

Supplementary Information

Title: Selection for short-nose and small size creates a behavioural trade-off in dogs

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Supplementary Table S1. The list of breeds included in the study. Their sample sizes in Survey 1 (S1) and Survey 2 (S2), sex ratio, mean age, mean cephalic index (CI) and head shape categorization. A maximum for the number of individuals / breed had been established to control for the popularity of the breeds (max N = 100 / survey). From the breeds with more representatives than this cut-off point a random sample was selected for the final dataset. N = 64 dogs participated in both surveys. When calculating the total number individuals, these dogs were counted only once.

Breed	N S1	N S2	N Total	Sex ratio (male %)	Age (mean)	CI (mean)	Head shape group
Afghan Hound	3	2	5	40.0%	7.8	49.41	dolichocephalic
Airedale Terrier	31	37	67	61.2%	3.7	49.18	dolichocephalic
Akita Inu	22	6	28	46.4%	3.8	57.32	mesocephalic
Alaskan Malamute	11	8	18	77.8%	4.6	58.08	mesocephalic
American Bulldog	68	15	83	59.0%	2.3	78.34	brachycephalic
American Cocker Spaniel	16	1	17	64.7%	5.7	59.42	mesocephalic
American Pit Bull Terrier	58	21	78	59.0%	4.9	58.61	mesocephalic
American Staffordshire Terrier	102	39	139	53.2%	4.9	67.04	brachycephalic
Australian Cattle Dog (Heeler)	11	10	21	42.9%	1.9	61.62	mesocephalic
Australian Kelpie	3	5	8	62.5%	2.1	56.75	mesocephalic
Australian Shepherd	100	100	200	57.0%	2.5	54.96	mesocephalic
Australian Terrier	5	10	14	42.9%	3.4	57.89	mesocephalic
Basenji	4	3	7	85.7%	5.5	55.83	mesocephalic
Basset Hound	8	5	13	38.5%	4.0	49.77	dolichocephalic
Beagle	100	100	200	57.5%	2.5	59.01	mesocephalic
Belgian Shepherd Dog - Groenendael	9	9	17	47.1%	4.1	44.16	dolichocephalic
Belgian Shepherd Dog - Tervueren	6	6	12	58.3%	4.8	48.41	dolichocephalic
Bernese Mountain Dog (Berner Sennenhund)	100	100	200	55.0%	3.0	60.13	mesocephalic
Bolognese	8	6	13	76.9%	3.4	72.82	brachycephalic
Border Collie	100	100	200	57.3%	3.3	55.68	mesocephalic
Borzoi	5	2	7	71.4%	4.1	38.66	dolichocephalic
Boston Terrier	5	8	13	76.9%	2.2	93.42	brachycephalic
Bouvier des Flandres	8	10	16	56.3%	4.0	46.00	dolichocephalic
Boxer	100	100	200	49.0%	3.0	68.91	brachycephalic
Bull Terrier	20	15	35	57.1%	3.6	55.24	mesocephalic
Bulldog	67	40	107	52.3%	2.3	91.34	brachycephalic
Bullmastiff	8	19	27	59.3%	3.1	79.08	brachycephalic
Cane Corso	11	28	38	60.5%	2.0	60.90	mesocephalic
Cavalier King Charles Spaniel	25	36	60	61.7%	2.5	76.83	brachycephalic
Chihuahua	103	62	162	56.2%	2.5	72.89	brachycephalic
Chinese Crested Dog	8	4	11	90.9%	3.6	59.86	mesocephalic
Collie, Rough	64	44	105	55.2%	4.0	46.43	dolichocephalic
Doberman Pinscher	100	82	182	59.3%	3.1	46.01	dolichocephalic
Dogo Argentino	10	9	19	47.4%	3.8	60.60	mesocephalic
English Cocker Spaniel	102	81	181	58.6%	4.2	48.23	dolichocephalic
English Mastiff	3	13	16	50.0%	3.5	70.73	brachycephalic
English Setter	11	11	22	54.5%	5.1	43.57	dolichocephalic
Finnish lapphund	1	0	1	0.0%	5.0	57.32	mesocephalic
Fox Terrier, Smooth	9	5	14	71.4%	4.5	45.03	dolichocephalic
French Bulldog	81	105	181	65.2%	2.1	100.51	brachycephalic
German Pointer, Short-haired	24	15	39	69.2%	3.6	49.50	dolichocephalic
German Pointer, Wire-haired	26	14	40	55.0%	3.9	48.92	dolichocephalic

Giant Schnauzer	74	59	131	63.4%	3.7	47.45	dolichocephalic
Golden Retriever	100	100	200	65.5%	3.8	55.51	mesocephalic
Gordon Setter	11	19	30	60.0%	3.4	49.60	dolichocephalic
Great Dane	102	52	152	57.2%	3.0	56.59	mesocephalic
Greyhound	2	5	6	33.3%	5.7	46.34	dolichocephalic
Havanese	103	37	137	55.5%	2.0	66.52	brachycephalic
Hungarian Greyhound	3	2	4	75.0%	2.1	46.72	dolichocephalic
Irish Setter	39	28	66	42.4%	4.2	43.56	dolichocephalic
Italian Greyhound	1	0	1	100.0%	0.8	53.74	mesocephalic
Jack Russell Terrier (Russel Terrier)	100	100	200	65.5%	3.0	59.98	mesocephalic
Japanese Spitz	0	1	1	0.0%	2.0	70.96	brachycephalic
Keeshond (Wolfspitz)	14	7	21	71.4%	5.2	58.32	mesocephalic
King Charles Spaniel	3	0	3	100.0%	10.0	66.86	brachycephalic
Labrador Retriever	100	100	200	72.5%	2.4	54.85	mesocephalic
Lagotto Romagnolo	4	4	8	50.0%	1.7	58.55	mesocephalic
Leonberger	22	13	35	60.0%	2.9	53.79	mesocephalic
Maltese	62	42	102	54.9%	3.9	67.06	brachycephalic
Miniature Bull Terrier	11	20	29	62.1%	2.1	50.00	dolichocephalic
Miniature German Spitz	8	5	13	69.2%	3.6	67.67	brachycephalic
Miniature Poodle	31	14	45	55.6%	4.1	54.32	mesocephalic
Miniature Schnauzer	18	19	36	52.8%	4.3	54.20	mesocephalic
Mudi	6	1	7	71.4%	4.1	57.21	mesocephalic
Neapolitan Mastiff (Mastino Napoletano)	2	6	8	62.5%	4.4	72.56	brachycephalic
Old English Sheepdog (Bobtail)	12	17	27	55.6%	4.3	58.30	mesocephalic
Papillon (Continental Toy Spaniel)	7	11	18	44.4%	2.9	70.63	brachycephalic
Pekingese	21	9	28	53.6%	3.5	99.69	brachycephalic
Pomeranian	2	1	3	33.3%	0.7	75.68	brachycephalic
Pug	102	65	165	53.3%	2.0	101.52	brachycephalic
Puli	2	4	6	33.3%	1.6	57.74	mesocephalic
Saluki	4	6	10	60.0%	3.4	45.86	dolichocephalic
Samoyed	4	5	9	33.3%	4.2	60.42	mesocephalic
Scottish Terrier	10	6	15	33.3%	4.3	45.95	dolichocephalic
Shar Pei	24	13	37	64.9%	1.7	70.49	brachycephalic
Shiba Inu	46	11	55	41.8%	2.8	58.99	mesocephalic
Shih Tzu	41	33	74	64.9%	3.0	82.05	brachycephalic
Siberian Husky	63	59	121	55.4%	4.4	54.71	mesocephalic
Small Münsterländer	90	34	123	55.3%	4.1	48.87	dolichocephalic
Spanish Greyhound (Galgo Español)	30	26	55	61.8%	4.0	42.86	dolichocephalic
Staffordshire Bull Terrier	16	4	20	35.0%	5.8	75.78	brachycephalic
Standard Schnauzer	18	14	31	61.3%	3.7	53.64	mesocephalic
Tibetan Spaniel	1	4	5	80.0%	2.7	84.55	brachycephalic
Tibetan Terrier	58	84	139	59.0%	3.3	58.58	mesocephalic
Transylvanian Hound	0	1	1	100.0%	5.0	49.44	dolichocephalic
Vizsla, Wire-haired	2	1	2	50.0%	5.5	45.16	dolichocephalic
Weimaraner	52	45	95	56.8%	2.6	49.95	dolichocephalic
Welsh Corgi - Pembroke	1	1	1	100.0%	7.0	69.80	brachycephalic
White Swiss Shepherd Dog (Berger Blanc Suisse)	99	55	152	50.7%	3.0	46.94	dolichocephalic
Yorkshire Terrier	101	70	170	52.9%	4.0	73.01	brachycephalic

Supplementary Table S2. The four personality traits (from Survey 1) and the four behavioural problems (from Survey 2). For the personality traits, the individual items making up the trait and the internal consistency of the trait (Cronbach's alpha) is also provided. Asterix marks reverse coded items.

