

## Prevalence of occupational injury and associated factors among veterinary professionals in Addis Ababa city, Ethiopia

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### Abstract

**Background:** Occupational injury is the major public health problem worldwide. There are a number of risk factors for occupational injury in veterinary practice but there is little information on the prevalence of injuries or the factors associated with the injury.

**Objective:** To assess prevalence of occupational injury and associated factors among veterinary professionals in Addis Ababa city, Ethiopia.

**Methods:** Cross sectional study was undertaken from March to May 2014 in Addis Ababa city. Census survey was employed and veterinarians who are registered in Addis Ababa Agricultural Office were included for the study. The study was conducted among 162 veterinarians. The data were collected by using self-administered questionnaire.

**Results:** The overall prevalence of occupational injury among 162 veterinary professionals was found 74.7%. Occupational injury among government employees 88/162(54.3%) was higher as compared to private veterinarians 33/162(20.4%). The likelihood of having occupational injury among meat inspectors was less and reduces the risk of occupational injury by 97% (AOR=0.030; CI: 0.006, 0.142) as compared to veterinary clinicians. Individuals who have had a history of an emergency work were 9.2 times more likely to be injured than who did not have a history of emergency work. Veterinarians who use essential safety equipment during emergency work decreased the risk of injuries by 77%. The likelihood of having occupational injury among individuals who had an assistant during work and who gained safety training during work experiences decreased by 78% and 65% respectively.

**Conclusion:** High injury prevalence was found among all veterinarians in Addis Ababa city. Occupational injuries among government employed veterinarians are found higher than those in private works. Exposure to emergency work was a risk factor for injury. Use of safety equipment's and history of safety training were protective factors.

**Key words:** Prevalence, occupational injury, vets, emergency work, safety

### Introduction

Occupational injury (OI) is defined as any personal injury that can be animal or non-animal related resulting from an occupational accident. Globally, OI is a major public health problem. There is a wide variety of causes for hazards and injuries to veterinarians. Exposure to physical, mechanical and chemical hazards and the performance of unsafe practices by workers are the leading causes of occupational or work-related injuries (Andrew 2009; Elchos and Scheftel 2008; Gabel 2002). Veterinary profession is comprised of a diverse group of individuals who interact with a wide variety of animal species under working environments which carry occupational hazards and risk of injury (Elchos and Scheftel 2008; Gabel 2002; Jeyaretnam and Jones H 2006). Such occupationally-related hazards range from physical injuries such as kicks, scratches, bites, stings, pecking, crushing of hands and feet, and being run-over to zoonotic diseases (Andrew 2009; Harry 2005). OI is a major global public health problem; 2.8 billion work forces suffer from OI and 270 million non-fatal

injuries and 160 million work-related diseases were reported annually (ILO, 2005). The estimated economic loss caused by work-related injuries and disease is equivalent to 4 % of the world's gross national product. The impact is 10 to 20 times higher in developing countries including Ethiopia, where the greatest concentration of world's workforce is located (Richard and Kabuusu 2010).

Even though, there has been little or no comparative research conducted in the area of animal related injury in many developing countries, the cross sectional studies conducted in Uganda Kampala showed 72% prevalence (Richard and Kabuusu 2010). In Ethiopia, very limited attempts had been made to identify the magnitude of work-related injuries and their determinants among veterinary professionals and large industrial workers (Tadesse 2005). Therefore, this study was aimed to determine the magnitude and associated factors of occupational injury among veterinary professionals in Addis Ababa city.

## Materials and Methods

A cross sectional study was conducted among veterinary professionals in Addis Ababa city from March to May 2014. A total of 181 veterinary professionals were included in the study. The association between occupational injuries and the independent variables was assessed. Data were collected using structured self-administered questionnaire. Data were analyzed using SPSS version 20 software and then descriptive and analytical statistics including Bivariate and multivariate analysis were employed. Significance rate was obtained at Odds ratio with 95% CI and  $p < 0.05$ . Ethical clearance was obtained from IRB of university of Gondar.

