ...) | 1        | 4.4768 | 0.79023 |
| 22          | Fire safety                                                                  | 2        | 4.4768 | 0.79862 |
| 19          | Supervise the use of personal protective equipment during work                | 3        | 4.3444 | 0.84889 |
| 25          | Safety of the electrical system (protection of electrical equipments, wire connections, etc.) | 4        | 4.3377 | 0.81558 |
| 18          | Monitor the distribution of suitable personal protective equipment             | 5        | 4.3113 | 0.87320 |
| 10          | Control of mechanical factors (ergonomics, posture, manual handling, tools, etc.) | 6        | 4.3113 | 0.88834 |
| 13          | Supervising the work of the labor medicine, performing on-the-job examinations and recruiting staff | 7        | 4.2980 | 0.81482 |
| 2           | Controlling dust, gas and steam and fume and providing ventilation in the work environment | 8        | 4.2517 | 0.85805 |
| 12          | Continuous occupational health inspections of nonprofit workshops (factories, workshops, departments, contractors, etc.) | 9        | 4.1987 | 0.86425 |
| 43          | Training employers, workers and people to improve the culture of health and improve lifestyle in society | 10       | 4.1788 | 0.93157 |
| 8           | Control of drinking water                                                    | 11       | 4.1656 | 0.90503 |
| 34          | The plan for determining and slake hard and harmful occupations in the workplace | 12       | 4.1589 | 0.94582 |
| 15          | Monitor the measurement of harmful factors in workshops (sound, light, temperature, humidity and ...) | 13       | 4.1325 | 0.83806 |
| 14          | Supervising facilities and facilities at the workshops (dining, changing rooms, bathrooms, etc.) | 14       | 4.1192 | 0.93043 |
| 3           | Control the noise of the work environment                                      | 15       | 4.0861 | 0.88649 |
| 11          | Control the observance of occupational exposure limits in the workplace      | 16       | 4.0728 | 0.80911 |
| 47          | Handling complaints about the disposal of waste and sewage in transit        | 17       | 4.0066 | 0.94866 |
| 24          | Building safety (space for stairwells and openings, etc.)                    | 18       | 4.0000 | 1.03280 |
| 41          | Supervising the establishment of industrial wastewater treatment and controlling COD and PH | 19       | 3.9934 | 1.10452 |
| 20          | Provide safety, health and environmental training to workers                 | 20       | 3.9934 | 0.94866 |
| 38          | Identification and inspection of air contaminating industries and the introduction of offenders to relevant authorities | 21       | 3.9669 | 0.98263 |
| 48          | Strengthen inspections and inspections at nonadministrative hours            | 22       | 3.9073 | 1.08536 |
| 45          | Handling complaints regarding the pollution of dust, gas, and steam released from industries | 23       | 3.8874 | 0.92767 |
| 36          | Providing and equipping equipment during crisis and disasters by the employer and officials of the departments | 24       | 3.8874 | 1.02335 |
| 39          | Prevention of environmental degradation threatening health in industries      | 25       | 3.8808 | 0.93757 |
| 37          | Continuous control of air pollution agents                                   | 26       | 3.8675 | 0.92142 |
| 28          | A plan to oversee executive companies to measure the harmful factors in the workplace | 27       | 3.8477 | 0.94339 |
| 17          | Issue an inquiry for the construction site                                   | 28       | 3.8344 | 0.95520 |
| 31          | Control of silica in the working environment                                 | 29       | 3.8344 | 0.89017 |
| 46          | Handling complaints regarding the construction and commissioning of factories and workshops | 30       | 3.8146 | 0.87486 |
| 40          | Supervisory education in the field of environmental protection and environmental improvement | 31       | 3.8079 | 0.95019 |
| 23          | Chemical safety                                                              | 32       | 3.7947 | 1.06657 |
| 35          | Implementation of training programs and organization of disaster workers     | 33       | 3.7086 | 0.97015 |
| 44          | The company has a license to measure the harmful factors of the work environment | 34       | 3.6887 | 0.93228 |
| 26          | Targeted inspection plan                                                      | 35       | 3.6887 | 0.84210 |
| 16          | Issuing health authority to obtain or renew the license                       | 36       | 3.6689 | 0.89979 |
| 5           | Control the lighting in the workplace                                         | 37       | 3.6689 | 1.01141 |
| 33          | Control plan for lead in the workplace                                        | 38       | 3.5563 | 1.26826 |
| 32          | Control of mercury in the workplace                                          | 39       | 3.4901 | 1.29031 |
| 1           | Building control and work environment                                         | 40       | 3.4305 | 0.87567 |
| 7           | Control of cold and humidity in the workplace                                 | 41       | 3.2583 | 0.99642 |
| 42          | There is a vocational school for training staff                               | 42       | 3.1192 | 1.24326 |
| 6           | Radiation control in the working environment (X-ray, gamma, etc.), UV-ion-ionizing radiation (IR) | 43       | 3.1060 | 1.21739 |
| 4           | Vibration control in the workplace                                           | 44       | 3.0596 | 1.21234 |
| 29          | Teacher training plan, health care worker and occupational health experts     | 45       | 2.9934 | 1.29356 |
| 27          | Health plan for state employees                                              | 46       | 2.9868 | 1.07074 |
| 9           | Control of biological agents (bacteria, fungus, virus and ...)               | 47       | 2.9669 | 1.26184 |
| 30          | Bagha plan, manual carpet health                                              | 48       | 2.9272 | 1.15527 |

