

Case Report

Prevalence and patterns of self-reported animal-related injury among veterinarians in metropolitan Kampala

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To establish the prevalence, patterns and risk factors of animal-related injuries among veterinarians, self-administered questionnaires were given to 60 veterinarians practicing in metropolitan Kampala. The prevalence of animal-related injuries in metropolitan Kampala was 72 % (95% CI, 57~84). Some veterinarians (34%) suffered multiple injuries with a mean and median of 2.1 and 2.0 injuries per veterinarian, respectively. Of a total of 70 self-reported animal related injuries, cattle accounted for 72 %, cats for 25 %, dogs for 23 %, self inoculation for 15 % and birds for 13 %. Injuries associated with poultry did not require hospital treatment. The upper limb was the most the frequently (68%) injured anatomical body part of veterinarians, and vaccination of animals (25 %) was the major activity associated with injury. Animal-related injuries are common among practicing veterinarians in metropolitan Kampala; however, they did not differ significantly based on the veterinarian's gender, experience or risk awareness.

Keywords: animal-related injury, patterns, prevalence, self-reported, veterinarians

The constant interaction between veterinarians and animals in homes, dairy farms, cattle ranches, zoos, animal hospitals, pet stores, wildlife parks, and animal slaughter houses exposes veterinarians to occupational injuries, some of which may be fatal. 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. The injuries experienced at veterinary work places result in pain, suffering, and occasionally disability, death and serious economic and legal consequences for veterinarians, as well

as indirect effects on the families of the injured veterinarians [1,6,7].

Although veterinarians are an occupational group with a high risk of injury, few studies have focused on injury among this high risk group [4,6]. Intentional and unintentional animal-related injuries have been investigated in the United States, Australia, and Germany, and found to be widespread [1,4,6]. However, there has been little or no comparative research in the area of animal-related injuries in many developing countries, including Uganda. Therefore, this cross-sectional study was conducted to determine the prevalence and patterns of self-reported animal-related injuries, and to determine the factors which increased the risk of animal-related injuries among veterinarians in metropolitan Kampala.

More than 500 veterinarians are registered with the Uganda Veterinary Board; however, accurate information regarding their occupational activities or veterinary practices is not readily available [3]. Therefore, between May and July 2006, we visited the Uganda Veterinary Association, the Faculty of Veterinary Medicine at Makerere University and divisional administrative offices in metropolitan Kampala, which include the Nakawa, Makindye, Kawempe and Rubaga divisions. From these sources, we compiled a list of names and mobile cell numbers of 91 veterinarians. We then issued 60 self-administered questionnaires to extract self-reported information regarding variables including the gender of veterinarian, type of injury suffered, animal species that caused the injury, type of practice, use of personal protection equipment, number of years in practice, any risk awareness training acquired, body part of the veterinarian affected by the injury, the outcome of the injury and the activity that was being performed by the veterinarian at the time of the injury. Animal-related injury was defined as broken skin, fractured bone and pain or skin swelling suffered by the veterinarian as a result of being bitten, kicked/stepped on, pecked, scratched, or rolled-over by an

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animal. Prevalence and odds ratios were determined using descriptive statistics and 2×2 tables, respectively, at a significance level of $\alpha = 0.05$ using the statistical analysis software (SPSS-version 13; SPSS, USA).

Telephone contact was made with only 66% (60/91) of the recruited veterinarians because the mobile cell numbers of only 60 veterinarians were active during the period of data collection (May-July, 2006). Moreover, completed questionnaires were only received from 47 veterinarians, giving a response rate of 78% (47/60) or 51.65% (47/91).

Most veterinarians (97%) were engaged in mixed animal practice, but none were involved in small animal practice alone (Table 1). It was not established whether the farms visited by the veterinarians had adequate animal restraint devices.

The prevalence of animal related injury of all causes in metropolitan Kampala was 72% (95% CI, 57 ~ 84). Some veterinarians (34%) suffered multiple injuries with a mean and median of 2.1 and 2.0 injuries per veterinarian, respectively. Self inoculation caused 15% (7/47) and bird pecks caused 13% (6/47). Compared to dog and cattle-related injuries, injuries associated with poultry were less severe and often did not require hospital treatment (Table 2). Animal-

related injuries did not differ significantly by gender, experience or attendance of safety classes. All of the prevalence risk ratios included the null value of 1.0, and are therefore not reported here. This may be purely due to random variation associated with unmeasured confounding factors.

We speculate that the popularity and temperament of this cross breed of cattle (local Uganda cattle crossed with Friesian cattle) may have contributed considerably to the high prevalence (72%; 34/47) of cattle-associated injuries reported in this study [2,5]. Compared to cattle, cats and dogs are not as popular and they have a lower socioeconomic value for people in metropolitan Kampala, and this may explain the lower prevalence of injuries associated with cats and dogs (25%; 12/47 and 23%; 11/47 respectively).