Calmness		Trainability
Is calm, even in ambiguous situations		Is ingenious, inventive when seeks hidden food or toy
Can be stressed easily*		Is intelligent, learns quickly
Is emotionally balanced, not easy to rile		Is very easy to warm up to a new toy
Is cool-headed even in stressful situations		Is not much interested except in eating and sleeping*
Is sometimes anxious and uncertain*		Often does not understand what was expected from him/her during playing*
Cronbach's alpha: 0.849		Cronbach's alpha: 0.711
Dog sociability		Boldness
Fights with conspecifics frequently*		Is rather cool, reserved*
Is ready to share toys with conspecifics		Is unassertive, aloof when unfamiliar persons enter the home*
Is bullying with conspecifics*		Is sometimes fearful, awkward*
Gets on well with conspecifics		
Cronbach's alpha: 0.738		Cronbach's alpha: 0.642
Behavioural problems		
Pulling the leash	My dog frequently pulls on the leash. I have tried everything but cannot control him/her.	
Jumping up	When I arrive home my dog jumps up at me. I do not like it but (s)he does not give up.	
Too reactive when guests arrive	When a visitor rings the bell my dog knows that (s)he is to stay back from the door.*	
Not coming back	My dog usually does not listen to me when I call him/her back. I get really angry about it.	

Supplementary Table S3. Baseline behavioural differences across head shape groups when large-sized brachycephalic dogs are excluded from the sample. Generalized linear models (GLMs) were conducted for each behavioural variable using linear or binomial logistic distributions, depending on the variable, with head shape as the sole fixed factor. Parameter estimates for the pairwise comparisons are also presented. Significant differences are marked in *italics*.

Global head shape effect			Pairwise comparisons				
Behaviour	Wald χ^2	P value	Dog group	B	SE	Wald χ^2	P value Exp(B) (95% Conf Int)
<i>Calmness</i>	<i>12.088</i>	<i>0.002</i>	<i>Brachy > Dolicho</i>	<i>-0.157</i>	<i>0.052</i>	<i>9.316</i>	<i>0.002 0.854 (0.772-0.945)</i>
			Brachy vs. Meso	-0.018	0.046	0.151	0.698 0.982 (0.898-1.074)
			<i>Dolicho < Meso</i>	<i>0.140</i>	<i>0.045</i>	<i>9.563</i>	<i>0.002 1.150 (1.053-1.256)</i>
<i>Trainability</i>	<i>33.383</i>	<i>< 0.001</i>	<i>Brachy < Dolicho</i>	<i>0.277</i>	<i>0.052</i>	<i>28.523</i>	<i>< 0.001 1.319 (1.191-1.460)</i>
			<i>Brachy < Meso</i>	<i>0.246</i>	<i>0.049</i>	<i>25.701</i>	<i>< 0.001 1.279 (1.163-1.407)</i>
			Dolicho vs. Meso	-0.031	0.043	0.502	0.479 0.970 (0.891-1.056)
Dog sociability	0.701	0.704	Brachy vs. Dolicho	0.036	0.051	0.488	0.485 1.036 (0.938-1.145)
			Brachy vs. Meso	0.037	0.047	0.629	0.428 1.038 (0.947-1.138)
			Dolicho vs. Meso	0.002	0.043	0.001	0.971 1.002 (0.920-1.090)
<i>Boldness</i>	<i>8.658</i>	<i>0.013</i>	Brachy vs Dolicho	-0.095	0.052	3.343	0.067 0.909 (0.821-1.007)
			Brachy vs. Meso	0.036	0.046	0.596	0.440 1.037 (0.946-1.135)
			<i>Dolicho < Meso</i>	<i>0.131</i>	<i>0.045</i>	<i>8.583</i>	<i>0.003 1.140 (1.044-1.244)</i>
Jumping up	3.407	0.182	Brachy vs. Dolicho	-0.215	0.124	2.998	0.083 0.807 (0.633-1.029)
			Brachy vs. Meso	-0.169	0.110	2.367	0.124 0.844 (0.681-1.047)
			Dolicho vs. Meso	0.046	0.107	0.182	0.669 1.047 (0.849-1.290)
Pulling the leash	2.204	0.332	Brachy vs. Dolicho	0.058	0.125	0.217	0.642 1.060 (0.830-1.353)
			Brachy vs. Meso	-0.095	0.112	0.709	0.400 0.910 (0.730-1.134)
			Dolicho vs. Meso	-0.153	0.106	2.074	0.150 0.858 (0.697-1.057)
<i>Too reactive</i>	<i>28.346</i>	<i>< 0.001</i>	<i>Brachy > Dolicho</i>	<i>-0.819</i>	<i>0.155</i>	<i>27.93</i>	<i>< 0.001 0.441 (0.325-0.597)</i>
			<i>Brachy > Meso</i>	<i>-0.473</i>	<i>0.146</i>	<i>10.472</i>	<i>0.001 0.623 (0.468-0.830)</i>
			<i>Dolicho < Meso</i>	<i>0.346</i>	<i>0.117</i>	<i>8.749</i>	<i>0.003 1.414 (1.124-1.778)</i>
<i>Not coming back</i>	<i>15.204</i>	<i>< 0.001</i>	<i>Brachy > Dolicho</i>	<i>-0.448</i>	<i>0.119</i>	<i>14.199</i>	<i>< 0.001 0.639 (0.506-0.807)</i>
			Brachy vs. Meso	-0.162	0.107	2.310	0.129 0.850 (0.690-1.048)
			<i>Dolicho < Meso</i>	<i>0.286</i>	<i>0.100</i>	<i>8.194</i>	<i>0.004 1.331 (1.094-1.618)</i>

Supplementary Table S4. Comparison of demographic and dog keeping factors between head shape groups when large-sized brachycephalic dogs are excluded from the sample. For each categorical variable, the proportion of dogs in each category is presented separately for each head shape group. Significant group differences, as indicated by the Chi-squared tests with z post-hoc tests, are highlighted by marking the category with the larger proportion in each group in bold. Only differences with a p-value < 0.00037 are considered significant and are marked in italics. For pairwise significant differences, the absolute magnitude of the difference is provided as a measure of effect size. B: brachycephalic; M: mesocephalic; D: dolichocephalic.

Factors in both surveys	Categories	B (N = 1,256)	M (N = 2,388)	D (N = 1,439)	Statistics	Absolute magnitude of the differences
Dogs' age in years (mean ±SD)	–	2.72 (±2.74)	3.23 (±2.91)	3.68 (±3.18)	$H = 82.712$ $p < 0.001$	B vs. M: 0.51 years; B vs. D: 0.96 years; M vs. D: 0.45 years
Dogs' weight in kg (mean ±SD)	–	7.27 (±5.87)	24.72 (±15.70)	27.63 (±9.29)	$H = 2146.184$ $p < 0.001$	B vs. M: 24.41 kg; B vs. D: 31.11 kg; M vs. D: 6.70 kg
Dogs' height in cm (mean ±SD)*	–	26.71 (±5.58)	51.12 (±13.63)	57.82 (±10.66)	$H = 1996.668$ $p < 0.001$	B vs. M: 17.45 cm; B vs. D: 20.36 cm; M vs. D: 2.91 cm
Dogs' sex	Male	57.4%	59.5%	56.8%	$\chi^2 = 3.042$	
	Female	42.6%	40.5%	43.2%	$p = 0.219$	
Dogs' neuter status	Intact	77.9%	66.5%	69.5%	$\chi^2 = 51.546$	B vs. M: 11.41%;
	Neutered	22.1%	33.5%	30.5%	$p < 0.001$	B vs. D: 8.37%
	bred by owner	1.3%	1.8%	2.5%	$\chi^2 = 73.829$	
Dogs' age at acquisition	2–12 weeks	65.2%	66.7%	58.6%	$p < 0.001$	B vs. M: 6.62%; M vs. D: 8.08%
	3-12 months	25.1%	18.8%	21.3%		B vs. M: 6.28% B vs. M: 4.29%; B vs. D: 9.14%; M vs. D: 4.85%
	> 1 year	8.4%	12.7%	17.6%		
Dogs' training experience	no training	53.9%	28.4%	28.8%	$\chi^2 = 348.737$	B vs. M: 25.47%; B vs. D: 25.13%
	1 type	24.2%	23.6%	27.7%	$p < 0.001$	M vs. D: 4.04%
	2 types	15.4%	24.2%	21.7%		B vs. M: 8.80%; B vs. D: 6.32%
	3 or more types	6.5%	23.8%	21.9%		B vs. M: 17.26%; B vs. D: 15.36%
Owners' sex	man	14.3%	19.3%	23.3%	$\chi^2 = 35.168$	B vs. M: 4.93%;
	woman	85.7%	80.7%	76.7%	$p < 0.001$	B vs. D: 9.02%; M vs. D: 4.09%
Owners' age	≤ 18 years	5.9%	5.1%	3.5%	$\chi^2 = 54.430$	
	19-30 years	34.2%	27.1%	23.8%	$p < 0.001$	B vs. M: 7.10%; B vs. D: 10.32%
	31-60 years	56.9%	65.4%	69.4%		B vs. M: 8.44%; B vs. D: 12.43%; M vs. D: 3.99%
	> 60 years	3.0%	2.5%	3.3%		
Owners' education	primary school	22.7%	21.3%	20.7%	$\chi^2 = 21.873$	
	secondary school	39.5%	42.3%	39.7%	$p = 0.001$	
	college	28.1%	24.6%	24.9%		
	university	9.7%	11.7%	14.7%		

