RESEARCH ARTICLE

The occupational health and safety evaluation of official veterinarians in Turkey

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Resmi veteriner hekimlerin iş sağlığı ve güvenliğinin değerlendirilmesi

Öz

Amaç: Türkiye'de Tarım ve Orman Bakanlığı'nda görev yapan veteriner hekimlerin çalışma hayatlarında, iş sağlığı ve güvenliği açısından karşılaştıkları ve/veya karşılaşabilecekleri risklerin ortaya konulması ve konuya ilişkin bir soru formu geliştirilmesi amaçlandı.

Gereç ve Yöntem: Çalışmanın popülasyonunu Tarım ve Orman Bakanlığı kurumlarında görev yapan veteriner hekimler oluşturdu. Araştırmanın popülasyonunu temsil edecek örneklemin alınacağı iller, Türkiye'nin coğrafi bölgeleri esas alınarak, Bakanlığa bağlı kurumların varlığı ve örneklemi kapsayan katılımcı grupların bulunabilme potansiyeli dikkate alınarak belirlendi. Toplam 630 resmi veteriner hekime anket uygulaması yapıldı. Elde edilen verilerin SPSS 25 istatistik programı ile analiz yapıldı.

Bulgular: Çalışmada katılımcıların iş sağlığı ve güvenliği açısından en çok karşılaşabileceklerini düşündüğü durumlar; kaza riski, bulaşıcı hastalık ve deri hastalıkları tehlikesi olarak belirlenirken, en az karşılaşılma ihtimali olan durumlar ise; ağır yük, bitkin düşme, ekipmanlara veya ürünlere zarar verme ve fiziksel şiddete maruz kalma olarak belirlendi.

Öneri: Halk sağlığı ve hayvan sağlığı için, nitelikli veteriner hekimliği hizmeti sunmanın önemli bir koşulu, sağlıklı veteriner hekimler olup, bunun iş sağlığı ve güvenliği unsurlarının yeterli düzeyde olduğu çalışma ortamı ile sağlanabileceği söylenebilir. Bu ortamı sağlamanın, Bakanlığın öncelikli ve önemli görevlerinden biri olduğu ve bu doğrultuda çalışanlarının iş sağlığı ve güvenliğini planlayarak her türlü tedbiri alması gerektiği ileri sürülebilir.

Anahtar kelimeler: Tarım ve Orman Bakanlığı, kamu, iş sağlığı ve güvenliği, veteriner hekim.

Abstract

Aim: The study aims to reveal the risks that veterinarians who work in the Ministry of Agriculture and Forestry in Turkey faced and/or may face in terms of occupational health safety and to develop a questionnaire regarding the issue.

Materials and Methods: The population of the study was made up of veterinarians serving in the Ministry of Agriculture and Forestry. The provinces from which the representative samples will be taken were determined by taking into consideration the presence of Ministry affiliated institutions and the potential of participating groups that are included in the sample to be present, based on Turkey's geographical regions. A total of 630 official veterinarians participated in the survey. The obtained data were analysed using SPSS 25 Statistical Program.

Results: The study determined the situations that the participants may face the most in terms of occupational health safety as accident risk, contagious disease and skin diseases while the situations to be faced the least were heavy load, frazzle, damaging the equipment or products and being exposed to physical violence.

Conclusion: An important condition of providing quality veterinarian service for public and animal health is healthy veterinarians and this may possibly be provided with a working environment where the elements of occupational health and safety are adequate. It may be asserted that the provision of this environment is one of the preliminary and important duties of the Ministry and to this end, employees' occupational health safety must be planned and all types of measures must be taken.

Keywords: Ministry of Agricultural and Forestry, occupational health and safety, official veterinarian.

Introduction

The duties of Ministry of Agriculture and Forestry (MAF) which was the Ministry of Food, Agriculture and Livestock at the time of the study, today, are being conducted by different occupation groups within its body , and veterinary, which fulfills high risk duties is one of these occupation groups (MAF, 2019). The importance of veterinary profession has been increasing in terms of performing public services, along with the European Union (EU) process (TVMA, 2010).

