

# Comparing Risk Perceptions and Self-Reported Practices of Pet Owners Providing Raw Pet Food Versus Pet Owners Providing Conventional Pet Food in Slovenia

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## INTRODUCTION

Commercially produced and home-made raw meat-based pet diets are becoming increasingly popular among the pet owners and are promoted by the social media communities online. Because raw meat-based diets do not undergo any processing to eliminate pathogens they pose a risk to pet owners' health potentially able to cause a severe foodborne illness. Whilst the risks of serious foodborne illness associated with providing raw meat-based diets to pets were highlighted in published research, it has also been shown that pet owners may be not aware of such risks, confused about the risk mitigation practices, or choosing to ignore the risks all together (Anturaniemi et al., 2019; Bulochova & Evans, 2021; Lenz et al., 2009).

**The aim** of this cross-sectional study was to determine the prevalence of raw meat-based pet diets among Slovenian pet owners. Due to the lack in already published scientific literature, it also aimed to investigate the similarities and differences between pet owners who provide raw meat-based diet to their pets and pet owners who do not, in terms of self-reported risk perception for foodborne illness and established pet food preparation practices in their home environment. In addition, the reasons, and motivations for the decision to feed raw meat to pets were also examined.

## METHODS

The anonymous online questionnaire was developed and distributed to the target population via interest groups on social media platforms. Ultimately, 750 participants were included in the detailed analysis, divided into two subgroups:

The "raw group" (n=382) consisted of participants who feed their pets raw meat

The "conventional group" (n=368) consisted of participants who don't feed their pets raw meat

When preparing the questionnaire, the authors considered a previous study of pet owner food safety perceptions and self-reported practices in the United Kingdom (Bulochova & Evans, 2021) and adapted it to country-specific conditions. The online questionnaire consisted of 28 questions divided in four main categories:

Demographic characteristics

Motivation and sources of information

Risk perception

Self-reported practices

## RESULTS

### Risk perception

Table 1: Self-reported risk perception among RG and CG.

Statements	Group <sup>(a)</sup>	Agreement rate (%)					Average (SD) <sup>(b)</sup>	p <sup>(c)</sup>
		I completely agree	I agree	I can't decide	I do not agree	I completely disagree		
Food poisoning can be fatal for humans.	RG (n=346)	35.3	42.2	12.7	6.4	3.5	2.0 (1.0)	.669
	CG (n=321)	34.6	43.3	9.7	8.4	4.0	2.0 (1.1)	
There is very little chance of poisoning myself with food I eat.	RG (n=346)	16.8	38.2	17.3	22.0	5.8	2.6 (1.2)	.463
	CG (n=319)	12.5	40.4	16.9	26.3	3.8	2.7 (1.1)	
Consumption of raw milk increases the risk of infection with dangerous bacteria in humans.	RG (n=344)	15.1	30.8	31.7	19.8	2.6	2.6 (1.0)	.015
	CG (n=321)	18.7	37.7	27.7	12.5	3.4	2.4 (1.0)	

**Legend:**

(a) RG - raw group; CG - Conventional group

(b) 1 - I completely agree; 2 - I agree; 3 - I can't decide; 4 - I do not agree; 5 - I completely disagree; SD - standard deviation.

(c) Independent t-test comparing average values.

There was no significant difference (Table 1) between the two groups in perceived risk severity (expressed as agreement that food poisoning can be fatal) and in perceived vulnerability (expressed as a probability of food poisoning with food).

When considering pet owner perceived severity of foodborne illness and perceived vulnerability, the participants of the current study do not differ significantly from the general Slovenian consumers (Jevšnik et al., 2022).

Analysis of specific risk perceptions conducted only among participants that provide raw meat to pets, revealed high perceived self-efficacy. The majority are confident that they have sufficient knowledge/skills to prepare raw pet food in a manner that does not endanger their own health or that of other family members. However, high perceived self-efficacy could not be completely confirmed by the participants' self-reported practices.

### Self-reported practices

Table 2: Self-reported practices when preparing food to pets in RG and CG.