SD: Standard deviation, UV: Ultraviolet, IR: Infrared, COD: Chemical oxygen demand
### Table 9: Overall priorities, according to the mean rank and standard deviations of scores assigned to items for executive health experts, were obtained as follows

| Item number | Item titles                                                                 | Priority | Mean    | SD      |
|-------------|-----------------------------------------------------------------------------|----------|---------|---------|
| 21          | Safety in the protection of machine tools (transmission parts of the gear chain belt and ...) | 1        | 4.5328  | 0.78398 |
| 22          | Fire safety                                                                  | 2        | 4.5164  | 0.80529 |
| 19          | Supervise the use of personal protective equipment during work               | 3        | 4.4098  | 0.86964 |
| 18          | Monitor the distribution of suitable personal protective equipment           | 4        | 4.4016  | 0.86874 |
| 25          | Safety of the electrical system (protection of electrical equipment, wire connections, etc.) | 5        | 4.3443  | 0.84080 |
| 10          | Control of mechanical factors (ergonomics, posture, manual handling, tools, etc.) | 6        | 4.3033  | 0.88036 |
| 13          | Supervising the work of the labor medicine, performing on-the-job examinations and recruiting staff | 7        | 4.2951  | 0.84000 |
| 2           | Controlling dust, gas and steam and fume and providing ventilation in the work environment | 8        | 4.2295  | 0.84096 |
| 43          | Training employers, workers and people to improve the culture of health and improve lifestyle in society | 9        | 4.2131  | 0.91117 |
| 12          | Continuous occupational health inspections of nonprofit workshops (factories, workshops, departments, contractors, etc.) | 10       | 4.1967  | 0.88737 |
| 14          | Supervising facilities at the workshops (dining, changing rooms, bathrooms, etc.) | 11       | 4.1885  | 0.94765 |
| 34          | The plan for determining and slake hard and harmful occupations in the workplace | 12       | 4.1639  | 0.96518 |
| 8           | Control of drinking water                                                    | 13       | 4.1639  | 0.91236 |
| 15          | Monitor the measurement of harmful factors in workshops (sound, light, temperature, humidity and ...) | 14       | 4.1148  | 0.82519 |
| 41          | Supervising the establishment of industrial wastewater treatment and controlling COD and PH | 15       | 4.1066  | 1.08945 |
| 47          | Handling complaints about the disposal of waste and sewage in transit        | 16       | 4.0656  | 0.94246 |
| 11          | Control the observance of occupational exposure limits in the workplace     | 17       | 4.0656  | 0.75774 |
| 38          | Recognizing and visiting the polluting industries and introducing offenders to relevant authorities | 18       | 4.0492  | 0.91681 |
| 3           | Controlling dust, gas and steam and fume and providing ventilation in the work environment | 19       | 4.0492  | 0.82173 |
| 48          | Strengthen inspections and inspections at nonadministrative h                | 20       | 3.9918  | 1.09466 |
| 24          | Building safety (space for stairwells and openings, etc.)                   | 21       | 3.9918  | 1.08708 |
| 39          | Prevention of environmental degradation threatening health in industries     | 22       | 3.9754  | 0.88573 |