N of previous dogs	no previous dog	50.0%	44.8%	33.6%	$\chi^2 = 87.849$	B vs. M: 5.23%; B vs. D: 16.41%; M vs. D: 11.18%
	1 dog	23.2%	25.7%	27.5%	$p < 0.001$	B vs. D: 4.33%
	2 dogs	12.4%	14.4%	18.5%		B vs. D: 6.14%; M vs. D: 4.09%
	3 or more dogs	14.4%	15.1%	20.4%		B vs. D: 5.94%; M vs. D: 5.26%
Purpose of keeping the dog	family member only	59.9%	43.8%	38.8%	$\chi^2 = 133.686$	B vs. M: 16.03%; B vs. D: 21.10%; M vs. D: 5.07%
	family member + other	35.4%	48.7%	52.3%	$p < 0.001$	B vs. M: 13.31%; B vs. D: 16.90%
	not family member	4.7%	7.4%	8.9%		B vs. D: 4.20%
N of people in the household	only 1 person	12.9%	9.6%	10.8%	$\chi^2 = 23.519$	B vs. M: 3.33%
	2 people	46.7%	42.6%	45.9%	$p < 0.001$	
	3 or more people	40.4%	47.8%	43.3%		B vs. M: 7.45%; M vs. D: 4.52%
N of dogs in the household	no other dog	66.4%	68.3%	63.4%	$\chi^2 = 11.855$	
	1 other dog	20.7%	19.4%	23.8%	$p = 0.018$	
	≥ 2 other dogs	12.9%	12.3%	12.7%		
Factors only in Survey 1	Categories	B (N = 741)	M (N = 1.281)	D (N = 833)	Statistics	Absolute magnitude of the differences
Hours spent with the dog / day	≤ 3 hours	15.5%	27.3%	27.4%	$\chi^2 = 41.718$	B vs. M: 11.80%;
	> 3 hours	84.5%	72.7%	72.6%	$p < 0.001$	B vs. D: 11.85%
Frequency of playing / week	1-5 days	14.3%	21.5%	19.0%	$\chi^2 = 16.050$	B vs. M: 7.24%;
	6-7 days	85.7%	78.5%	81.0%	$p < 0.001$	B vs. D: 4.66%
Factors only in Survey 2	Categories	B (N = 536)	M (N = 1.124)	D (N = 630)	Statistics	Absolute magnitude of the differences
N of children in the household	1 or more	80.2%	76.0%	82.0%	$\chi^2 = 9.582$	
	None	19.8%	24.0%	18.0%	$p = 0.008$	
Where the dog is kept	only indoors	84.7%	68.3%	71.9%	$\chi^2 = 51.023$	B vs. M: 16.37%; B vs. D: 12.80%
	in- and outdoors	14.4%	28.8%	25.2%	$p < 0.001$	B vs. M: 14.46%; B vs. D: 10.87%
	only outdoors	0.9%	2.8%	2.9%		
Hours spend walking the dog	< 1 hour	24.6%	10.1%	9.2%	$\chi^2 = 89.256$	B vs. M: 14.48%; B vs. D: 15.42%
	1-3 hours	69.4%	77.2%	81.0%	$p < 0.001$	B vs. M: 7.82%; B vs. D: 11.55%
	> 3 hours	6.0%	12.6%	9.8%		B vs. M: 6.66%; B vs D: 3.87%
Hours spend playing / day	≤ 1 hour	64.9%	67.8%	67.8%	$\chi^2 = 1.524$	
	> 1 hour	35.1%	32.2%	32.2%	$p = 0.467$	
Buy gifts for the dog	Yes	26.1%	29.7%	34.8%	$\chi^2 = 10.563$	
	No	73.9%	70.3%	65.2%	$p = 0.005$	
Allow the dog into the bed	Yes	37.7%	66.2%	63.7%	$\chi^2 = 130.122$	B vs. M: 28.51%;
	No	62.3%	33.8%	36.3%	$p < 0.001$	B vs. D: 25.96%

* For reference only, in the analyses, the height residual was examined instead of raw height.

Supplementary Table S5. Associations between the potential confounding factors and behaviour.
Generalized linear models (GLMs) were conducted for each association separately, using linear or binomial logistic distributions, depending on the behavioural variable. Each model included only one fixed factor (for categorical variables) or one covariate (for continuous variables). Parameter estimates for the pairwise comparisons are also presented.

Calmness								
Global effect			Pairwise comparisons					
Factor	Wald χ^2 P value		Categories	B	SE	Wald χ^2 P value		Exp(B) (95% Conf Int)
Dogs' age	2.430	0.119	-	0.009	0.006	2.430	0.119	1.009 (0.998-1.021)
Dogs' weight	7.606	0.006	-	0.003	0.001	7.606	0.006	1.003 (1.001-1.006)
Weight-residual of height	8.643	0.003	-	-0.060	0.020	8.643	0.003	0.942 (0.905-0.980)
Neuter status reference category: neutered	16.127	< 0.001	intact	0.165	0.041	16.127	< 0.001	1.179 (1.088-1.278)
Age at acquisition reference category: > 1 year	25.624	< 0.001	bred by owner	0.297	0.155	3.691	0.055	1.346 (0.994-1.821)
			2-12 weeks	0.157	0.058	7.292	0.007	1.17 (1.044-1.312)
			3-12 months	-0.042	0.067	0.405	0.525	0.958 (0.841-1.092)
Training experience reference category: 3 or more types	5.442	0.142	no training	-0.097	0.052	3.538	0.060	0.907 (0.820-1.004)
			1 type	-0.073	0.055	1.743	0.187	0.930 (0.834-1.036)
			2 types	-0.008	0.058	0.017	0.896	0.992 (0.885-1.112)
Owners' gender reference category: woman	2.815	0.093	man	0.070	0.042	2.815	0.093	1.073 (0.988-1.164)
Owners' age reference category: > 60 years	1.202	0.753	≤ 18 years	-0.029	0.137	0.045	0.831	0.971 (0.742-1.271)
			19-30 years	-0.078	0.121	0.413	0.520	0.925 (0.730-1.172)
			31-60 years	-0.041	0.119	0.118	0.732	0.960 (0.761-1.212)
Owners' education reference category: university	7.874	0.049	primary school	-0.140	0.064	4.738	0.029	0.869 (0.766-0.986)
			secondary school	-0.023	0.060	0.148	0.701	0.977 (0.869-1.099)
			college	-0.033	0.062	0.276	0.600	0.968 (0.857-1.093)
N of previous dogs reference category: 3 or more dogs	8.227	0.042	no previous dog	-0.043	0.053	0.650	0.420	0.958 (0.863-1.063)
			1 dog	-0.128	0.059	4.752	0.029	0.880 (0.784-0.987)
			2 dogs	0.019	0.065	0.088	0.767	1.019 (0.898-1.158)
Purpose of keeping the dog reference category: not family member	1.951	0.377	family member only	0.074	0.079	0.857	0.355	1.076 (0.921-1.258)
			family member+other	0.103	0.080	1.680	0.195	1.109 (0.949-1.296)
N of people in the household reference category: 3 or more people	3.400	0.183	only 1 person	0.088	0.059	2.198	0.138	1.092 (0.972-1.227)
			2 people	-0.023	0.038	0.355	0.551	0.978 (0.908-1.053)
Hours spent with the dog / day reference category: > 3 hours	32.794	< 0.001	≤ 3 hours	-0.236	0.041	32.794	< 0.001	0.79 (0.728-0.856)
Trainability								
Global effect			Pairwise comparisons					
Factor	Wald χ^2 P value		Categories	B	SE	Wald χ^2 P value		Exp(B) (95% Conf Int)
Dogs' age	102.787	< 0.001	-	-0.066	0.007	102.787	< 0.001	0.936 (0.924-0.948)
Dogs' weight	1.861	0.172	-	0.002	0.001	1.861	0.172	1.002 (0.999-1.004)

Weight-residual of height	37.103	< 0.001	-	0.127	0.021	37.103	< 0.001	1.136 (1.090-1.183)
Neuter status	14.552	< 0.001						
reference category: neutered			intact	0.162	0.042	14.552	< 0.001	1.176 (1.082-1.278)
Age at acquisition	85.836	< 0.001						
reference category: > 1 year			bred by owner	0.606	0.140	18.829	< 0.001	1.833 (1.394-2.411)
			2–12 weeks	0.583	0.064	83.767	< 0.001	1.791 (1.581-2.029)
			3-12 months	0.470	0.071	44.350	< 0.001	1.599 (1.393-1.836)
Training experience	191.255	< 0.001						
reference category: 3 or more types			no training	-0.629	0.048	171.956	< 0.001	0.533 (0.485-0.586)
			1 type	-0.327	0.049	44.305	< 0.001	0.721 (0.655-0.794)
			2 types	-0.173	0.050	12.006	0.001	0.841 (0.763-0.928)
Owners' gender	3.308	0.069						
reference category: woman			man	-0.078	0.043	3.308	0.069	0.925 (0.85-1.006)
Owners' age	1.502	0.682						
reference category: > 60 years			≤ 18 years	-0.054	0.118	0.209	0.647	0.947 (0.752-1.194)
			19-30 years	-0.033	0.096	0.119	0.730	0.967 (0.802-1.167)
			31-60 years	0.009	0.093	0.008	0.927	1.009 (0.840-1.211)
Owners' education	15.768	0.001						
reference category: university			primary school	-0.237	0.060	15.575	< 0.001	0.789 (0.701-0.887)
			secondary school	-0.138	0.055	6.339	0.012	0.871 (0.782-0.970)
			college	-0.123	0.058	4.590	0.032	0.884 (0.790-0.990)
N of previous dogs	8.308	0.040						
reference category: 3 or more dogs			no previous dog	-0.078	0.051	2.363	0.124	0.925 (0.837-1.022)
			1 dog	-0.088	0.056	2.458	0.117	0.915 (0.820-1.022)
			2 dogs	-0.070	0.063	1.227	0.268	0.932 (0.824-1.055)
Purpose of keeping the dog	27.333	< 0.001						
reference category: not family member			family member only	-0.228	0.073	9.715	0.002	0.796 (0.689-0.919)
			family member+other	-0.050	0.073	0.471	0.492	0.951 (0.824-1.098)
N of people in the household	6.060	0.048						
reference category: 3 or more people			only 1 person	0.064	0.064	1.017	0.313	1.066 (0.941-1.208)
			2 people	0.091	0.037	5.964	0.015	1.095 (1.018-1.179)
Hours spent with the dog / day	13.119	< 0.001						
reference category: > 3 hours			≤ 3 hours	-0.153	0.042	13.119	< 0.001	0.858 (0.790-0.932)

