RESEARCH ARTICLE

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Analysis of Occupational Health Challenges among Farmers

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Background & Aims of the Study: Farmers and agricultural workers are vulnerable because of exposed to a wide range of occupational hazards and Facing with problems and obstacles in their work, so the main purpose of this study was analysis of occupational health challenges among farmers

Materials & Methods: The tool of the research was a questionnaire that designed to analysis of occupational health challenges among farmers. Validity of questionnaire was confirmed by experts and reliability by Cronbach's alpha (alpha=0.85). Also for data analysis used SPSS.

Results: Research findings indicated that factor analysis extracted five factors a bout occupational health challenges among farmers. Including; educational factors, economical factors, individual factors, a kind of equipment design and social factors. These five factors determined about 67.69 percent of total variance.

Conclusions: Farmers and agricultural workers are exposed injuries that lead to death and disability more than of the workers in other industries. So education and awareness is will be useful to empowerment them for protective in these hazards.

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Background

Agriculture section regard to important economic indicators such as continuous production and favorable investment returns, exchange of technology, preventing off-exchange has significant share in its key role in providing employment and food security in comparison with other sectors of the economy (1). But farmers and agricultural workers employed in this sector as a one of the most vulnerable members of society, are be a chore to do in farmers exposed to a range of occupational hazards, lower economic, Social conditions, limited access to health and physical and chemical agents to cause health problems, accidents and occupational diseases among this group (2). Agricultural work-related accidents are recognized as a worldwide problem, so that the risk of agricultural injuries is approximately 5-10 cases per hundred people a year (3). Farmers and farm families more than other industrial workers exposed to injuries that lead to death, disability (4). It is obvious that in industry and service sector, employees and workers covered by the agency responsible for the protection and preservation and provide a safe working environment for individuals but agriculture is a profession and self-employed so farmers themselves are responsible for their own health and their family. Review of previous studies showed that the being hot is most common reason to prevent wearing protective clothing by farmers and the reason

not to use these sunscreen farmers say that they have forgotten (5). Forst and colleagues examined the barriers and benefits of using protective eyewear among Latino farm workers. They gave protective eyewear to the farmers and training them to use during summer to protect their eyes. During the next summer, the educators observed that 17 farmers field during the last 3 months goggles are used at least once a week. The reasons include the use of protective equipment protection was protection from risks, appear of glasses, the employer's order and using by others. Reasons for not using protective eyewear and goggles are: not realizing the danger, seemingly unfavorable glasses interfere with vision and visibility, slow down do not apply by employer (6). Research showed that; more than half farmers were not use of the protection tools, because of the high cost, inaccessibility, Not comfortable in use and image of unimportant the use (7). Hosseini and Dadashpour reported that main reasons for not considering the safety of the community are financial problems, lack of access to equipment, lack of quality in the market, the belief in the usefulness of these devices (8). Based on recent data of the National Institute for Occupational Safety and Health (NIOSH), barriers to the use of protective equipment are divided into five categories that form C5 are expressed as: Communication, Cost, Convenience, Comfort and Climate. The lack of barriers workplace will reduce the effectiveness of any training program (9). Considering that incidents, illness and deaths caused by work among farmers is high, farmers in certain areas of occupational health and safety issues with face challenges with to overcome these challenges and identifying these challenges can be of losses, injuries and illnesses caused by work in agricultural section.

Because of the lake, any assessment in the field of occupational health and safety the study was to examine a variety of aspects. Therefore, the main purpose of this study was analysis of occupational health challenges among farmers with the following specific objectives:

1- Review of the personal and professional farmers characteristics;

2- Identification and classification of occupational health challenges among farmers;

2- Ranking of the occupational health challenges among farmers;

4– Propose the strategies to promote occupational health.