World Health Organization (WHO) defines 29 different occupations in the description of "manpower in health." One of these occupation groups is veterinary medicine (Uçak, 2007). According to the article 36 of Civil Servants Law numbered 657 "civil servants including doctor, dentist, pharmacist, veterinarian who are cultivated with occupational education in health services (including animal health) fall into the Health Services and Allied Health Services Class" (Official Gazette, 1965)

Today, health care personnel may be faced with various situations and problems such as physical, chemical, biological, psychological and social security risks, contagious disease, fatigue and security issues. Moreover, sharp object injuries, blood and body fluid, chemical substance and exposure to medicine, allergic reaction, muscle and skeletal system injuries, poisoning, violence and traffic accidents are among many other occupational accidents (Uçak, 2007). In the same way, veterinarians who are classified in health labor force are exposed to various risks throughout their working lives such as being beaten by animals, scratch and other traumas, sharp object injury, muscle and skeletal system disorders, occupational dermatosis, traffic accidents and zoonotic diseases, x-rays, anaesthetic gasses and other chemicals (Smith et al., 2009).

Veterinary Services are described as (Official Gazette, 2010) "Official Veterinarian" and "Ministry Personnel Veterinarian", who fulfill these duties on behalf of the Ministry in Law on Plant Health and Food and Feed. The study aims to measure the risks that veterinarians who work in the MAF in Turkey face and/or may face in terms of occupational health safety and to develop a questionnaire regarding this issue.

Material and Methods

Data collection

The population of the study was made up of veterinarian staff working tenured in various institutions of MAF. The provinces from which the representative samples will be taken were determined initially in line with their representation abilities, by taking into consideration Turkey's geographical regions, the presence of Ministry affiliated institutions and the potential of participating groups that are included in the sample to be present. The number of samples was determined based on the method reported by Krejcie and Morgan (1970). To this end, a questionnaire was conducted on 630 individuals between September 2012 and May 2013 in Adana, Erzurum, İstanbul, İzmir, Konya, Samsun and Şanlıurfa representing the regions and data was acquired.

In the survey conducted among participants, a questionnaire was developed named as *"Health Set of Veterinarian (HSV)"* to measure the situations that veterinarians are faced with in terms of occupational health and safety.

Statistical analysis

In the study, a total of 10 judgments (*"Absolutely exists-1 point, Partially exists-2 points, Does not exist-0 point"*) regarding health risks that participants may face were addressed to the participants and these statements were scored as "*Health Set of Veterinarian*" to determine the situation regarding veterinarian's health. The questionnaire was turned into continuous measurement variables to assess the phenomenon. Each participant received a score between 0 and 20 for the 10 judgments they replied to.

SPPS 25 (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.) statistical package program was used to evaluate the data. The parametric test preconditions were examined. The normality test (Shapiro wilk) was evaluated by the homogeneity of variances (Levene's Test). Student's t-test was used for variables which were proper for parametric test prerequisites and improper variables were evaluated with Mann-Whitney - U test. The Kruskal Wallis test and afterwards Bonferroni-Dum test, which is one of the comparison tests were used for three and more categories. The reliability of this questionnaire was tested methodologically. Cronbach alpha (α) coefficient was used in reliability analysis. And Level I significance level (p <0.05) was used.

Results

In the study, the situations which participants think they may mostly be faced with in terms of occupational health and safety were determined as accident risk (93.7%), danger of infectious disease (90.8%) and the danger of skin diseases (87.4%), and the situations which they are the least likely to encounter were determined as heavy load, fatigue (67.3%), damage to equipment or products (67.3%) and exposure to physical violence (63.5%) (Table 1).

