

Objective

In Germany, human exposures to animals are infrequent but can result in severe symptoms. Exposures to exotic pets held in privacy, however, are also possible. Recent information on this topic is rare.

Methods

We retrospectively analyzed all human exposures to animals and as a subgroup to exotic pets registered by the Poisons Information Centre (PIC) Erfurt from 2013 to 2022 for frequency and severity of symptoms as well as for age groups and sex of persons concerned.

Results

Exposures to animals (n=1,799) discontinuously increased from 132 in 2013 to 221 in 2022 while exposures to exotic pets (n=158) stayed at a trendless low level between 7 to 22 cases (mean 15.8) the year (Fig. 1A).

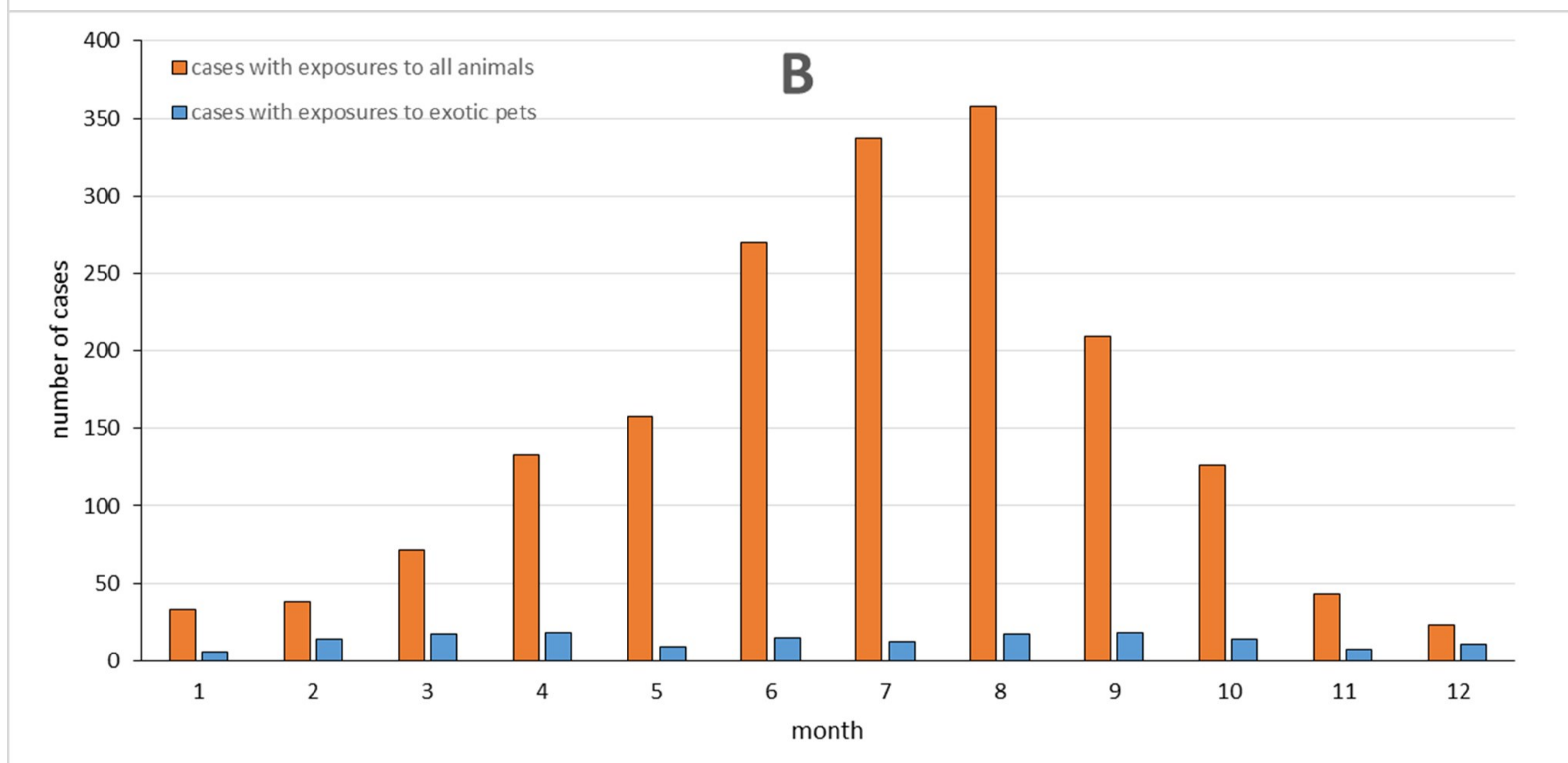
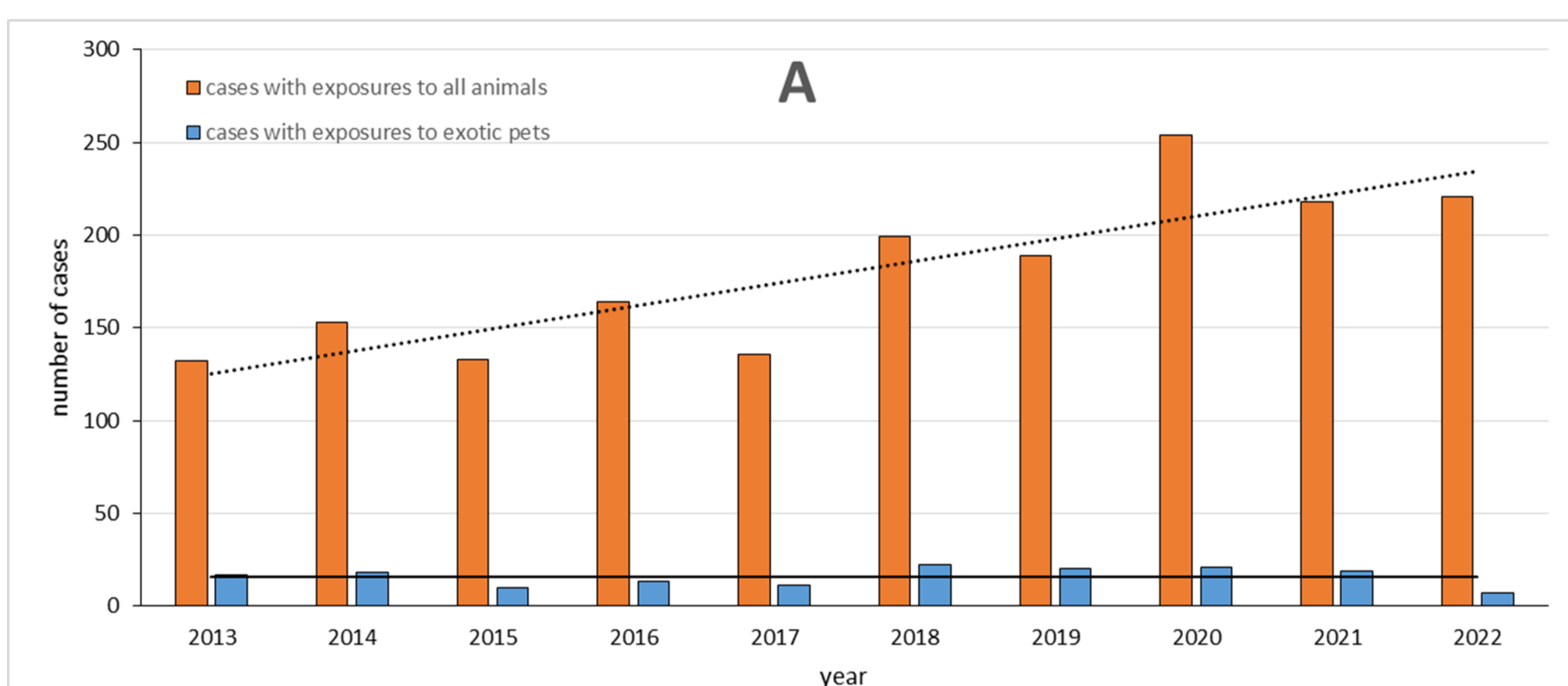


Fig. 1 Yearly (A) and monthly (B) number of cases of human exposures to all animals and exotic pets reported to the PIC Erfurt from 2013 to 2022

More than 53.6% of human exposures to animals were observed from June to August and more than 88.4% from April to October (Fig. 1B).