| 20          | Provide safety, health and environmental training to workers                 | 23       | 3.9754  | 0.97458 |
| 45          | Handling complaints regarding the pollution of dust, gas, and steam released from industries | 24       | 3.9016  | 0.93958 |
| 36          | Providing and equipping equipment during crisis and disasters by the employer and officials of the departments | 25       | 3.8934  | 1.03499 |
| 40          | Supervisory education in the field of environmental protection and environmental improvement | 26       | 3.8770  | 0.93223 |
| 28          | A plan to oversee executive companies to measure the harmful factors in the workplace | 27       | 3.8443  | 0.90014 |
| 37          | Continuous control of air pollution agents                                  | 28       | 3.8361  | 0.91236 |
| 46          | Handling complaints regarding the construction and commissioning of factories and workshops | 29       | 3.8279  | 0.88787 |
| 17          | Issue an inquiry for the construction site                                  | 30       | 3.7951  | 0.93542 |
| 31          | Control of silica in the working environment                                | 31       | 3.7869  | 0.90206 |
| 35          | Implementation of training programs and organization of disaster workers    | 32       | 3.7213  | 0.94705 |
| 23          | Chemical safety                                                              | 33       | 3.6721  | 1.09426 |
| 16          | Issuing health authority to obtain or renew the license                      | 34       | 3.6230  | 0.91207 |
| 44          | The company has a license to measure the harmful factors of the work environment | 35       | 3.6230  | 0.90296 |
| 5           | Control the lighting in the work environment                                 | 36       | 3.6148  | 1.03210 |
| 26          | Targeted inspection plan                                                     | 37       | 3.6066  | 0.84850 |
| 33          | Control plan for lead in the workplace                                       | 38       | 3.4344  | 1.30471 |
| 32          | Control of mercury in the working environment                                | 39       | 3.4098  | 1.30956 |
| 1           | Building control and work environment                                       | 40       | 3.3852  | 0.89486 |
| 7           | Control of cold and humidity in the work environment                         | 41       | 3.2213  | 0.92274 |
| 42          | There is a vocational school for training employees                          | 42       | 3.0164  | 1.25957 |
| 4           | Vibration control in the work environment                                   | 43       | 2.9918  | 1.20259 |
| 6           | Radiation control in the working environment (X-ray, gamma, etc.), UV-ion-ionizing radiation (IR) | 44       | 2.9508  | 1.17728 |
| 29          | Teacher training plan, health care worker and occupational health experts    | 45       | 2.8852  | 1.31235 |
| 9           | Control of biological agents (bacteria, fungus, virus and ...)               | 46       | 2.8607  | 1.26174 |
| 27          | Health plan for state employees                                             | 47       | 2.8361  | 1.07842 |
| 30          | Bagha plan, manual carpet health                                             | 48       | 2.8115  | 1.18762 |