## Results

The study was conducted in 181 veterinary professionals with 89.5% response rate. Of these, 69.1% were government employed workers and 76.5% of the respondents were males (Table 1)

**Table 1: Socio demographic characteristics of respondents in Addis Ababa city, Ethiopia, 2014.**

Socio-demographic factors	Frequency	Percent (%)
Sex		
Male	124	76.5
Female	38	23.5
Age		
18-27	44	27.2
28-37	67	41.4
38-47	44	27.2
≥47	7	4.3
Occupation		
Clinicians with DVM	59	36.4
AHWs with BSc	56	34.6
Meat inspectors	32	19.8
Pharmacist	11	6.8
Lab workers	4	2.5
Employment status		
Private employees	50	30.9
Government employees	112	69.1
Years after graduation		
1-5	71	43.8
6-10	37	22.8
11-15	16	9.9
16-20	19	11.7
≥21	19	11.7
Working experience in years		
0.5-5	103	63.6
6-10	31	19.1
11-15	12	7.4
≥16	16	9.9
Working hours per week		
30-45	113	69.8
30-60	32	19.8
≥60	17	10.5
Total	162	100

About 76.5% of the respondents responded that they joined the veterinary profession by their choice of interest. Among the total respondents only 32 (19.8%) were afraid of animals (Table 2). One hundred and six (65.4%) of the participants have had a history of emergency work in their working experience. Regarding to their practice, 78 (48.1%) have a periodic vaccination services as their working practice. Majority of the respondents, 130 (80.2%) were working with all types of animals or mixed animals.

**Table 2: List of Behavioral characteristics of the respondents in Addis Ababa city, Ethiopia, 2014.**

Behavioral Factors	Frequency	Percent (%)
Veterinary profession of interest		
Yes	124	76.5
No	38	23.5
Professional satisfaction		
Yes	83	51.2
No	79	48.8
Adequate sleeping hours per day		
Yes	124	76.5
No	38	23.5
Afraid of animals		
Yes	32	19.8
No	130	80.2
Stressful situation		
Yes	9	5.6
No	153	94.4
Habits or addiction of subsistence		
Yes	18	11.1
No	144	88.9
Injury before being vet. profession		
Yes	12	7.4
No	150	92.6
Total	162	100

**Table 3: List of different working environments and conditions among respondents in Addis Ababa city, Ethiopia, 2014.**

Environmental Factors	Frequency	Percent (%)
Emergency practice		
Yes	106	65.4
No	56	34.6
Vaccination services in the clinic		
Yes	78	48.1
No	84	51.9
Animal species worked with		
Mixed animals	130	80.2
Cattles	7	4.3
Equines	8	4.9
Ovine and caprines	5	3.1
Pets	12	7.5
Assistantship training		
Yes	70	43.2
No	92	56.8
Animal lifting/crashing device		
Present	100	61.7
Absent	62	38.3
Total	162	100

Most the respondents have gotten restraining devices in their working places. Eighty three of the respondents (51.2%) has no safety rules in their working place. Nearly 64.8% of the respondents did not use safety

equipment during emergency work as compared to those who use safety equipment. Among the study subjects 117 (72.2%) were having an assistant during their work (Table 4).

**Table 4: Safety related conditions of the respondents in Addis Ababa city, Ethiopia, 2014.**

Safety Related Conditions	Frequency	Percent
Aware of animals restraining techniques		
Yes	161	99.4
No	1	.6
Availability of large and small animals restraining in the premise		
Yes	153	94.4
No	9	5.5
Availability essential working safety equipment		
Yes	135	83.3
No	27	16.7
Use of safety equipment		
Yes	132	81.5
No	30	18.5
Availability of safety rules		
Yes	79	48.8
No	83	51.2
Usage of essential safety equipment in the emergency work		
Yes	105	64.8
No	57	35.2
Availability of assistant (s)		
Yes	117	72.2
No	45	27.8
Availability first aid kit		
Yes	62	38.3
No	100	62.7
History of safety trainings		
Yes	56	34.6
No	106	65.4
History of specialty training (s)		
Yes	88	54.3
No	74	45.7
Total	162	100

The overall prevalence of OI among veterinary professionals in Addis Ababa city was found 74.7% which was higher in males (56.2%) than females (18.6%). It was also higher among government employed veterinarians (54.3%) than veterinarians who are working at private (20.4%). Being meat inspector, use of safety equipment, safety training, having assistant and history of emergency work showed statistical significant association with OIs. The odds ratio of having OI among individuals who had a history of an emergency work was 9.2 times higher than those

who do not have a history of emergency work (AOR=9.212; CI:2.580, 32.888). The OR of having OI among individuals who uses essential safety equipment during emergency work were found 77% (AOR=0.233; CI: 0.079, 0.689) which was less as compared to those who did not use. The likelihood of having OI among individuals those who have received safety training during their work experience was 65% (OR= 0.347; CI= 0.173, 0.696) less as compared to those who did not gain safety trainings (Table 5).