Dog sociability

Global effect			Pairwise comparisons					
Factor	Wald χ^2	P value	Categories	B	SE	Wald χ^2	P value	Exp(B) (95% Conf Int)
Dogs' age	184.389	< 0.001	-	-0.084	0.006	184.389	< 0.001	0.919 (0.908-0.931)
Dogs' weight	4.750	0.029	-	0.003	0.001	4.750	0.029	1.003 (1.000-1.005)
Weight-residual of height	1.241	0.265	-	0.022	0.020	1.241	0.265	1.022 (0.983-1.063)
Neuter status	30.080	< 0.001						
reference category: neutered			intact	0.188	0.034	30.080	< 0.001	1.207 (1.129-1.292)
Age at acquisition	36.608	< 0.001						
reference category: > 1 year			bred by owner	0.015	0.155	0.009	0.925	1.015 (0.748-1.376)
			2–12 weeks	0.298	0.055	29.268	< 0.001	1.347 (1.209-1.500)
			3-12 months	0.152	0.064	5.554	0.018	1.164 (1.026-1.321)
Training experience	31.303	< 0.001						
reference category: 3 or more types			no training	-0.102	0.053	3.753	0.053	0.903 (0.815-1.001)
			1 type	0.056	0.055	1.031	0.310	1.058 (0.949-1.178)
			2 types	0.155	0.057	7.463	0.006	1.167 (1.045-1.304)

Owners' gender	0.026	0.871	man	-0.007	0.042	0.026	0.871	0.993 (0.916-1.077)
reference category: woman								
Owners' age	5.623	0.131	≤ 18 years	-0.235	0.128	3.346	0.067	0.791 (0.615-1.017)
reference category: > 60 years			19-30 years	-0.092	0.106	0.743	0.389	0.912 (0.741-1.124)
			31-60 years	-0.056	0.103	0.290	0.590	0.946 (0.773-1.158)
Owners' education	7.217	0.065	primary school	-0.043	0.065	0.444	0.505	0.957 (0.843-1.088)
reference category: university			secondary school	0.080	0.060	1.730	0.188	1.083 (0.962-1.219)
			college	0.033	0.063	0.279	0.598	1.034 (0.914-1.169)
N of previous dogs	2.467	0.481	no previous dog	0.051	0.043	1.383	0.240	1.052 (0.967-1.145)
reference category: 3 or more dogs			1 dog	-0.001	0.048	0.000	0.991	0.999 (0.910-1.098)
			2 dogs	0.019	0.053	0.131	0.718	1.019 (0.919-1.131)
Purpose of keeping the dog	5.562	0.062	family member only	0.183	0.081	5.142	0.023	1.201 (1.025-1.407)
reference category: not family member			family member+other	0.188	0.081	5.396	0.020	1.207 (1.030-1.415)
N of people in the household	5.649	0.059	only 1 person	0.120	0.057	4.394	0.036	1.127 (1.008-1.261)
reference category: 3 or more people			2 people	0.065	0.038	3.001	0.083	1.067 (0.991-1.149)
Hours spent with the dog / day	32.664	< 0.001	≤ 3 hours	-0.242	0.042	32.664	< 0.001	0.785 (0.722-0.853)
reference category: > 3 hours								

Boldness

Global effect			Pairwise comparisons					
Factor	Wald χ^2	P value	Categories	B	SE	Wald χ^2	P value	Exp(B) (95% Conf Int)
Dogs' age	25.587	< 0.001	-	-0.030	0.006	25.587	< 0.001	0.971 (0.960-0.982)
Dogs' weight	0.065	0.799	-	0.000	0.001	0.065	0.799	1.000 (0.998-1.003)
Weight-residual of height	4.565	0.033	-	-0.045	0.021	4.565	0.033	0.956 (0.918-0.996)
Neuter status	17.979	< 0.001	intact	0.145	0.034	17.979	< 0.001	1.156 (1.081-1.237)
reference category: neutered								
Age at acquisition	58.849	< 0.001	bred by owner	0.391	0.150	6.836	0.009	1.478 (1.103-1.982)
reference category: > 1 year			2-12 weeks	0.399	0.058	46.563	< 0.001	1.490 (1.329-1.671)
			3-12 months	0.193	0.068	8.097	0.004	1.213 (1.062-1.385)
Training experience	9.746	0.021	no training	0.043	0.053	0.650	0.420	1.044 (0.941-1.158)
reference category: 3 or more types			1 type	0.147	0.056	6.977	0.008	1.158 (1.039-1.291)
			2 types	0.119	0.058	4.126	0.042	1.126 (1.004-1.263)
Owners' gender	1.575	0.209	man	0.052	0.041	1.575	0.209	1.053 (0.971-1.142)
reference category: woman								
Owners' age	14.173	0.003	≤ 18 years	-0.258	0.120	4.632	0.031	0.773 (0.611-0.977)
reference category: > 60 years			19-30 years	-0.171	0.099	2.978	0.084	0.843 (0.695-1.023)
			31-60 years	-0.278	0.097	8.274	0.004	0.757 (0.626-0.915)
Owners' education	0.467	0.926	primary school	-0.040	0.063	0.404	0.525	0.960 (0.848-1.088)
reference category: university			secondary school	-0.031	0.060	0.265	0.606	0.970 (0.862-1.090)
			college	-0.020	0.063	0.099	0.753	0.981 (0.867-1.108)
N of previous dogs	0.196	0.978						

reference category: 3 or more dogs			no previous dog	0.009	0.044	0.040	0.842	1.009 (0.925-1.100)
			1 dog	0.017	0.047	0.132	0.716	1.017 (0.927-1.116)
			2 dogs	0.020	0.053	0.139	0.709	1.020 (0.919-1.132)
Purpose of keeping the dog	4.508	0.105						
reference category: not family member			family member only	-0.104	0.070	2.222	0.136	0.901 (0.786-1.033)
			family member+other	-0.144	0.070	4.213	0.040	0.866 (0.755-0.994)
N of people in the household	3.555	0.169						
reference category: 3 or more people			only 1 person	-0.033	0.060	0.309	0.578	0.967 (0.861-1.087)
			2 people	0.058	0.038	2.383	0.123	1.060 (0.984-1.141)
Hours spent with the dog / day	0.167	0.683						
reference category: > 3 hours			≤ 3 hours	-0.017	0.041	0.167	0.683	0.983 (0.908-1.065)

Jumping up

Global effect			Pairwise comparisons						
Factor	Wald χ^2	P value	Categories	B	SE	Wald χ^2	P value	Exp(B) (95% Conf Int)	
Dogs' age	60.374	< 0.001	-	-0.142	0.018	60.374	< 0.001	0.868 (0.837-0.899)	
Dogs' weight	23.499	< 0.001	-	-0.015	0.003	23.499	< 0.001	0.985 (0.979-0.991)	
Weight-residual of height	0.857	0.354	-	-0.042	0.045	0.857	0.354	0.959 (0.878-1.048)	
Neuter status	36.505	< 0.001	reference category: neutered	intact	0.473	0.078	36.505	< 0.001	1.605 (1.376-1.871)
Age at acquisition	12.664	0.005	reference category: > 1 year	bred by owner	0.577	0.313	3.389	0.066	1.780 (0.963-3.290)
				2-12 weeks	0.471	0.134	12.284	< 0.001	1.601 (1.231-2.083)
				3-12 months	0.406	0.155	6.864	0.009	1.501 (1.108-2.035)
Training experience	38.648	< 0.001	reference category: 3 or more types	no training	0.732	0.130	31.588	< 0.001	2.080 (1.611-2.685)
				1 type	0.768	0.136	31.835	< 0.001	2.156 (1.651-2.815)
				2 types	0.618	0.138	20.025	< 0.001	1.856 (1.416-2.434)
Owners' gender	1.953	0.162	reference category: woman	man	0.159	0.114	1.953	0.162	1.172 (0.938-1.466)
Owners' age	5.640	0.130	reference category: > 60 years	≤ 18 years	-0.297	0.330	0.807	0.369	0.743 (0.389-1.420)
				19-30 years	-0.277	0.268	1.071	0.301	0.758 (0.449-1.281)
				31-60 years	-0.447	0.262	2.917	0.088	0.640 (0.383-1.068)
Owners' education	8.825	0.032	reference category: university	primary school	0.453	0.159	8.131	0.004	1.573 (1.152-2.147)
				secondary school	0.247	0.143	2.982	0.084	1.280 (0.967-1.695)
				college	0.335	0.153	4.790	0.029	1.399 (1.036-1.889)
N of previous dogs	8.714	0.033	reference category: 3 or more dogs	no previous dog	0.221	0.106	4.306	0.038	1.247 (1.012-1.537)
				1 dog	0.249	0.114	4.748	0.029	1.283 (1.025-1.606)
				2 dogs	0.365	0.127	8.310	0.004	1.440 (1.124-1.846)
Purpose of keeping the dog	1.585	0.453	reference category: not family member	family member only	0.136	0.162	0.706	0.401	1.146 (0.834-1.573)
				family member+other	0.035	0.162	0.047	0.829	1.036 (0.754-1.422)
N of people in the household	1.480	0.477	reference category: 3 or more people	only 1 person	-0.172	0.147	1.372	0.242	0.842 (0.631-1.123)
				2 people	-0.007	0.091	0.006	0.940	0.993 (0.831-1.187)
Where the dog is kept	4.210	0.122	reference category: only outdoors	only indoors	-0.282	0.269	1.100	0.294	0.754 (0.445-1.278)