SD: Standard deviation, UV: Ultraviolet, IR: Infrared, COD: Chemical oxygen demand
Table 10: Overall priorities, according to the mean rank and standard deviation of scores assigned to items by the supervisory health occupational experts, were as follows

| Item number | Item titles                                                                 | Priority | Mean    | SD     |
|-------------|-----------------------------------------------------------------------------|----------|---------|--------|
| 1           | Continuous occupational health inspections of nonprofit workshops (factories, workshops, departments, contractors, etc.) | 10       | 4.2069  | 0.77364|
| 2           | Control of drinking water                                                   | 11       | 4.1724  | 0.88918|
| 3           | Control the observance of occupational exposure limits in the workplace     | 12       | 4.1379  | 0.87522|
| 4           | The plan for determining and slake hard and harmful occupations in the workplace | 13       | 4.0134  | 1.01224|
| 5           | Control the noise of the work environment                                   | 14       | 4.0690  | 0.84223|
| 6           | Control plan for lead in the workplace                                      | 15       | 4.0690  | 0.96106|
| 7           | Supervise the use of personal protective equipment during work              | 16       | 4.0690  | 0.70361|
| 8           | Monitor the distribution of suitable personal protective equipment          | 17       | 4.0345  | 0.73108|
| 9           | Building safety (space for stairwells and openings, etc.)                   | 18       | 4.0345  | 0.82301|
| 10          | Continuous control of air pollution agents                                  | 19       | 4.0000  | 0.77840|
| 11          | Issue an inquiry for the construction site                                  | 20       | 4.0000  | 1.01710|
| 12          | The company has a license to measure the harmful factors of the work environment | 21       | 3.9655  | 0.96362|
| 13          | Monitor the distribution of suitable personal protective equipment          | 22       | 3.9310  | 0.97871|
| 14          | Control the lighting in the work environment                                 | 23       | 3.9866  | 0.90019|
| 15          | Issuing health authority to obtain or renew the license                     | 24       | 3.8621  | 0.83342|
| 16          | Providing and equipping equipment during crisis and disasters by the employer and officials of the departments | 25       | 3.8621  | 0.99010|
| 17          | A plan to oversee executive companies to measure the harmful factors in the workplace | 26       | 3.8621  | 1.12517|
| 18          | Handling complaints regarding the pollution of dust, gas, and steam released from industries | 27       | 3.8276  | 0.88918|
| 19          | Control of mercury in the working environment                               | 28       | 3.8276  | 1.16708|
| 20          | Supervising facilities and facilities at the workshops (dining, changing rooms, bathrooms, etc.) | 29       | 3.8276  | 0.80485|
| 21          | Handling complaints about the disposal of waste and sewage in transit       | 30       | 3.7586  | 0.95076|
| 22          | Radiation control in the working environment (X-ray, gamma, etc.), UV-ionizing radiation (IR) | 31       | 3.7586  | 1.18488|
| 23          | Implementing training programs and organization of disaster workers        | 32       | 3.7586  | 0.83045|
| 24          | Recognizing and visiting the polluting industries and introducing offenders to relevant authorities | 33       | 3.6552  | 1.07822|
| 25          | Health plan for state employees                                             | 34       | 3.6207  | 1.17758|
| 26          | Building control and work environment                                       | 35       | 3.6207  | 0.77523|
| 27          | Strengthen inspections and inspections at nonadministrative ho              | 36       | 3.5517  | 0.98511|
| 28          | There is a vocational school for training employees                          | 37       | 3.5517  | 1.08845|
| 29          | Supervising the establishment of industrial wastewater treatment and controlling COD and PH | 38       | 3.5172  | 1.05630|
| 30          | Supervisory education in the field of environmental protection and environmental improvement | 39       | 3.5172  | 0.98636|
| 31          | Prevention of environmental degradation threatening health in industries    | 40       | 3.4828  | 1.05630|
| 32          | Teacher training plan, health care worker and occupational health experts   | 41       | 3.4483  | 1.12078|
| 33          | Control of cold and humidity in the work environment                        | 42       | 3.4138  | 1.18072|
| 34          | Bagha plan, manual carpet health                                            | 43       | 3.4138  | 1.26822|
| 35          | Vibration control in the work environment                                    | 44       | 3.4138  | 0.86674|
| 36          | There is a vocational school for training employees                          | 45       | 3.4138  | 1.23276|

**Discussion**

In this study, Tables 1 to 7 Prioritize items based on Mean and standard deviations given by occupational health experts working in the supervisory and executive sectors which is given in 7 scope. Priority number 1 is the most important in
each field, and the items are accordingly numbered according to the importance of number 1, respectively.