Materials & Methods

This descriptive – quantity survey is practical in that the results can be used in program planning by policy-makers. The population of this study included 213 households of farmers in Mahidasht County (Kermanshah Province) 140 households selected as a samples according, to Morgan (1970) by randomly method. The survey instrument was a questionnaire and variables studied through theoretical study and review of the literature and research in the area of the study was extracted. Validity of research by promoting the faculty of Agricultural Extension and Education, College of Agriculture, Razi University of Kermanshah, occupational health experts and Occupation list was approved and after consideration of comments, the final questionnaire was adjusted. The pilot study was used to measure the reliability of the study population of 30 households were considered that were not included in sampling stage. Finally, the questionnaire gathered and data were extracting, the Cronbach's alpha coefficient for the questionnaire was 85% obtained show that the reliability of the questionnaire was acceptable. The 140 questionnaires distributed 100 questionnaires were available for analysis. SPSS11.5 software was used in order to analyze in the descriptive statistics, frequency distribution, mean, cumulative percentage, standard deviation and coefficient of variation and statistical inference in factor analysis. Farmers dependent variable challenges in occupational health and safety issues was

measured with the use of a Likert five-spectrum (1=strongly disagree, 2=disagree, 3=no opinion, 4=agree, 5=strongly agree) and independent variables were including age, education, work experience, working day farming, job satisfaction.

Results

The result in the area of personal and professional characteristics showed that 69 percent of the population was male and 31 percent were female, of these, 78 percent were married and 22 percent were single, the most common age was 30 to 42 years old with the mean 42.7. The highest frequency of respondents had primary level education (Table 1). Data Analysis - associated with professional characteristics of the subjects showed the farmer had highest frequency of the main occupation (41 percent) (Table 1).The sample average of experience in farming and animal husbandry was 21 and 9 years, respectively. The findings showed that the average of doing work by farmers was 8.5 hours, the farmers claimed that depends on the season and time of day in high season will increase the amount of hours . Satisfaction survey of agricultural subjects showed very low percentage of 21 percent, low percentage 29 percent, 48 percent on average and only 2 percent were satisfied with their jobs.

Classification challenge to rank farmers in the field of occupational health and safety issues were measured by mean parameter. the findings showed that the three challenges including high price of protective equipment, becoming protective devices as a culture of the region and lack of enough training were most important, respectively (the descriptive statistics in this study was used in the case of means equality) (Table 2).

Table 1) Individual and professional characteristics

variable	percent
Gender	
Female	31
Male	69
Marriage	
Single	22
Married	78
Education	
The literacy	13
The ability to read and write	18
primary	27
High school	12
diploma	24
Diploma of college	6
main job	
Agriculture	41
Husbandry	4
Agriculture and Animal Husbandry	24
House wife	31

In this survey, after conceptual statistics, to identify and classify "challenges farmers studied in the field of occupational health and safety" and the amount of variance explained by each of the methods factor analysis was used as follows:

KMO and Bartlett's test: In this study, the KMO value was 0.81 showing that the situation is good for factor analysis. Bartlett's test of equal amounts of 783.620 that was significant at the level 1%. Thus, the total data for factor analysis were appropriate.

Determine the number of factors: for determining the number of factors based on accepted criteria Kaiser in this study, factors that had Eigen values greater than 1 were accepted and based on them the five factors was extracted from a larger number. In Table 3, the number of extracted factors associated with their Eigen values, the percentage of variance and cumulative frequency of each factor is the percentages of variance are presented.

Table 2) Mean rank and ranking (N= 140)

	Variable statement	Mean	Rank
1	high cost of protective equipment	4.16	1
2	lack of culture to use of protective equipment	3.67	2
3	lack of adequate training in the use of protective equipment	3.57	3
4	Inadequate access to protective equipment	3.55	4
5	protective equipment heat production in the warm months	3.52	5
6	Lack of reception from boss	3.13	6
7	No other use of protective equipment	3.13	7
8	restrictions and social reactions on the use of protective equipment	3.13	8
9	forgetting the use of protective equipment	3.05	9
10	lack of knowledge about how to use protective equipment	2.93	10
11	Unused of protective equipment	2.85	11
12	efficiency reduction at work by using protective equipment	2.85	12
13	lack of adequate time for the preparation and use of protective equipment	2.84	13
14	red tape means of protection such as gloves, masks and protective equipment, higher risk in comparison to not using protective equipment	2.80	14
15	unpleasant appear of these equipment	2.79	15
16	not being able to read the tag information contained on pesticides	2.63	16
17	lack of awareness of the consequences of non-compliance with occupational health and safety issues	2.54	17
18	not noticing the warning signs on pesticides and other tools	2.48	18
19	uncertainty variable quality and efficiency of safety devices and protective equipment	2.29	19