			in- and outdoors	-0.099	0.277	0.129	0.720	0.905 (0.526-1.559)
Hours spend walking the dog	8.241	0.016						
reference category: > 3 hours			< 1 hour	0.433	0.177	5.978	0.014	1.541 (1.090-2.180)
			1-3 hours	0.108	0.145	0.551	0.458	1.114 (0.838-1.480)
Allow the dog into the bed	1.375	0.241						
reference category: yes			no	-0.102	0.087	1.375	0.241	0.903 (0.762-1.071)
Pulling the leash								
Global effect			Pairwise comparisons					
Factor	Wald χ^2 P value		Categories	B	SE	Wald χ^2 P value Exp(B) (95% Conf Int)		
Dogs' age	38.973	< 0.001	-	-0.102	0.016	38.973	< 0.001	0.903 (0.875-0.933)
Dogs' weight	12.947	< 0.001	-	-0.011	0.003	12.947	< 0.001	0.989 (0.984-0.995)
Weight-residual of height	1.637	0.201	-	0.059	0.046	1.637	0.201	1.060 (0.969-1.160)
Neuter status	9.366	0.002						
reference category: neutered			intact	0.240	0.078	9.366	0.002	1.271 (1.090-1.481)
Age at acquisition	4.699	0.195						
reference category: > 1 year			bred by owner	-0.100	0.334	0.090	0.765	0.905 (0.470-1.741)
			2-12 weeks	0.125	0.129	0.949	0.330	1.134 (0.881-1.459)
			3-12 months	0.289	0.149	3.764	0.052	1.335 (0.997-1.788)
Training experience	56.111	< 0.001						
reference category: 3 or more types			no training	0.917	0.136	45.327	< 0.001	2.502 (1.916-3.267)
			1 type	0.961	0.142	45.929	< 0.001	2.614 (1.980-3.451)
			2 types	0.878	0.143	37.628	< 0.001	2.407 (1.818-3.187)
Owners' gender	0.097	0.755						
reference category: woman			man	0.036	0.116	0.097	0.755	1.037 (0.826-1.301)
Owners' age	1.731	0.630						
reference category: > 60 years			≤ 18 years	0.059	0.335	0.031	0.860	1.061 (0.550-2.046)
			19-30 years	-0.106	0.276	0.148	0.701	0.899 (0.524-1.545)
			31-60 years	-0.171	0.270	0.403	0.526	0.843 (0.497-1.430)
Owners' education	17.408	0.001						
reference category: university			primary school	0.658	0.162	16.555	< 0.001	1.931 (1.406-2.652)
			secondary school	0.347	0.147	5.565	0.018	1.415 (1.060-1.888)
			college	0.411	0.157	6.827	0.009	1.508 (1.108-2.053)
N of previous dogs	24.486	< 0.001						
reference category: 3 or more dogs			no previous dog	0.517	0.112	21.472	< 0.001	1.677 (1.347-2.086)
			1 dog	0.424	0.120	12.487	< 0.001	1.528 (1.208-1.933)
			2 dogs	0.230	0.135	2.890	0.089	1.259 (0.965-1.641)
Purpose of keeping the dog	19.182	< 0.001						
reference category: not family member			family member only	0.434	0.167	6.754	0.009	1.543 (1.113-2.141)
			family member+other	0.068	0.168	0.163	0.686	1.070 (0.770-1.488)
N of people in the household	3.365	0.186						
reference category: 3 or more people			only 1 person	-0.269	0.150	3.228	0.072	0.764 (0.569-1.025)
			2 people	-0.021	0.091	0.053	0.817	0.979 (0.819-1.170)
Where the dog is kept	0.720	0.698						
reference category: only outdoors			only indoors	0.182	0.290	0.394	0.530	1.200 (0.680-2.118)
			in- and outdoors	0.233	0.298	0.612	0.434	1.263 (0.704-2.266)
Hours spend walking the dog	12.196	0.002						
reference category: > 3 hours			< 1 hour	0.580	0.180	10.368	0.001	1.785 (1.255-2.540)
			1-3 hours	0.218	0.149	2.135	0.144	1.243 (0.928-1.665)
Allow the dog into the bed	1.089	0.297						

reference category: yes	no	-0.091	0.087	1.089	0.297	0.913 (0.769-1.083)
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Too reactive when guests arrive

Global effect			Pairwise comparisons					
Factor	Wald χ^2	P value	Categories	B	SE	Wald χ^2	P value	Exp(B) (95% Conf Int)
Dogs' age	2.356	0.125	-	-0.025	0.016	2.356	0.125	0.975 (0.945-1.007)
Dogs' weight	23.342	< 0.001	-	-0.015	0.003	23.342	< 0.001	0.985 (0.979-0.991)
Weight-residual of height	11.013	0.001	-	-0.212	0.064	11.013	0.001	0.809 (0.713-0.917)
Neuter status	1.415	0.234	-	-	-	-	-	-
reference category: neutered			intact	0.106	0.089	1.415	0.234	1.111 (0.934-1.323)
Age at acquisition	11.616	0.009	-	-	-	-	-	-
reference category: > 1 year			bred by owner	-0.100	0.336	0.089	0.766	0.905 (0.469-1.747)
			2-12 weeks	0.392	0.139	7.983	0.005	1.479 (1.127-1.941)
			3-12 months	0.123	0.161	0.582	0.445	1.131 (0.824-1.552)
Training experience	4.636	0.200	-	-	-	-	-	-
reference category: 3 or more types			no training	0.192	0.136	1.991	0.158	1.212 (0.928-1.582)
			1 type	0.232	0.145	2.560	0.110	1.262 (0.949-1.677)
			2 types	0.301	0.148	4.150	0.042	1.352 (1.011-1.807)
Owners' gender	1.511	0.219	-	-	-	-	-	-
reference category: woman			man	-0.160	0.131	1.511	0.219	0.852 (0.659-1.100)
Owners' age	15.447	0.001	-	-	-	-	-	-
reference category: > 60 years			≤ 18 years	0.163	0.417	0.152	0.696	1.176 (0.520-2.662)
			19-30 years	0.222	0.337	0.434	0.510	1.248 (0.645-2.414)
			31-60 years	-0.224	0.326	0.472	0.492	0.799 (0.422-1.515)
Owners' education	3.453	0.327	-	-	-	-	-	-
reference category: university			primary school	0.112	0.186	0.364	0.546	1.119 (0.777-1.611)
			secondary school	-0.134	0.161	0.699	0.403	0.874 (0.638-1.198)
			college	-0.106	0.173	0.372	0.542	0.900 (0.640-1.264)
N of previous dogs	20.592	< 0.001	-	-	-	-	-	-
reference category: 3 or more dogs			no previous dog	0.530	0.118	20.286	< 0.001	1.699 (1.349-2.139)
			1 dog	0.292	0.125	5.425	0.020	1.339 (1.047-1.711)
			2 dogs	0.328	0.143	5.294	0.021	1.389 (1.050-1.837)
Purpose of keeping the dog	3.443	0.179	-	-	-	-	-	-
reference category: not family member			family member only	0.319	0.177	3.265	0.071	1.376 (0.973-1.946)
			family member+other	0.219	0.175	1.558	0.212	1.245 (0.883-1.755)
N of people in the household	10.704	0.005	-	-	-	-	-	-
reference category: 3 or more people			only 1 person	0.153	0.165	0.865	0.352	1.166 (0.844-1.610)
			2 people	0.346	0.106	10.696	0.001	1.414 (1.149-1.740)
Where the dog is kept	6.538	0.038	-	-	-	-	-	-
reference category: only outdoors			only indoors	0.082	0.310	0.070	0.791	1.085 (0.591-1.992)
			in- and outdoors	0.389	0.323	1.447	0.229	1.475 (0.783-2.778)
Hours spend walking the dog	14.839	0.001	-	-	-	-	-	-
reference category: > 3 hours			< 1 hour	0.781	0.220	12.587	< 0.001	2.184 (1.419-3.363)
			1-3 hours	0.158	0.156	1.023	0.312	1.171 (0.862-1.590)
Allow the dog into the bed	18.499	< 0.001	-	-	-	-	-	-
reference category: yes			no	-0.453	0.105	18.499	< 0.001	0.636 (0.517-0.782)

Not coming back

Global effect			Pairwise comparisons					
Factor	Wald χ^2	P value	Categories	B	SE	Wald χ^2	P value	Exp(B) (95% Conf Int)