Tables 8 to 10 are Overall priorities, based on mean rank and standard deviation of scores assigned to items by the occupational health experts. Priority 1 is the most important in each field, and the items are accordingly numbered according to the importance of number 1, respectively.

In this study and prioritization of the items, monitoring the use of personal protective equipment during work and monitoring the distribution of appropriate personal protective equipment are a first and second priority of both groups of executive and supervisory sector experts, Which was coordinated by Yarahmadi et al., in 2014 study, to prioritize occupational health and safety indexes in the construction industry and prioritize the use of personal protective equipment in small buildings. In the present study and prioritizing the items in general, both executive and supervisory health experts are the first and the most important priority, safety in the protection of machine tools (transmission parts of the gear chain belt, etc.). According to the similarity study by Siri Rutanpourk et al., (2004) in connection with the study of the priorities of research on occupational safety and health in Thailand, injuries and occupational injuries lead to the greatest problems in the industry.

In the scope of environmental protection, for all executive sector experts, more environmental items are devoted to the supervisory sector, which are more discriminating in the Sternberg (1995) and more environmentally friendly, and it seems the work experience in the executive sector and the importance of the environment have been linked together. In this study, by both executive and supervisory health professional groups, the training of employers, workers, and people to improve the health culture and improve lifestyle in the community is one of the top 10 priorities. That education proves to be the most basic principle of change in human behavior. The present study is consistent with the results of Hung et al., (2012) research, which showed that educating workers is one of the most important priorities to reduce the risk of falling from the altitude, which implies the importance of training. Therefore, training to workers and designing and presenting a safety education program in Kashan industry is necessary. The importance of raising awareness through education has also been shown in another study by Ying et al., 2003. The health needs of the community and the study of health problems in society are one of the most important factors affecting unhealthy behavior and the occurrence of health problems in society, low education level, limited knowledge, a lack of awareness of health promotion. In addition, with the results of Laiou et al., (2017) which is similar to road safety information and access to existing information and priorities, and that stakeholders have a significant demand for knowledge and information in road safety decision making. There was a significant statistical difference in the regulatory environment between monitoring of facilities and health facilities, monitoring the distribution of personal protective equipment, monitoring the distribution of personal protective equipment, safety in devices, machinery, fire safety, and chemical safety. In the view of health professional experts in the executive sector, all of these items, except chemical safety, are of greater importance to supervisory sector experts, and it’s probably important because of the important items in maintaining and improving the level of safety in the industry. Meanwhile, which is in studies conducted in community assessment and out of work environments in prioritizing urban park design criteria and park safety management, the importance of citizen participation as users and administrators for maintaining supervisory space and facilities in parks has been noted. In assessing the safety status of parks, priority was given to the safety of equipment, the playground of children and the status of parkas to create a shadow to prevent any physical stress. Comparing the results of this study with internal studies indicates differences and similarities in the implementation of target groups and outcomes.

There was a significant statistical difference between the occupational health plans between the targeted health inspection plan, employee health plan, health worker and occupational health experts, training plan, healthcare craftsmen plan, and lead control scheme in the workplace. The government has given higher priority to all executive sector health experts, which seems to be due to the involvement of supervisory sector health experts in each of the projects as part of a job description. Overall priorities for each health experts, the executive sector is in line with environmental protection, there was a significant difference between prevention of environmental degradation threatening health in industries and monitoring the establishment of industrial wastewater treatment and chemical oxygen demand (COD), pH, and according to the executive sector health experts, the supervisory health experts all of these items have been given higher priority. Environmental protection has the least priority in supervisory health experts. In a study conducted by Ansari in 2013, women have paid attention to nature and environment over various periods of time, and today, the deep sense of women’s responsibility for the environment can be found in society. It also comes up with experts in the supervisory sector, the environmental protection organization responsible for environmental protection, or the supervisory sector experts less in working programs with environmental issues. In the Karami et al., 2007, research in the copper industry using hierarchical analysis method, prioritization was done that first priority and the most important priority in the safety variables were the identification of hazards in the workplace. In the scope of reducing the effects of disasters, executive sector health experts have given higher rates to items and are consistent with the research community. With Sternberg study on male and female thinking styles, conservative women carter is more detailed than men, and men are, on the contrary, more liberal and more general than women.