Table. 1 Frequency of the top ten of animals involved in human exposures to animals registered by the PIC Erfurt from 2013 to 2022

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	in total
<i>Vipera berus</i>	24	29	20	26	26	35	22	29	30	17	258
Vespinæ	11	2	21	21	17	27	21	44	17	25	206
Arachnida	3	15	15	10	10	10	14	16	8	15	116
<i>Ixodes ricinus</i>	9	7	5	8	5	4	20	20	9	17	104
<i>Apis mellifera</i>	6	11	9	7	10	8	5	18	7	11	92
Insecta unknown	5	9	5	8	7	7	9	18	6	14	88
Meloidæ	0	1	0	0	1	3	5	9	19	36	74
<i>Vespa crabro</i>	6	14	13	1	3	8	5	5	8	8	71
<i>Trachinus</i>	3	5	4	10	5	6	7	12	8	7	67
<i>Thaumetopoea processionea</i>	5	6	0	1	2	4	7	6	12	3	46
all cases of animal exposures	132	153	133	164	136	199	189	254	218	221	1799
all cases of exposure	21061	22752	23396	25058	25134	27041	28549	28792	28026	29870	259679

The top ten of involved animals were *Vipera berus* (n=258, 14.3%), *Vespula/Dolichovespula* (n=206; 11.5%), *Arachnida* unknown (n=116, 6.5%), *Ixodes ricinus* (n=104, 5.8%), *Apis mellifera* (n=92, 5.1%), *Insecta* unknown (n=88, 4.9%), *Meloidæ* (n=74, 4.0%), *Vespa crabro* (n=71, 3.9%), *Trachinus* (n=67, 3.7%), and *Thaumetopoea processionea* (n=46, 2.6%) (Table 1). Concerning exotic pets, the most cases were exposures to *Zoanthidea* (n=33), *Palythoa* (n=19), and *Theraphosidae* (n=9).