Dogs' age	34.665	< 0.001	-	-0.084	0.014	34.665	< 0.001	0.919 (0.894-0.945)
Dogs' weight	11.658	0.001	-	-0.009	0.003	11.658	0.001	0.991 (0.985-0.996)
Weight-residual of height	7.542	0.006	-	-0.127	0.046	7.542	0.006	0.881 (0.804-0.964)
Neuter status	3.583	0.058						
reference category: neutered			intact	0.135	0.071	3.583	0.058	1.144 (0.995-1.315)
Age at acquisition	2.893	0.408						
reference category: > 1 year			bred by owner	-0.378	0.299	1.602	0.206	0.685 (0.381-1.231)
			2–12 weeks	0.077	0.118	0.422	0.516	1.080 (0.857-1.360)
			3-12 months	0.072	0.138	0.274	0.601	1.075 (0.820-1.410)
Training experience	58.087	< 0.001						
reference category: 3 or more types			no training	0.725	0.115	39.835	< 0.001	2.066 (1.649-2.587)
			1 type	0.832	0.122	46.469	< 0.001	2.297 (1.809-2.918)
			2 types	0.722	0.122	34.878	< 0.001	2.059 (1.620-2.617)
Owners' gender	2.533	0.111						
reference category: woman			man	0.175	0.110	2.533	0.111	1.191 (0.960-1.477)
Owners' age	31.825	< 0.001						
reference category: > 60 years			≤ 18 years	1.030	0.342	9.090	0.003	2.800 (1.434-5.468)
			19-30 years	0.316	0.263	1.438	0.230	1.372 (0.818-2.298)
			31-60 years	-0.034	0.257	0.018	0.894	0.966 (0.584-1.599)
Owners' education	8.704	0.033						
reference category: university			primary school	0.427	0.146	8.563	0.003	1.533 (1.151-2.040)
			secondary school	0.288	0.128	5.046	0.025	1.334 (1.037-1.715)
			college	0.262	0.139	3.557	0.059	1.299 (0.990-1.705)
N of previous dogs	75.844	< 0.001						
reference category: 3 or more dogs			no previous dog	0.833	0.100	69.592	< 0.001	2.300 (1.891-2.797)
			1 dog	0.663	0.107	38.095	< 0.001	1.940 (1.572-2.395)
			2 dogs	0.402	0.120	11.267	0.001	1.495 (1.182-1.891)
Purpose of keeping the dog	5.198	0.074						
reference category: not family member			family member only	-0.058	0.152	0.143	0.705	0.944 (0.701-1.272)
			family member+other	-0.230	0.151	2.303	0.129	0.795 (0.591-1.069)
N of people in the household	5.751	0.056						
reference category: 3 or more people			only 1 person	-0.253	0.135	3.493	0.062	0.777 (0.596-1.012)
			2 people	-0.176	0.086	4.215	0.040	0.838 (0.708-0.992)
Where the dog is kept	1.072	0.585						
reference category: only outdoors			only indoors	-0.249	0.266	0.877	0.349	0.779 (0.462-1.313)
			in- and outdoors	-0.200	0.274	0.532	0.466	0.819 (0.478-1.402)
Hours spend walking the dog	22.188	< 0.001						
reference category: > 3 hours			< 1 hour	0.772	0.170	20.632	< 0.001	2.165 (1.551-3.022)
			1-3 hours	0.295	0.133	4.936	0.026	1.344 (1.035-1.744)
Allow the dog into the bed	0.046	0.830						
reference category: yes			no	0.018	0.082	0.046	0.830	1.018 (0.867-1.195)

Supplementary Table S6. Associations between the potential confounding factors and behaviour when large-sized brachycephalic dogs are excluded from the sample. Generalized linear models (GLMs) were conducted for each association separately, using linear or binomial logistic distributions, depending on the behavioural variable. Each model included only one fixed factor (for categorical variables) or one covariate (for continuous variables). Parameter estimates for the pairwise comparisons are also presented.

Calmness								
Global effect			Pairwise comparisons					
Factor	Wald χ^2 P value		Categories	B	SE	Wald χ^2 P value Exp(B) (95% Conf Int)		
Dogs' age	1.507	0.220	-	0.008	0.006	1.507	0.220	1.008 (0.995-1.020)
Dogs' weight	4.651	0.031	-	0.003	0.001	4.651	0.031	1.003 (1.000-1.005)
Weight-residual of height	4.540	0.033	-	-0.048	0.022	4.540	0.033	0.953 (0.913-0.996)
Neuter status reference category: neutered	14.072	< 0.001	intact	0.164	0.044	14.072	< 0.001	1.178 (1.081-1.283)
Age at acquisition reference category: > 1 year	26.498	< 0.001	bred by owner	0.320	0.167	3.686	0.055	1.377 (0.993-1.909)
			2-12 weeks	0.210	0.063	11.071	0.001	1.233 (1.090-1.395)
			3-12 months	0.009	0.072	0.016	0.898	1.009 (0.877-1.162)
Training experience reference category: 3 or more types	8.801	0.032	no training	-0.129	0.054	5.669	0.017	0.879 (0.791-0.977)
			1 type	-0.074	0.058	1.633	0.201	0.928 (0.828-1.040)
			2 types	-0.002	0.061	0.001	0.975	0.998 (0.886-1.125)
Owners' gender reference category: woman	1.589	0.207	man	0.056	0.045	1.589	0.207	1.058 (0.969-1.154)
Owners' age reference category: > 60 years	1.061	0.786	≤ 18 years	-0.041	0.141	0.085	0.771	0.960 (0.727-1.266)
			19-30 years	-0.100	0.124	0.652	0.419	0.905 (0.709-1.154)
			31-60 years	-0.080	0.122	0.427	0.513	0.923 (0.727-1.172)
N of previous dogs reference category: 3 or more dogs	6.597	0.086	no previous dog	-0.027	0.056	0.241	0.623	0.973 (0.872-1.086)
			1 dog	-0.115	0.062	3.439	0.064	0.891 (0.789-1.007)
			2 dogs	0.028	0.070	0.161	0.688	1.028 (0.897-1.179)
Purpose of keeping the dog reference category: not family member	1.181	0.554	family member only	0.022	0.084	0.067	0.796	1.022 (0.867-1.204)
			family member+other	0.059	0.084	0.496	0.481	1.061 (0.900-1.250)
N of people in the household reference category: 3 or more people	3.576	0.167	only 1 person	0.103	0.063	2.719	0.099	1.109 (0.981-1.254)
			2 people	-0.016	0.040	0.153	0.696	0.985 (0.911-1.064)
Hours spent with the dog / day reference category: > 3 hours	23.670	< 0.001	≤ 3 hours	-0.212	0.044	23.670	< 0.001	0.809 (0.743-0.881)
Frequency of playing / week reference category: 6-7 days	19.790	< 0.001	1-5 days	-0.217	0.049	19.790	< 0.001	0.805 (0.731-0.886)
Trainability								
Global effect			Pairwise comparisons					
Factor	Wald χ^2 P value		Categories	B	SE	Wald χ^2 P value Exp(B) (95% Conf Int)		
Dogs' age	96.323	< 0.001	-	-0.069	0.007	96.323	< 0.001	0.934 (0.921-0.946)
Dogs' weight	1.864	0.172	-	0.002	0.001	1.864	0.172	1.002 (0.999-1.004)
Weight-residual of height	37.812	< 0.001	-	0.142	0.023	37.812	< 0.001	1.153 (1.102-1.206)

Neuter status	11.453	0.001	intact	0.155	0.046	11.453	0.001	1.167 (1.067-1.276)
reference category: neutered								
Age at acquisition	86.001	< 0.001	bred by owner	0.722	0.153	22.402	< 0.001	2.059 (1.527-2.776)
reference category: > 1 year			2–12 weeks	0.631	0.070	82.195	< 0.001	1.88 (1.640-2.155)
			3-12 months	0.500	0.077	42.126	< 0.001	1.649 (1.418-1.918)
Training experience	211.375	< 0.001	no training	-0.691	0.050	192.900	< 0.001	0.501 (0.455-0.552)
reference category: 3 or more types			1 type	-0.359	0.051	48.890	< 0.001	0.699 (0.632-0.772)
			2 types	-0.188	0.052	13.232	< 0.001	0.829 (0.749-0.917)
Owners' gender	4.009	0.045	man	-0.094	0.047	4.009	0.045	0.911 (0.831-0.998)
reference category: woman								
Owners' age	2.015	0.569	≤ 18 years	-0.031	0.123	0.062	0.803	0.970 (0.762-1.235)
reference category: > 60 years			19-30 years	-0.024	0.102	0.055	0.814	0.976 (0.800-1.192)
			31-60 years	0.032	0.098	0.109	0.742	1.033 (0.852-1.252)
N of previous dogs	2.357	0.502	no previous dog	-0.076	0.054	1.937	0.164	0.927 (0.834-1.031)
reference category: 3 or more dogs			1 dog	-0.084	0.060	1.932	0.165	0.919 (0.817-1.035)
			2 dogs	-0.056	0.068	0.675	0.411	0.945 (0.827-1.081)
Purpose of keeping the dog	27.835	< 0.001	family member only	-0.232	0.081	8.266	0.004	0.793 (0.676-0.929)
reference category: not family member			family member+other	-0.037	0.081	0.215	0.643	0.963 (0.822-1.128)
N of people in the household	5.755	0.056	only 1 person	0.049	0.068	0.531	0.466	1.051 (0.920-1.199)
reference category: 3 or more people			2 people	0.096	0.040	5.754	0.016	1.100 (1.018-1.190)
Hours spent with the dog / day	12.382	< 0.001	≤ 3 hours	-0.157	0.045	12.382	< 0.001	0.854 (0.783-0.933)
reference category: > 3 hours								
Frequency of playing / week	83.155	< 0.001	1-5 days	-0.489	0.054	83.155	< 0.001	0.614 (0.552-0.681)
reference category: 6-7 days								