The results of this study, taking into account the average scores given to each item by both groups of supervisory...
and executive health experts, are the top priority and most important for all those involved in research, safety in machines, shield conservation (transmission parts of the gear chain belt, etc.), which is consistent with most of the external studies, so that safety is recognized as an important, global, and universal priority, which every culture maintains and enforces its efforts. Has served. Safety in general aspect is important among countries and organizations. The top of priority is the survival of health and wellness handicraftsmen. In addition, according to the participants in the research, the most important in the whole by both the experts of the supervisory sector and the executive sector, safety in the protection of machine shield tools (transmission parts of the gear chain belt, etc.), and the final priority to the design healthcare handicraftsmen is given. The first priority is the experts in the executive sector in the protection of machine shield tools (transmission parts of the gear chain belt and), and the final priority is the healthcare handicraftsmen plan; however, the first priority is the supervisory sector experts, the control of the mechanical factors (ergonomics, body condition, hand carriage Load, tools, etc.) and the ultimate priority of vibration control in the work environment. The perspective of the different groups is the most important given to the environment by the executive sector toward the supervisory sector. According to the statistical population of the present study, the results of the research by Dietz and Gifford in 1997 are generally higher in women than men. In the analysis of the highest score questionnaire by executive sector experts, dedicated to each item in the areas of environmental protection and Supervisory safety. Moreover, these seem to be more important for experts in the executive sector than for the supervisory sector, which is suggested to be further explored. In the analysis of the highest score questionnaire, the experts of the supervisory sector are assigned to each item in the scopes. Moreover, all items in the questionnaire seem to be more important for supervisory sector experts than for the executive sector, which is suggested to be further explored. It is hoped that with the active participation and cooperation of the relevant authorities in the executive and supervisory sectors, and the executive role of priorities given that the priorities regarding occupational health experts are determined to meet the rules and regulations of professional health, safety in the workplace and the environment. Due to resource constraints, it is recommended that the budget be given more important priorities to reduce the number of diseases and to maintain and promote continuous health, safety, and environmental measures. In research (Darragh et al. 2009) showed that musculoskeletal disorders are one of the most common types of diseases and occupational injuries. The importance of controlling and reducing these discomforts is so much that many countries have considered prevention of musculoskeletal disorders as one of the national priorities. According to research, musculoskeletal disorders associated with major work-related causes of job loss, increased labor costs, and human damages are among the biggest health problems in the world. In research (Winkelstein et al. 2006) and (Choobineh et al. 2007), they showed that currently, control and reduction of skeletal musculoskeletal disorders among the workforce is one of the most important problems of ergonomic specialists worldwide. The importance of controlling and reducing these discomforts is so much that many countries work-related musculoskeletal disorders (WMSDs) have considered skeletal-related skeletal-induced labor-induced WMSDs among workforce as one of the national priorities. The results of previous research are consistent with the present study. In the research for both the executive and supervisory sector experts, the first priority is the item for controlling ergonomic mechanical factors (body condition, manual handling, labor tools, etc.). In addition, the first and the most important of the experts in the supervisory sector is dust control, and the item of biological control has had the least importance from the experts of the executive sector, and according to experts in the supervisory sector, the control of heat and cold is the least important and final priority.