Vaccination of chickens against infectious bursal disease (Gumboro) and Newcastle disease was the single most important cause of self-inoculations. There is a direct correlation between these injury-associated activities and the habitual responsibilities of veterinarians in metropolitan Kampala. The inclusion of topics on animal behavior coupled with identification and separation of dangerous animals in safety classes may further reduce the prevalence and severity of animal-injury among veterinarians.

Table 1. Behavioral patterns of 34 injured veterinarians in metropolitan Kampala

	Proportion injured		Total N (%)
	Male N (%)	Female N (%)	
Division of practice			
Kawempe	14 (41)	4 (12)	18 (53)
Makindye	6 (18)	2 (6)	8 (24)
Nakawa	5 (15)	2 (6)	7 (21)
Rubaga	0 (0)	1 (3)	1 (3)
Type of practice			
Mixed practice	23 (70)	10 (76)	33 (97)
Dairy practice only	1 (100)	0 (0)	1 (3)
Small animal practice only	0 (0)	0 (0)	0 (0)
Experience			
< 3 years	21 (62)	4 (12)	25 (74)
≥ 3 years	4 (12)	5 (15)	9 (26)
Safety classes			
Yes	16 (47)	5 (15)	21 (62)
No	9 (26)	4 (12)	
Personal protective equipment			
Gloves	15 (44)	3 (9)	18 (53)
Boots	3 (9)	6 (18)	9 (27)
Coveralls	7 (21)	0 (0)	7 (21)
Ropes*	16 (47)	6 (18)	22 (65)
Dog muzzles*	9 (26)	3 (9)	12 (35)

N: sample population, *Restraint devices available to veterinarians.

Table 2. Characteristics of veterinarians in metropolitan Kampala stratified by the mechanism of injury

	Cattle kick N (%)	Dog bite N (%)	Bird peck N(%)	Cat scratch N (%)	Self inoculation N (%)	Total N*
Veterinarian's gender						
Male (n=34)	25(73)	7 (20)	0 (0)	5 (15)	5 (15)	42
Female (n=13)	9 (69)	4 (30)	6 (46)	7 (54)	2 (15)	28
Overall prevalence	34 (72)	11(23)	6 (13)	12 (25)	7 (15)	70
Veterinarian's activity at time of injury						
Spraying or washing animal	7	4	0	3	0	14
Vaccination	6	1	3	1	7	18
Treatment	10	3	2	1	0	16
Physical examination	5	0	0	2	0	7
Drawing blood	3	0	0	1	0	4
Inspecting premises/passing by	3	3	1	4	0	11
Anatomical location of injury on vet						
Head	1	0	0	0	0	1
Trunk	5	0	0	0	0	5
Upper limb	23	7	2	9	7	48
Lower limb	5	4	4	3	0	16
Medical help sought by injured vet						
Hospital/ clinic	9	4	0	0	0	13
Self treatment	17	4	0	4	0	25
None	8	3	6	8	7	32

N: sample population, *: total number of injuries suffered.

The high prevalence of animal-related injury may be due to biases introduced by self-reporting. The effects of biases related to non-response and self-selection of participants were also not analyzed in this study. While the modest sample size limited the statistical power of this study, it is clear that animal-related injuries are widespread among veterinarians practicing in metropolitan Kampala. The findings in this study may be useful for developing policies for preventing occupationally-related injuries among veterinarians in Kampala. Further studies based on large sample sizes should take into account career-ending and/or fatal animal-related injuries, the distance covered and the time spent while driving to treat the animals, the number of hours of sleep they had prior to handling the animals, whether veterinarians were stressed, the actual hours of exposure to animals and the time at which the injuries occur.

References

1. **Fritschi L, Day L, Shirangi A, Robertson I, Lucas M, Vizard A.** Injury in Australian veterinarians. *Occup Med (Lond)* 2006, **56**, 199-203.
2. **Kabuusu RM, Bakamanume BB, Kiyini R.** Risk factors for cow-related injuries among small scale farmers in Kampala, Uganda. *International J Cow Sci* 2006, **2**, 11-13.
3. **Koma LMPK.** Can private veterinarians survive in Uganda? In: Leonard DK (ed.). *Africa's Changing Markets for Health and Veterinary Services: the New Institutional Issues*. pp. 145-165, Macmillan, London, 2000.
4. **Lucas M, Day L, Shirangi A, Fritschi L.** Significant injuries in Australian veterinarians and use of safety precautions. *Occup Med (Lond)* 2009, **59**, 327-333.
5. **Ndambi OA, Garcia O, Balikowa D, Kiconco D, Hemme T, Latacz-Lohmann U.** Milk production systems in Central Uganda: a farm economic analysis. *Trop Anim Health Prod* 2008, **40**, 269-279.
6. **Nienhaus A, Skudlik C, Seidler A.** Work-related accidents and occupational diseases in veterinarians and their staff. *Int Arch Occup Environ Health* 2005, **78**, 230-238.
7. **Norwood S, McAuley C, Vallina VL, Fernandez LG, McLarty JW, Goodfried G.** Mechanisms and patterns of injuries related to large animals. *J Trauma* 2000, **48**, 740-744.