Dog sociability

Global effect			Pairwise comparisons					
Factor	Wald χ^2	P value	Categories	B	SE	Wald χ^2	P value	Exp(B) (95% Conf Int)
Dogs' age	150.950	< 0.001	-	-0.081	0.007	150.950	< 0.001	0.923 (0.911-0.935)
Dogs' weight	6.263	0.012	-	0.003	0.001	6.263	0.012	1.003 (1.001-1.006)
Weight-residual of height	0.261	0.609	-	0.011	0.021	0.261	0.609	1.011 (0.969-1.054)
Neuter status	18.293	< 0.001	intact	0.181	0.042	18.293	< 0.001	1.198 (1.103-1.302)
reference category: neutered								
Age at acquisition	41.445	< 0.001	bred by owner	-0.020	0.176	0.013	0.910	0.980 (0.694-1.385)
reference category: > 1 year			2–12 weeks	0.338	0.060	31.602	< 0.001	1.402 (1.246-1.578)
			3-12 months	0.171	0.070	6.018	0.014	1.186 (1.035-1.360)
Training experience	39.078	< 0.001	no training	-0.155	0.054	8.185	0.004	0.856 (0.770-0.952)
reference category: 3 or more types			1 type	0.043	0.057	0.582	0.445	1.044 (0.934-1.167)
			2 types	0.141	0.058	5.894	0.015	1.152 (1.028-1.291)
Owners' gender	0.019	0.890	man	-0.006	0.044	0.019	0.890	0.994 (0.912-1.083)
reference category: woman								
Owners' age	6.039	0.110						

reference category: > 60 years			≤ 18 years	-0.266	0.129	4.268	0.039	0.766 (0.595-0.986)
			19-30 years	-0.124	0.105	1.411	0.235	0.883 (0.719-1.084)
			31-60 years	-0.082	0.101	0.666	0.415	0.921 (0.756-1.122)
N of previous dogs	6.269	0.099						
reference category: 3 or more dogs			no previous dog	0.095	0.054	3.100	0.078	1.100 (0.989-1.223)
			1 dog	0.006	0.061	0.009	0.926	1.006 (0.892-1.134)
			2 dogs	0.107	0.066	2.654	0.103	1.113 (0.978-1.267)
Purpose of keeping the dog	6.752	0.034						
reference category: not family member			family member only	0.209	0.087	5.793	0.016	1.232 (1.039-1.460)
			family member+other	0.225	0.087	6.732	0.009	1.253 (1.057-1.485)
N of people in the household	5.375	0.068						
reference category: 3 or more people			only 1 person	0.119	0.060	3.877	0.049	1.126 (1.001-1.268)
			2 people	0.070	0.039	3.180	0.075	1.073 (0.993-1.159)
Hours spent with the dog / day	24.247	< 0.001						
reference category: > 3 hours			≤ 3 hours	-0.217	0.044	24.247	< 0.001	0.805 (0.739-0.878)
Frequency of playing / week	49.473	< 0.001						
reference category: 6-7 days			1-5 days	-0.345	0.049	49.473	< 0.001	0.708 (0.643-0.780)
Boldness								
Global effect			Pairwise comparisons					
Factor	Wald χ^2	P value	Categories	B	SE	Wald χ^2	P value	Exp(B) (95% Conf Int)
Dogs' age	30.541	< 0.001	-	-0.035	0.006	30.541	< 0.001	0.966 (0.954-0.978)
Dogs' weight	0.015	0.901	-	0.000	0.001	0.015	0.901	1.000 (0.998-1.003)
Weight-residual of height	5.754	0.016	-	-0.055	0.023	5.754	0.016	0.947 (0.905-0.990)
Neuter status	24.599	< 0.001						
reference category: neutered			intact	0.216	0.044	24.599	< 0.001	1.242 (1.14-1.353)
Age at acquisition	50.229	< 0.001						
reference category: > 1 year			bred by owner	0.408	0.157	6.794	0.009	1.504 (1.107-2.045)
			2–12 weeks	0.413	0.063	43.063	< 0.001	1.511 (1.336-1.710)
			3-12 months	0.238	0.073	10.738	0.001	1.269 (1.100-1.463)
Training experience	10.167	0.017						
reference category: 3 or more types			no training	0.055	0.056	0.976	0.323	1.056 (0.947-1.178)
			1 type	0.163	0.058	7.878	0.005	1.177 (1.050-1.318)
			2 types	0.129	0.061	4.409	0.036	1.137 (1.009-1.283)
Owners' gender	1.536	0.215						
reference category: woman			man	0.055	0.045	1.536	0.215	1.057 (0.968-1.153)
Owners' age	13.602	0.004						
reference category: > 60 years			≤ 18 years	-0.233	0.125	3.510	0.061	0.792 (0.620-1.011)
			19-30 years	-0.148	0.105	2.009	0.156	0.862 (0.702-1.058)
			31-60 years	-0.269	0.102	6.974	0.008	0.764 (0.626-0.933)
N of previous dogs	0.294	0.961						
reference category: 3 or more dogs			no previous dog	-0.014	0.054	0.063	0.801	0.986 (0.887-1.097)
			1 dog	-0.023	0.060	0.143	0.705	0.978 (0.869-1.099)
			2 dogs	0.007	0.067	0.010	0.922	1.007 (0.883-1.147)
Purpose of keeping the dog	3.849	0.146						
reference category: not family member			family member only	-0.106	0.075	1.994	0.158	0.899 (0.776-1.042)
			family member+other	-0.144	0.076	3.621	0.057	0.866 (0.747-1.004)
N of people in the household	4.758	0.093						
reference category: 3 or more people			only 1 person	-0.067	0.064	1.079	0.299	0.936 (0.825-1.061)
			2 people	0.060	0.040	2.311	0.128	1.062 (0.983-1.148)

Hours spent with the dog / day	0.036	0.849						
reference category: > 3 hours			≤ 3 hours	-0.008	0.043	0.036	0.849	0.992 (0.912-1.079)
Frequency of playing / week	1.611	0.204						
reference category: 6-7 days			1-5 days	-0.061	0.048	1.611	0.204	0.940 (0.855-1.034)

Jumping up

Global effect			Pairwise comparisons					
Factor	Wald χ^2	P value	Categories	B	SE	Wald χ^2	P value	Exp(B) (95% Conf Int)
Dogs' age	51.982	< 0.001	-	-0.137	0.019	51.982	< 0.001	0.872 (0.84 -0.905)
Dogs' weight	13.075	< 0.001	-	-0.012	0.003	13.075	< 0.001	0.988 (0.982-0.995)
Weight-residual of height	6.109	0.013	-	-0.127	0.051	6.109	0.013	0.881 (0.796-0.974)
Neuter status	27.338	< 0.001	intact	0.517	0.099	27.338	< 0.001	1.677 (1.381-2.035)
Age at acquisition	8.296	0.040	bred by owner	0.509	0.317	2.577	0.108	1.664 (0.894-3.099)
reference category: > 1 year			2-12 weeks	0.396	0.141	7.945	0.005	1.486 (1.128-1.958)
			3-12 months	0.347	0.162	4.580	0.032	1.415 (1.030-1.944)
Training experience	37.154	< 0.001	no training	0.732	0.134	29.795	< 0.001	2.080 (1.599-2.706)
reference category: 3 or more types			1 type	0.780	0.140	30.912	< 0.001	2.181 (1.657-2.870)
			2 types	0.610	0.142	18.404	< 0.001	1.841 (1.393-2.433)
Owners' gender	2.314	0.128	man	0.181	0.119	2.314	0.128	1.199 (0.949-1.513)
reference category: woman								
Owners' age	5.144	0.162	≤ 18 years	-0.390	0.344	1.284	0.257	0.677 (0.345-1.329)
reference category: > 60 years			19-30 years	-0.300	0.282	1.130	0.288	0.741 (0.426-1.288)
			31-60 years	-0.467	0.276	2.875	0.090	0.627 (0.365-1.076)
N of previous dogs	3.655	0.301	no previous dog	0.198	0.135	2.157	0.142	1.219 (0.936-1.588)
reference category: 3 or more dogs			1 dog	0.264	0.145	3.327	0.068	1.302 (0.980-1.730)
			2 dogs	0.245	0.161	2.332	0.127	1.278 (0.933-1.751)
Purpose of keeping the dog	1.657	0.437	family member only	0.155	0.167	0.861	0.353	1.167 (0.842-1.618)
reference category: not family member			family member+other	0.051	0.167	0.095	0.758	1.053 (0.759-1.459)
N of people in the household	1.398	0.497	only 1 person	-0.171	0.153	1.246	0.264	0.843 (0.624-1.138)
reference category: 3 or more people			2 people	0.000	0.094	0.000	0.998	1.000 (0.832-1.203)
Where the dog is kept	3.991	0.136	only indoors	-0.264	0.282	0.872	0.350	0.768 (0.442-1.336)
reference category: only outdoors			in- and outdoors	-0.075	0.291	0.066	0.797	0.928 (0.524-1.641)
Hours spend walking the dog	6.921	0.031	< 1 hour	0.410	0.184	4.974	0.026	1.506 (1.051-2.158)
reference category: > 3 hours			1-3 hours	0.098	0.150	0.427	0.514	1.103 (0.822-1.481)
Allow the dog into the bed	1.052	0.305	no	-0.092	0.090	1.052	0.305	0.912 (0.765-1.088)
reference category: yes								