181

Table 1. Frequency distribution, mean and standard deviation of situations that veterinarian is exposed to in terms of occupational health and safety

Which of these are present in your working environment?	Absolutely present		Partially present		is not present		Average ($\bar{x}$)	Standard Deviation (sd)
	n	%	n	%	n	%		
Accident risk	344	54.6	246	39.0	40	6.3	1.32	0.58
Being exposed to physical violence	234	37.1	166	26.3	230	36.5	0.89	0.78
Chemical component danger	241	43.5	180	28.6	176	27.9	1.00	0.75
Danger of contagious diseases	424	67.3	148	23.5	58	9.2	1.14	0.55
Danger of skin diseases	376	59.7	176	27.9	78	12.4	1.15	0.61
Rupture, traumatism, sprain	277	44.0	208	33.0	145	23.0	1.10	0.74
Risk of being exposed to psychological disorders	208	33.0	242	38.4	180	28.6	1.09	0.81
Heavy load, fatigue	208	33.0	216	34.3	206	32.7	1.01	0.81
Risk of hurting someone else seriously, being injured	147	23.3	207	32.9	276	43.8	0.89	0.86
Risk of damaging equipment or products	133	21.1	291	46.2	206	32.7	1.13	0.87

Table 2. Question based safety coefficient of Health Set of Veterinarian (HSV) (Cronbach α)

	Valid Mean Score if An Item is Removed from the Questionnaire	Valid Variance if An Item is Removed from the Questionnaire	Total Item Correlation	Valid Reliability Coefficient If An Item is Removed from the Questionnaire
Accident risk	9.44	11.12	0.14	0.59
Physical Violence	9.87	10.19	0.24	0.57
Chemical Component	9.76	10.68	0.15	0.59
Contagious Disease Danger	9.62	10.89	0.22	0.57
Skin Diseases	9.61	10.31	0.33	0.55
Rupture, traumatism	9.67	9.75	0.37	0.53
Psychological disorder	9.67	10.05	0.25	0.56
Heavy load	9.75	9.65	0.33	0.54
Hurting someone else	9.87	9.64	0.30	0.55
Damaging equipment	9.63	9.54	0.31	0.55

There was no item with Cronbach alpha (α) value lower than 0.50 when table 2 was examined. Therefore, no item was excluded because 10 items was at reliability value.

Table 3. Total reliability value of Health Set of Veterinarian (HSV) (Cronbach α)

	Number of items	Reliability coefficient Cronbach (α)
Health Set of Veterinarian	10	0.59

Cronbach alpha (α) reliability coefficient was 0.591 for 10 items used in the survey when reliability coefficient was examined (Table 3).