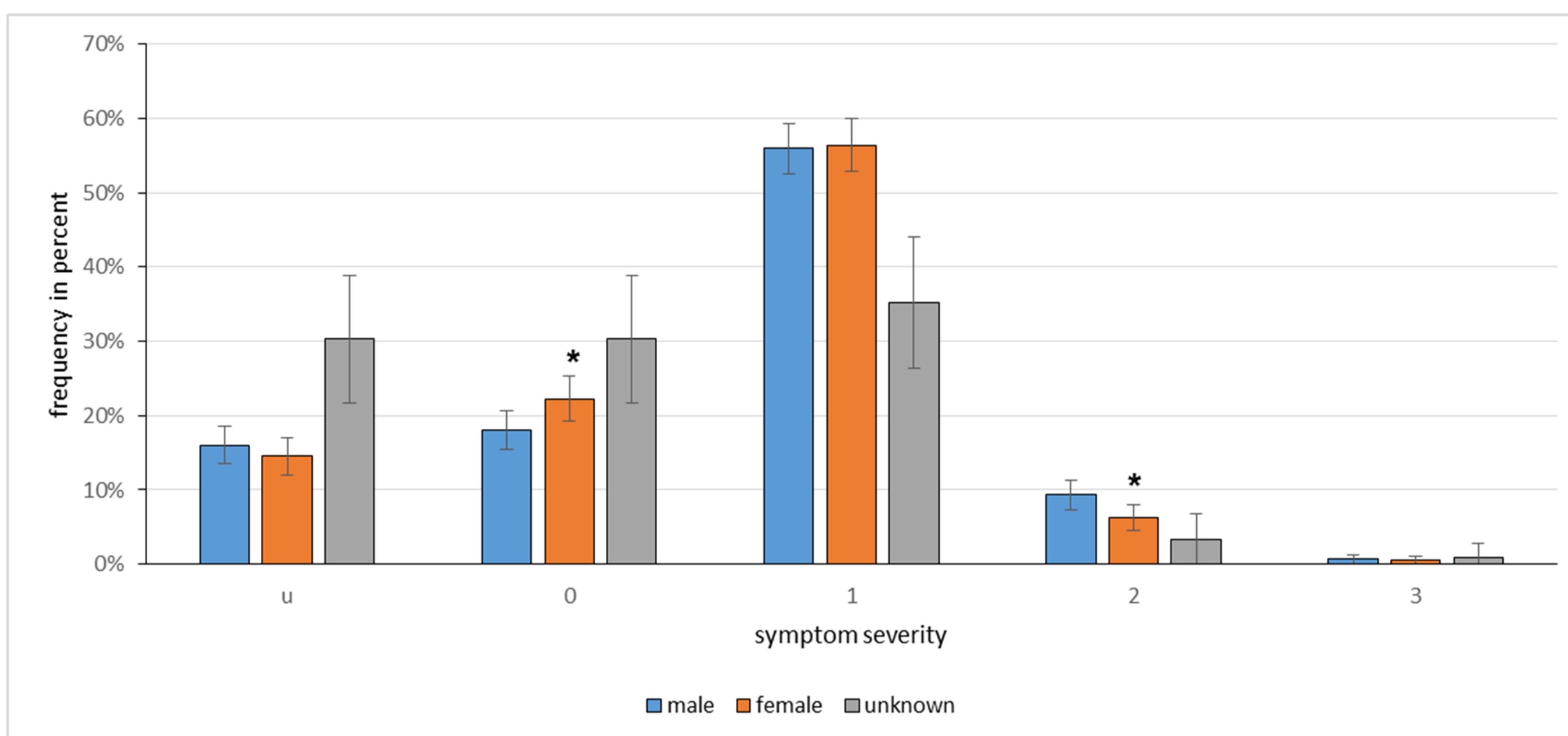


Fig. 2 Symptom severity in sex groups of human exposures to all animals and exotic pets reported to the PIC Erfurt from 2013 to 2022. Statistically significant differences (p < 0.05) between male and female are marked by asterices (*)

Children were affected in 36.4% and adults in 62.2% of cases. The proportion of males (49.6%) exposed to animals was higher than that of females (43.6%) and even more pronounced in exposures to exotic pets (males 66.5%; females 22.8%). Cases with moderate and severe symptoms were more often seen in males (all animals 9.3%, exotic pets 0.7 %) than in females (6.2%, 0.5 %) (Fig. 2), and more often occurred in adults (10.1%, 1.0 %) than in children (3.2%, 0%) (Fig. 3).