Table 3) Extracted factors, Eigen value, percent variance, cumulative percent variance

factors	Eigen values	percent variance	cumulative frequency variance
First	3.338	19.633	19.633
Second	2.285	13.444	33.077
Third	2.094	12.316	45.393
Forth	2.088	12.280	57.674
Fifth	1.704	10.021	67.694

Eigen values represent the share of total variance by each factor and present more effect and importance as it is bigger. Table 2 shows that the first factor has highest proportion explained by the variable (19.633 percent). Then the second, third, fourth and fifth respectively, have managed 13.444, 12.316, 12.280 and 10.021 percent of the total variance. Rotation of factors: In the present study, the mean varimax method is used. In this step, the variable that has a load factor of more than 0.3 means were considered significant and are shown in Table 4. In the table below, each of the variables associated with the factor are presented:

The results of factor analysis show that five main factors involved have in occupational health and safety issues by the farmers. The first extraction factor named " Lack of Education", that determined 19.36 percent of total variance including five challenges: Inability to read the pesticide labels, not recognize the warning signs on pesticides, not ability the use of protective equipment, Lack of awareness of the consequences of non-compliance with safety and health professional, Lack of knowledge of how to use protective equipment. The amount of time that each of these variables load on the first factor are shown in Table 4.

Table 4) Factors statement, variables and factor loading

factors statement	variable	load factor
Education	-not being able to read the tag information contained on pesticides	0.815
	-not noticing the warning signs on pesticides and other tools	0.600
	-lack of adequate training in the use of protective equipment	0.404
	-lack of awareness of the consequences of non-compliance with occupational health and safety issues	0.578
	-lack of knowledge about how to use protective equipment	0.660
Economic	high cost of protective equipment	0.747
individual	-forgetting the use of protective equipment	0.802
	-lack of adequate time for the preparation and use of protective equipment	0.458
	- Lack of reception from boss	0.646
design of safety equipment	-uncertainty variable quality and efficiency of safety devices and protective equipment	0.812
	-protective equipment heat production in the warm months	0.614
	-Reduced efficiency in the use of protective equipment	0.790
	-red tape means of protection such as gloves, masks and protective equipment, higher risk in comparison to not using protective equipment	0.584
	-unpleasant appear of these equipment	0.492
Social	-restrictions and social reactions on the use of protective equipment	0.815
	- lack of cultural plane for use education	0.764
	- un usual use of protective equipment	0.801

The second factor is the maximum explained amount of residual variance (13.44%) was entitled as an economic factor with Eigen values 2.28, a variable that involve high cost of protective equipment (Table 4).

The third factor returned to individual factors so called "individual factor", in the context of the individual by Eigen values 2.09 and by explanation 12.31ofthe residual variance is taken by three variable such as forgetting the use of protective equipment, lack of adequate time for the preparation and use of protective equipment and lack of employer role. As it can be seen from table4, three factors, education , economic and personal, totally explained 45.93 percent of the 67.69 percent of the variance by the five factors represent that the importance of this factors. Two next factors is the sum of 22.3 percent of explained variance were include fourth factor focuses on the design and equipment features of protective equipment that be named as "design of safety equipment factor". This factor that determined 12.28 percent of total variance including; Uncertainty quality and efficiency of protective tools, the heat generated by the tools, Reduced work efficiency, Not comfortable to use and bad appearance to use the protection equipment. Totally the fifth extracted factor was social factor according to the its constituent variables with Eigen values 1.70 (10.21 percent of the total variance) and restrictions and social reactions, lack of culture to use of protective equipment, the use of common protective equipment and use it which is not common, were variables of this factor. Figure 1

represents factors affecting occupational health and safety violations among samples in this study.

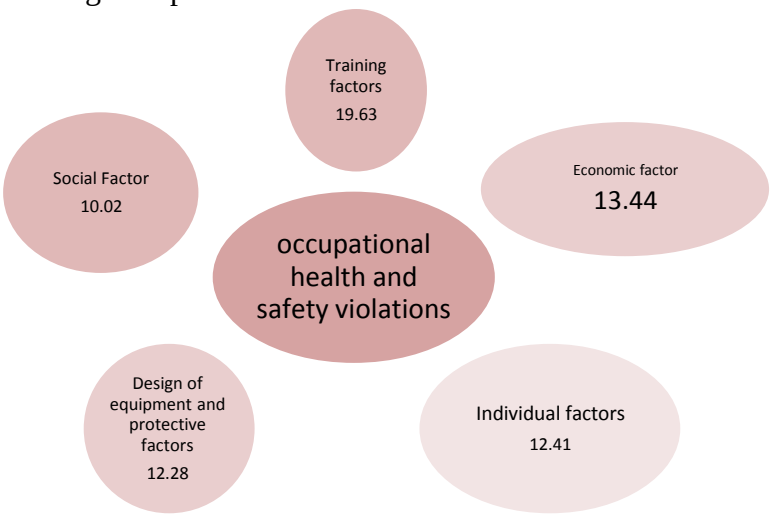

Figure 1) Factors affecting occupational health and safety violations among samples in this study.