182

Table 4. Attitudes of participants on evaluating the health of the veterinarian

Demographic Data		n	%	Mean±Std deviation		Median (IQR)
Your Region	Mediterranean[b]	58	9.2	11.15	3.09	11.0 (3.25)
	Eastern Anatolia[b]	73	11.6	11.06	3.15	11.0 (3.0)
	Marmara[a]	142	22.5	9.57	4.25	10.0 (6.0)
	Aegean[b]	111	14.6	10.61	3.24	11.0 (4.0)
	Central Anatolia[b]	134	21.3	11.37	2.85	12.0 (3.0)
	Black Sea[b]	58	9.2	11.13	3.56	11.0 (2,25)
	Southeast[b]	54	8.6	11.51	3.02	12.0 (3.0)
	p=0.001					
Gender	Male	465	73.8	11.04	3.19	11.0 (4.0)
	Female	165	26.2	10.00	4.06	10.0 (6.0)
	p = 0.008					
Age	23-29	156	24.8	10.82	3.44	11.0 (4.0)
	30-39	279	44.3	10.76	3.53	11.0 (4.0)
	40-49	143	22.7	10.66	3.49	11.0 (4.0)
	50 and Above	52	8.3	10.92	3.21	10.5 (3.75)
	p = 0.871					
Marital Status	Married	461	73.2	10.88	3.50	11.0 (4.0)
	Single	169	26.8	10.46	3.36	11.0 (3.5)
	p = 0.239					
Number of Children	0	248	39.4	10.88	3.50	11.0 (4.0)
	1	158	25.1	10.61	3.48	11.0 (4.0)
	2	173	27.5	10.75	3.49	11.0 (4.0)
	3	41	6.5	10.85	3.33	11.0 (4.0)
	4	9	1.4	10.77	2.53	11.0 (4.5)
	p = 0.740					
The Quality of the Institution	PDFAL[b]	434	68.9	11.14	3.54	11.0 (3.0)
	IVC/RRI[a]	157	24.9	9.89	2.97	5.0 (4.0)
	DFCL[ab]	39	6.2	10.07	3.77	11.0 (6)
	p=0.001					
How Long Have You Been Working in Public Institution?	Less than a year	10	1.6	10. 20	2.69	11.0 (4.5)
	1-5 years	214	38.3	10.97	3.48	11.0 (3.5)
	6-10 years	88	22.2	10.67	3.54	11.0 (4.0)
	11-20 Years	71	21.9	10.50	3.56	11.0 (5.0)
	21-30 Years	45	14.1	11.11	3.23	11.0 (3.0)
	Over 30 years >	6	1.9	8.75	2.80	5.0
	p = 0.149					
Staff Status	TCS	251	43.5	11.07	3.43	11.0 (3.0)
	FSP	128	40.5	10.59	3.50	11.0 (4.0)
	TOI	55	16.0	10.39	3.43	11.0 (4.5)
	p = 0.970					
Allocation Unit of the Institution	Province[a]	157	55.4	10.19	3.78	10.0 (5.0)
	County/Town[b]	237	38.3	11.44	3.00	11.0 (3.0)
	Village[b]	40	6.3	11.70	1.91	11.0 (3.0)
	p=0.001					
Grand Total		630	100			

n: Frequency, p: Significance level. a, b: The difference between the mean attitude values with different meaning in the same column is important. PDFAL: Provincial Directorate of Food, Agriculture and Livestock, IVC/RRI: Institute of Veterinary Control / Regional Research Institute, DFCL: Directorate of Food Control Laboratory, TCS: Transition from Contracted Staff, FSP: First Staff Permanent, TOI: Transition from Other Institutions.

183

When the demographic data of the participants were evaluated, the data of the region, gender, the quality of the institution and the settlements were statistically significant (p <0.05) (Table 4).

Discussion

According to Walton (1973), basic indicators of a safe and healthy work environment; appropriate working hours, minimizing the risk of illness and injury in physical working conditions and ensuring that working conditions do not pose a danger to the life of persons under or above a certain age. On the other hand, the EU considers the issue as a fundamental element of the quality of working life and considers the improvement of working conditions as a common goal because of both human and economic concerns (EU, 1989). Referring to the legal regulations in Turkey for physical security at work, work accidents and occupational diseases are included in Law on "*Occupational Health and Safety*" numbered 6331 prepared for detecting diseases by making their records more effective and updated (Official Gazette, 2012). It was determined that the participants faced significant proportions with the judgments that were made within the scope of occupational health and safety (Table 1). Veterinarians, due to the nature of their professions, work under difficult working conditions in laboratory conditions. The lack of basic precautions for occupational health and safety of veterinarians working under such difficult conditions may cause veterinarians to be exposed to vital hazards. For this reason, it can be argued that MAF should carry out joint studies with other ministries and institutions to determine the work accidents, health problems and occupational diseases that may be encountered during the professional execution.