Pulling the leash

Global effect			Pairwise comparisons					
Factor	Wald χ^2	P value	Categories	B	SE	Wald χ^2	P value	Exp(B) (95% Conf Int)
Dogs' age	32.638	< 0.001	-	-0.097	0.017	32.638	< 0.001	0.907 (0.878-0.938)

Dogs' weight	7.665	0.006	-	-0.009	0.003	7.665	0.006	0.991 (0.985-0.997)
Weight-residual of height	0.004	0.950	-	0.003	0.051	0.004	0.950	1.003 (0.907-1.110)
Neuter status	6.039	0.014						
reference category: neutered			intact	0.239	0.097	6.039	0.014	1.270 (1.050-1.536)
Age at acquisition	3.691	0.297						
reference category: > 1 year			bred by owner	-0.118	0.338	0.123	0.726	0.888 (0.458-1.722)
			2-12 weeks	0.090	0.137	0.431	0.512	1.094 (0.837-1.430)
			3-12 months	0.254	0.157	2.613	0.106	1.290 (0.947-1.756)
Training experience	51.474	< 0.001						
reference category: 3 or more types			no training	0.913	0.140	42.264	< 0.001	2.492 (1.892-3.281)
			1 type	0.942	0.146	41.447	< 0.001	2.566 (1.926-3.418)
			2 types	0.852	0.148	33.239	< 0.001	2.343 (1.754-3.130)
Owners' gender	0.000	0.986						
reference category: woman			man	-0.002	0.122	0.000	0.986	0.998 (0.785-1.268)
Owners' age	1.837	0.607						
reference category: > 60 years			≤ 18 years	0.000	0.350	0.000	1.000	1.000 (0.504-1.984)
			19-30 years	-0.103	0.291	0.125	0.723	0.902 (0.510-1.596)
			31-60 years	-0.198	0.284	0.486	0.486	0.820 (0.470-1.432)
N of previous dogs	12.566	0.006						
reference category: 3 or more dogs			no previous dog	0.480	0.140	11.818	0.001	1.616 (1.229-2.124)
			1 dog	0.388	0.150	6.656	0.010	1.474 (1.098-1.979)
			2 dogs	0.270	0.167	2.593	0.107	1.310 (0.943-1.818)
Purpose of keeping the dog	16.770	< 0.001						
reference category: not family member			family member only	0.456	0.173	6.950	0.008	1.578 (1.124-2.216)
			family member+other	0.109	0.174	0.393	0.531	1.115 (0.793-1.569)
N of people in the household	1.876	0.391						
reference category: 3 or more people			only 1 person	-0.205	0.156	1.732	0.188	0.815 (0.601-1.105)
			2 people	-0.007	0.095	0.005	0.944	0.993 (0.825-1.196)
Where the dog is kept	0.273	0.873						
reference category: only outdoors			only indoors	0.048	0.296	0.026	0.872	1.049 (0.587-1.876)
			in- and outdoors	0.098	0.305	0.103	0.749	1.103 (0.606-2.006)
Hours spend walking the dog	11.957	0.003						
reference category: > 3 hours			< 1 hour	-0.560	0.186	9.035	0.003	0.571 (0.397-0.823)
			1-3 hours	-0.161	0.154	1.090	0.297	0.852 (0.630-1.151)
Allow the dog into the bed	0.598	0.439						
reference category: yes			no	-0.070	0.091	0.598	0.439	0.932 (0.780-1.114)

Too reactive when guests arrive

Global effect			Pairwise comparisons					
Factor	Wald χ^2	P value	Categories	B	SE	Wald χ^2	P value	Exp(B) (95% Conf Int)
Dogs' age	1.346	0.246	-	-0.020	0.017	1.346	0.246	0.980 (0.948-1.014)
Dogs' weight	23.704	< 0.001	-	-0.016	0.003	23.704	< 0.001	0.984 (0.977-0.990)
Weight-residual of height	21.703	< 0.001	-	-0.306	0.066	21.703	< 0.001	0.736 (0.647-0.838)
Neuter status	2.541	0.111						
reference category: neutered			intact	0.174	0.109	2.541	0.111	1.19 (0.961-1.473)
Age at acquisition	11.226	0.011						
reference category: > 1 year			bred by owner	-0.009	0.347	0.001	0.980	0.991 (0.502-1.957)
			2-12 weeks	0.416	0.147	7.941	0.005	1.515 (1.135-2.023)
			3-12 months	0.131	0.171	0.587	0.444	1.140 (0.816-1.593)
Training experience	5.312	0.150						

reference category: 3 or more types			no training	0.283	0.142	3.949	0.047	1.327 (1.004-1.755)
			1 type	0.240	0.150	2.538	0.111	1.271 (0.946-1.706)
			2 types	0.304	0.153	3.950	0.047	1.355 (1.004-1.828)
Owners' gender	1.604	0.205	reference category: woman	man				0.840 (0.642-1.100)
Owners' age	15.734	0.001	reference category: > 60 years	≤ 18 years				1.114 (0.467-2.656)
			19-30 years	0.168	0.365	0.211	0.646	1.183 (0.578-2.421)
			31-60 years	-0.306	0.354	0.745	0.388	0.737 (0.368-1.475)
N of previous dogs	15.342	0.002	reference category: 3 or more dogs	no previous dog				1.765 (1.328-2.347)
			1 dog	0.387	0.156	6.143	0.013	1.473 (1.084-2.000)
			2 dogs	0.408	0.177	5.328	0.021	1.504 (1.063-2.126)
Purpose of keeping the dog	3.936	0.140	reference category: not family member	family member only				1.359 (0.945-1.954)
			family member+other	0.136	0.183	0.550	0.458	1.145 (0.800-1.639)
N of people in the household	10.081	0.006	reference category: 3 or more people	only 1 person				1.086 (0.777-1.518)
			2 people	0.347	0.111	9.804	0.002	1.415 (1.139-1.759)
Where the dog is kept	3.711	0.156	reference category: only outdoors	only indoors				1.034 (0.540-1.982)
			in- and outdoors	0.274	0.345	0.633	0.426	1.316 (0.669-2.586)
Hours spend walking the dog	12.441	0.002	reference category: > 3 hours	< 1 hour				2.065 (1.314-3.244)
			1-3 hours	0.118	0.165	0.516	0.472	1.126 (0.815-1.554)
Allow the dog into the bed	19.312	< 0.001	reference category: yes	no				0.617 (0.498-0.765)

Not coming back

Global effect			Pairwise comparisons					
Factor	Wald χ^2	P value	Categories	B	SE	Wald χ^2	P value	Exp(B) (95% Conf Int)
Dogs' age	26.449	< 0.001	-	-0.077	0.015	26.449	< 0.001	0.926 (0.900-0.954)
Dogs' weight	12.517	< 0.001	-	-0.011	0.003	12.517	< 0.001	0.989 (0.984-0.995)
Weight-residual of height	9.380	0.002	-	-0.156	0.051	9.380	0.002	0.855 (0.774-0.945)
Neuter status	1.778	0.182	reference category: neutered	intact				1.127 (0.945-1.343)
Age at acquisition	2.392	0.495	reference category: > 1 year	bred by owner				0.658 (0.363-1.194)
			2-12 weeks	-0.013	0.126	0.010	0.920	0.987 (0.771-1.264)
			3-12 months	0.039	0.148	0.069	0.793	1.040 (0.778-1.388)
Training experience	56.405	< 0.001	reference category: 3 or more types	no training				2.123 (1.679-2.685)
			1 type	0.852	0.127	44.922	< 0.001	2.345 (1.828-3.009)
			2 types	0.721	0.127	32.161	< 0.001	2.056 (1.603-2.638)
Owners' gender	1.259	0.262	reference category: woman	man				1.139 (0.908-1.428)
Owners' age	25.621	< 0.001	reference category: > 60 years	≤ 18 years				2.531 (1.264-5.067)
			19-30 years	0.260	0.280	0.862	0.353	1.297 (0.749-2.244)
			31-60 years	-0.060	0.273	0.048	0.826	0.942 (0.552-1.608)

N of previous dogs	44.259	< 0.001						
reference category: 3 or more dogs			no previous dog	0.774	0.126	37.719	< 0.001	2.168 (1.693-2.775)
			1 dog	0.695	0.136	26.075	< 0.001	2.003 (1.534-2.615)
			2 dogs	0.352	0.150	5.470	0.019	1.422 (1.059-1.909)
Purpose of keeping the dog	6.918	0.031						
reference category: not family member			family member only	-0.063	0.158	0.159	0.690	0.939 (0.689-1.279)
			family member+other	-0.272	0.157	3.003	0.083	0.762 (0.560-1.036)
N of people in the household	4.892	0.087						
reference category: 3 or more people			only 1 person	-0.231	0.142	2.644	0.104	0.794 (0.601-1.049)
			2 people	-0.176	0.090	3.857	0.050	0.839 (0.703-1.000)
Where the dog is kept	0.546	0.761						
reference category: only outdoors			only indoors	-0.203	0.280	0.527	0.468	0.816 (0.472-1.412)
			in- and outdoors	-0.183	0.288	0.404	0.525	0.833 (0.473-1.464)
Hours spend walking the dog	18.698	< 0.001						
reference category: > 3 hours			< 1 hour	0.741	0.178	17.414	< 0.001	2.098 (1.481-2.972)
			1-3 hours	0.285	0.139	4.213	0.040	1.330 (1.013-1.746)
Allow the dog into the bed	0.003	0.954						
reference category: yes			no	-0.005	0.085	0.003	0.954	0.995 (0.842-1.176)