Discussion

Farmers and agricultural workers more than workers in other sectors such as industry subject are face to injuries leading to death and disability. The more people are facing the problem may be with to printing job accidents and ill health in the field of occupational health and safety issues and obstacles are more threatening. In terms of subject people in this study, biggest faced challenge was cost of protective equipment verified by Banjo et al (2010) (7) beside other reasons such as becoming institutionalized culture of protective equipment in the area and lack of training people may not believe in the use of protective equipment. Workers should be trained according to their job as well as the conditions that require the use of personal protective equipment. Awareness through education can the necessary to use and how to prepare and promote of protective equipment because some people do not believe in it, the findings from the study also confirmed by Dave, but nearly half of those surveyed in Dave study stated that they did not aware the site for preparation(10). Lombardi and colleagues concluded that in addition to the factors of safety at work and the use of protective equipment, was being young of people (11). It seems that young people by taking more and more risks to safety and health experience have less faith to use protective equipment. The result of the research by Aghilinejad showed that one of the reasons not using equipment is because the protective equipment is not available by employer (12) where in Forst and colleagues (6) and the present study has also shown same results. It can be concluded that agricultural employers are not required to provide the necessary safety features to their workers. Mirzaei and Rakhshani in their study showed that being not convenient is the main reason to not use of personnel protective equipment (13). Tak and colleagues concluded that the barriers to the use of workers from the means of hearing protection include lack of awareness, lack of ability of workers to use protective equipment, concerns about ¬ disrupting contact with their supervisor or colleagues and the lack of protective equipment (14). Most of farmers in the study conducted by Damalas and colleagues did not use protective equipment because that equipment were not available, other reasons were contained being expensive, time

consuming and a small percentage is also believed that the use of protective equipment does not need to be (15). Work-related injuries can be prevented by identifying the factors that lead to non-compliance with health and safety at work, accidents at work and changing unsafe work environment conditions to safe. The results of the factor analysis revealed five main factors shaping the obstacles and challenges farmers to an occupational health and safety issues that are, order to importance, factors training, economic factors, individual factors, design factor and social factor, respectively.

1- Educational factor: With regard to the learning factor is first factor and one of the most challenging fields of farmers to compliance with occupational health and safety issues was did not receive adequate training in the use of protective equipment. It seems to be lack of knowledge of safety and occupational health is due to being inactiveness of agriculture education and extension and professional health. This has led farmers be less familiar with agricultural work hazards and diseases that are caused by non-compliance of occupational health and safety. It is recommended that professional's health and agriculture education and extension promote agricultural education in order to educate the farmers in this area.

2- Economic factor: economic factors as well as the second most important factor, as one of the most challenges in front of farmers, was being expensive of protection. So it is recommended that the government consider it because of manpower productivity and farmers health is the key to greater production. So protection equipment must be prepared by government and be available to all farmers.

3- Individual factor: individual factors can be inferred that the level of awareness and knowledge in the field of occupational accidents and diseases cause using of protective equipment and consider safety as an important component of their work and consume time for it.

4- Design of equipment and protective factor: This factor is also a restriction on the use of protective equipment; protective equipment should be comfortable enough that while people are working. It is recommended to designer that, in order to admitting farmers to use protective tools, convenience must be considered.

5- Social Factor: Although the percentage of variance explained by this factor was less than others, it is introduced as a barrier to use of protection equipment by farmers so it is recommended in order to admitting farmers by holding training classes changing agents must be activated.

Conclusion

Farmers and agricultural workers are exposed injuries that lead to death and disability more than of the workers in other industries. So education and awareness is will be useful to empowerment them for protective in these hazards.

Footnotes

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Conflict of Interest:
The authors declare no conflict of interest.

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