In a report published by Cleaveland et al. (2001), approximately 61.6% of 1415 infectious organisms known to be pathogenic to humans were classified as zoonotic origin. According to a study carried out with Veterinary Health Products Industrialists Association in 2005 and included 240 freelance veterinarians the most common disease was *Brucellosis* (72%) in cattle farming (VHPIA, 2005). In article 3 of "Occupational Health and Safety Law" (Official Gazette, 2012) included "The Occupational disease, risk, risk assessment" Defined; Funded by the EU and Turkey "Workplaces Improvement of Occupational Health and Safety Conditions in Turkey Project" (MFLSS, 2009) by the Ministry of Family, Labor and Social Services (MFLSS), Directorate of Occupational Health and Safety "Guide to Diagnosis of Diseases Related to Occupational Diseases and Work" "the profession of veterinary medicine, occupational risks" in the group and in the factors section "Zoonoses, Cryptosporidiozis, Leptospirosis, Salmonellosis, Q fever, Rabies, Anthrax, Schistosomiasis" diseases such as; again the same guide Occupational infections by origin Section, "Zoonotic diseases" the diseases to be caught by veterinarians; "Anthrax, Leptospirosis, Q fever, Lyme Disease,

Orf, Psittakozis" diseases. In "Occupational Diseases Guide" prepared by MFLSS (2011) included (Brucella melitensis et al.) in disease agents veterinarians are exposed to. In the Annex-1 section of the "Regulation on Announcement Obligatory Animal Diseases and Notification" (Official Gazette, 2011) 34 Land Diseases and 17 Aquatic Diseases are specified in the list of "Announcement Obligatory Diseases". In the study, of the participants 90.8% (n=572) had the risk of infectious disease in their working lives (Table 1). Veterinarians will always face the risk of zoonotic disease in their working life, and it is possible to say that MAF takes all necessary measures to ensure that it is affected at the least level, and that it should provide a high level of occupational health and safety to veterinarians.

Studies conducted in New Zealand and Australia suggested that female veterinarians were affected by stress more than male veterinarians (Gardner and Hini, 2006; Smith et al., 2009). It is stated that during the application of chemotherapy drugs in veterinary medicine applications, the employees who are pregnant or pregnant should be excluded from the drug applications (Tancook, 2010). In addition, the exposure of anaesthetic gas contains various hazards for pregnant veterinarians (Korczynski, 1999). The study determined that there was a significant difference in terms of gender, and that female participants thought that they were more at risk than male participants in terms of health risks (Table 4).

As a result of the item analysis, 10 items out of 0.50 (Table 2) can be considered as a result in favour of the study. The ways to calculate the reliability coefficient vary according to the type, source and number of applications of the variables. The reliability is expected to take values ranging from 0 to +1, but close to +1. The reliability coefficient was more than 0.50 which is an expected result. Since each item of the measuring tool is scaled between 1 to 3, the reliability of the Cronbach alpha reliability and a reliability in the sense of internal consistency were significant. Cronbach alpha calculated for 10 items used in the application (reliability coefficient was 0.591 (Table 3). Since this coefficient exceeded over 0.50, it can be said that the survey was appropriate.

When the research findings were evaluated "Health Set of Veterinarian" question form was reliable and valid (Table 2-3), it can be used in evaluating occupational health and reliability of veterinarian, it can evaluate veterinarians' health working in other sectors in terms of occupational health and safety.

Regarding the statements directed to measure the occupational health and safety status of the veterinarians, it was found that the results of the statements were statistically significant in terms of region, gender, the quality of the institution being studied and the settlement of the institution (Table 4). Considering the mean scores of the responses that participants gave to judgments (Table 1) and the demographic data (Table 4), participants can be considered as they are under an important risk to regarding veterinarian's health, who are directly face to face with diseases.

184

Conclusion

As a result; repeating "Health Kit of Veterinarian" whose validity and reliability coefficient was useful would be beneficial in terms of assessing occupational health of veterinarians working in public institution; an important condition for providing qualified veterinary services is being healthy veterinarians and this can be achieved through an adequate work environment in terms of occupational health and safety; it can be said that ensuring the provision of this environment is one of the primary duties of the Ministry of Agriculture and Forestry and that it should take all necessary measures considering the occupational health and safety of its employees.

Acknowledgement

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