**Table 5: Variables Associated with OI among Veterinary Professionals in Addis Ababa city, 2014.**

Variables	OIs		Crude OR with 95% CI	AOR with 95% CI
	Yes	No		
Occupation				
Clinicians with DVM	44	15	1	1
Meat Inspector	27	5	1.84(4.600,51.808)	0.030(.006, .142)*
AHW with BSc or Diploma	43	13		
Pharmacist and laboratory workers	7	8		
History of emergency work				
Yes	84	22	1.96(1.607, 5.780)	9.212(2.580,32.888)*
No	37	19	1	1
Use of safety equipment during emergency Work				
Yes	73	32	0.42(. 289, .664)	0.233(.079, .689) **
No	48	9	1	1
Availability of assistant (s)				
Yes	82	35	0.36(.065, .363)	0.218(.064, .746) **
No	39	6	1	1
History of safety training				
Yes	37	19	0.51(1.64, .430)	0.347(.173, .696) **
No	84	22	1	1

Note: 1.00=Reference \*\*= $p < 0.001$  \* = $p < 0.05$

## Discussion

Globally, there is no data showing the global burden of OI among veterinary professionals but some studies in Europe Australia, USA, and India estimate that during their careers, the 61%-68% of veterinarians suffer from animal-related injury which resulting in hospitalization and/or significant loss of work time (Gabel et al. 2002; Leggat et al. 2009; Michael et al. 2007; Jeyaretnam et al. 2006; Soumya et al. 2012; Richard 2010).

In this study, the prevalence of OI among veterinary professionals was 74.7% which is slightly higher than a similar prevalence study conducted in Kampala using 180 veterinarians which was 72%, but it is higher than occupational injury reported in most of European countries (61-68%) including Australia which was 51% (Lucas 2009; Richard et al. 2010; Harry et al. 2005; Gabel et al. 2002; Soumya 2012). Prevalence of occupational injuries found higher in government employed veterinarians than the private ones. This is in line with a similar study done in Canada that showed private veterinary practitioners and veterinarians with more years of experience in private practice were less likely to report Zoonoses or injuries resulting from bites or scratches. This could be due to exposure of government employed vets for emergency and field work, and routine practice of mixed types of animal with different animal species by most government employed veterinarians of Addis Ababa than self-employed or private workers. This could also indicate the advantage of animal handling experience during training for veterinary students to reduce the risk of animal-related injuries (Tasha 2009). Meat inspectors were on less risk of OI to acquire by 97% as compared to veterinary clinicians. Also emergency work is risk factor for the occurrence of OI in veterinary practices. Moreover, working as a physician, use of essential safety equipment during emergency work, presence of health care services, working with assistants and

gaining safety training were found to be protective factors from the occurrence of OI in veterinary practices which is similar with another studies conducted in Canada, Australia and Kampala (Tasha et al. 2009; James et al. 2005; Richard et al. 2010). Another study carried out in German (Reijula 2003), showed 2.9 times higher rate of accidents for veterinarians than physicians in the general practices. Likewise, at least 1 injury was reported in the 3- to 5-years working periods in the position of veterinary practices with large animals (Barry 2012; Gabel Gerberich et al. 2002). Studies done in Australia and Kerala explained the significant association of employer or employee emphasis for safety and quality training with injury and illness rates as (Lucas et al. 2009; Soumya et al. 2012).

## Conclusions

The overall prevalence of OI among veterinary professionals in Addis Ababa city was high. Meat inspectors reduce the risk of OI in a great extent than veterinary clinicians. The risk of occupational injuries was higher among individuals who had history of emergency works. Uses of essential safety equipment during emergency work, availability of assistants and safety training were a protective against occupational injuries.

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