In the area of occupational health plans, the design and modification of hard and harmful occupations is the first and foremost priority for both groups of executive and supervisory health experts, and the last priority is for both groups of executive health experts and governmental, survival plan is the manual of handicraftsmen. In the area of occupational health services by both executive and supervisory health expert groups, the first priority is the training of employers, workers, and people, and the final priority is the Occupational Health School and proves that education as the most fundamental basis for changing behavior in man is a subject. In addition, according to all supervisory health experts in the supervisory sector, the most important item, as the first priority, is the control of mechanical factors (ergonomics, body condition, manual handling, tools, etc.), which is consistent with the research by Iavicoli et al., (2003) in Italy, one of the top priorities is attention to musculoskeletal disorders and vulnerable workers. In the current study, the chemical safety item for supervisory sector health exports is a third priority, which is similarity with the study by Sadhra et al., (2001) in the developing country of Malaysia, where chemical poisoning is one of the most important priorities in the workplace. In addition, by comparing the results of the studies presented with the results of the study, Veronique et al., (2007) aimed to determine the priorities of industrial chemical hazards in the United States, a priority list of the hazards of toxic and hazardous industrial chemicals used to deploy forces and military operations. It was considered that the forces and factors of operation are based on the priority of chemical hazards. The study is consistent with the results of Hung et al., (2012), which showed that educating workers is one of the most important priorities to reduce the risk of falling from the altitude, which indicates the importance of training. Therefore, training to workers and designing and presenting a safety education program in Kashan industry is necessary. In assessing the safety status of parks, priority was given to the safety of vehicles, children’s play space and the status of parks to prevent any physical stress. Comparison of the results
of this study with internal studies indicates the differences and similarities in the implementation of target groups and outcomes[32] in the scope of occupational health plans between the targeted inspection plan, the employee health plan, the teacher training plan, the health worker and the health experts occupational, survival scheme and lead control scheme were significant in the workplace. According to the supervisory health occupational experts, the importance of all these items has been shown to be more important than the executive health experts in the executive sector. Due to the participation of supervisory sector health experts in each of the projects as part of the task. In the field of environmental protection, there was a significant statistical difference between preventing environmental degradation threatening health in industries and monitoring the establishment of industrial wastewater treatment and COD control, and according to executive sector health experts, occupational health experts the supervisory sector has given all these items a higher priority. Environmental protection has the least priority in supervisory health experts.

**Conclusion**

The average of high scores is important in implementing programs in the Kashan industry. Assessment of relevance in any high priorities should take into consideration to solve perceived problems. The results of this study, taking into account the average scores given to each item by both groups of executive and supervisory health experts, are the first priority and most important for all those involved in research, safety in device protection machines (transmission parts of the gear chain belt, etc.), which is consistent with most of the external studies, so that safety is recognized as an important, global and universal priority, which every culture maintains and enforces its efforts. Safety, in general, is important among countries and organizations. [32] The lowest importance is the final priority of the health and health survival plan. However, the first priority is the supervisory sector experts, the control of mechanical factors (ergonomics, posture, manual handling, tools, etc.), and the final priority is vibration control in the workplace. According to the purpose of the study, which were to determine the priorities of occupational health, safety, and environment issues based on national programs and regulations from the perspective of occupational health experts in Kashan city, to organize, attract, distribute and strengthen human resources and financial resources in the industry to implement priorities, requires information to be provided to high levels of government and private officials. Awareness raising to enhance the ability of supervisory occupational health experts in the executive and supervisory sector, labor, and environmental inspectors to provide services in industries based on priorities. Training managers and supervisors in the industry on the priorities identified in the Kashan city as an opportunity to improve the health and safety of the industry. Research constraints are the lack of research with this title in the country, and naturally, the lack of a pattern and background in this area made it difficult to analyze. Carrying out a cross-sectional occupational health expert in a city that needs to be done on other occupational health experts also doing a study in a city that needs to be done in large industrial cities. It is also suggested that, for future studies, the priorities of occupational health, safety in the work environment and the environment in the industry be determined from the perspective of workers, managers or supervisors regarding the implementation of the country’s current programs and regulations in the industry.

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**Conflict of interest**

There are no conflicts of interest.

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