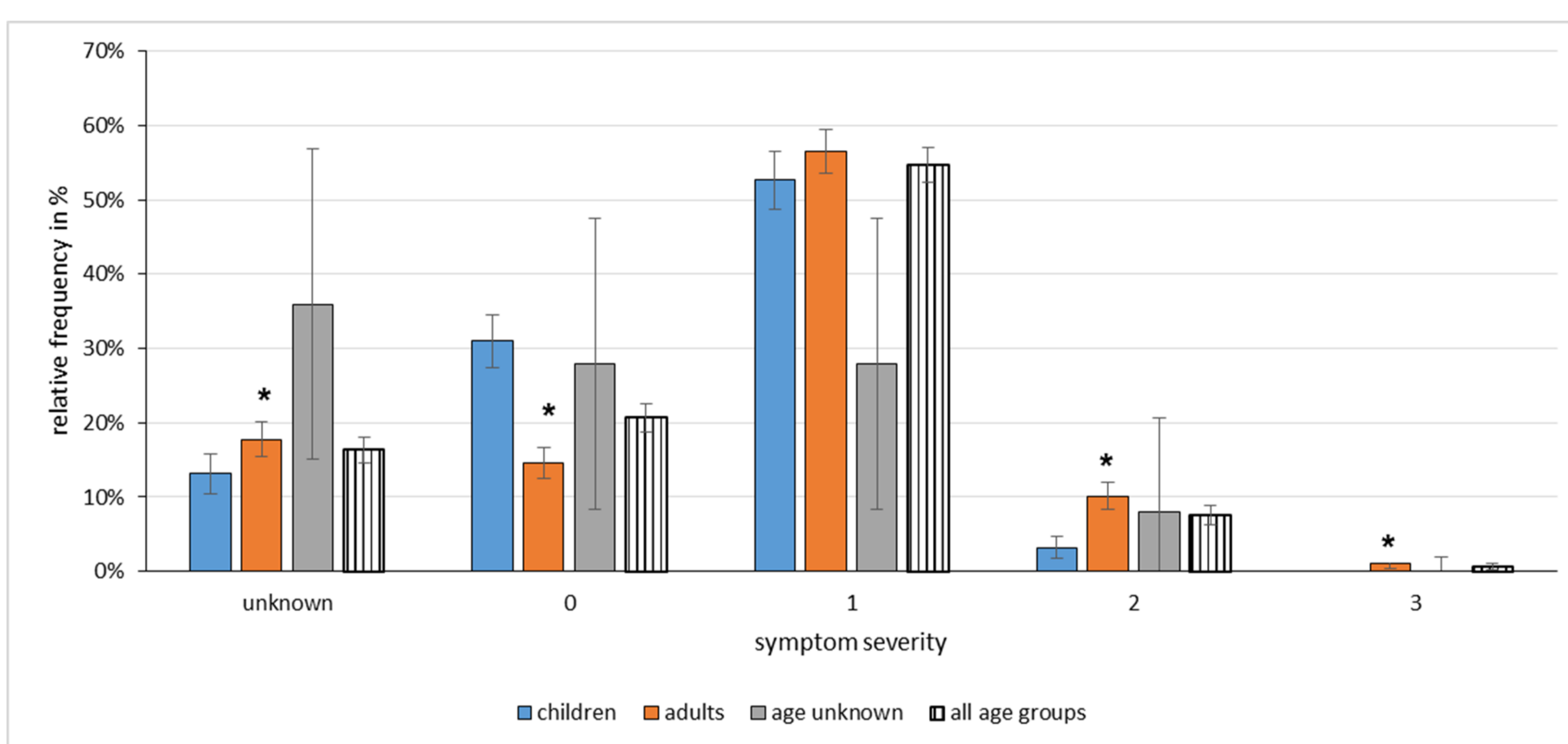


Fig. 3 Symptom severity in age groups of human exposures to all animals and exotic pets reported to the PIC Erfurt from 2013 to 2022. Statistically significant differences (p < 0.05) between male and female are marked by asterices (*)

The frequency of symptomatic cases was comparable in exposures to all animals and exotic pets (mild 54.8% vs 53.8%, moderate 7.6% vs 8.9%, and severe symptoms 0.6% vs 1.3%). Severe symptoms occurred after exposures to *Vipera berus* (n=4), *Crotalus* (n=2). Severe anaphylactic reactions were observed after stings by *Vespa crabro* (n=2), *Vespula/Dolichovespula* (n=1), and *Insecta* unknown (n=1). A bite of *Cheiracanthium* resulted in secondary infection. No case of animal exposure with fatal outcome was detected.

Conclusion

Exposures to animals slightly increased from 2013 to 2022 while exposures to exotic pets stayed at a trendless low level. Risk groups for moderate and severe symptoms were adult males. Severity of symptoms was comparable in exposures to all animals and exotic pets. Only few exposures to animals caused severe symptoms, anaphylaxis or secondary infection. No fatal outcome was observed.