Practice	Group <sup>(a)</sup>	Self-report rate (%) <sup>(b)</sup>					Average (SD) <sup>(c)</sup>	p <sup>(d)</sup>
		Always	Often	Sometimes	Rarely	Never		
Separating utensils for preparing pet's food in domestic kitchen. <sup>(e)</sup>	RG (n=380)	34.2	9.7	11.3	10.3	29.2	2.9 (1.7)	.914
	CG (n=358)	34.9	6.7	12.0	7.5	29.3	2.9 (1.7)	
Washing hands before preparing pet's food.	RG (n=380)	68.2	14.2	7.4	4.5	5.0	1.6 (1.1)	.000
	CG (n=351)	48.7	21.9	12.3	7.1	8.0	2.0 (1.3)	
Washing hands after preparing pet's food.	RG (n=376)	90.2	6.1	2.1	0.5	0.3	1.1 (0.9)	.000
	CG (n=348)	72.1	11.8	8.3	2.9	3.2	1.5 (0.5)	
Washing surfaces and utensils after preparing pet's food. <sup>(f)</sup>	RG (n=373)	82.3	8.0	2.4	0.8	0.8	1.2 (0.6)	.000
	CG (n=349)	56.2	13.5	8.0	5.2	3.4	1.7 (1.1)	
Disinfecting utensils after preparing pet's food.	RG (n=365)	9.9	7.7	12.1	11.2	56.7	4.0 (1.2)	.003
	CG (n=335)	5.7	3.6	11.6	11.9	64.2	4.3 (1.4)	
Washing pet's bowl. <sup>(e)</sup>	RG (n=367)	43.9	38.1	14.4	2.7	0.0	1.7 (0.8)	.016
	CG (n=340)	37.6	36.2	20.3	5.9	0.8	1.9 (0.9)	

**Legend:**

(a) RG - raw group; CG - Conventional group

(b) The sum of the percentages is not always 100, because the participants could also choose the option "other"

(c) 1 - Always; 2 - Often; 3 - Sometimes; 4 - Rarely; 5 - Never; SD - Standard deviation

(d) Independent t-test comparing average values

(e) 5.2% in raw group and 9.5% in conventional group report not to prepare food for pets in their domestic kitchen

(f) 5.6% in raw group and 13.6% in conventional group report not to use special surfaces and utensils

In both groups (Table 2) hand washing is more frequent after pet food preparation than before. When considering cleaning procedures, 55.2% in RG and 36.6% in CG (p ≤ .001) reported appropriate procedure (cleaning with a sponge and detergent, rinsing with water and drying). Similarly, participants (67.7% in RG and 55.8% in the CG) reported appropriate procedure for washing utensils: cleaning with a sponge and detergent, then rinsing with water and drying; or washing in the dishwasher." Pet owners who do not perform food safety practices consistently may be at a higher risk foodborne illness due to potential cross-contamination.

### The most critical self-reported practices of the raw group participants

Table 3: Self-reported practices when handling raw meat as food for pets among RG

Defrosting raw meat for pets (n=342)	
Kitchen counter	42.1%
Domestic refrigerator	37.7%
Under running water	5.6%
Microwave	2.0%
Not defrosting meat	4.4%
Other	8.2%
Rinsing raw meat under running water before preparing a meal for a pet (n=349)	
Always	34.7%
Often	12.0%
Sometimes	11.5%
Rarely	9.7%
Never	26.9%
Others	5.2%

Participants in RG (Table 3) reported unsafe practice of defrosting meat on the kitchen counter which is consistent with a recent survey of Slovenian consumers, who also reported similar malpractice (Jevšnik et al., 2022). However, the correct method of defrosting meat in the refrigerator was reported by more than a third of participants. Under the "other" option, participants indicated that they defrost meat directly in the pet bowl, kitchen sink, garage, or kitchen cabinet.

The practice of rinsing raw meat under running water before preparing a meal for a pet appears to be commonly applied. Under the "other" option, participants indicated that there is no need to rinse meat because they buy already prepared and frozen raw meal which is used directly after thawing, or they use ground meat that is not suitable for rinsing. Few participants reported that they do not wash meat only when it comes directly from the butcher, otherwise always.

## CONCLUSIONS

Participants in the current study did not differ significantly from general Slovenian consumers in their perception of health risk. In addition, those who provide raw meat to their pets also did not differ significantly from pet owners who do not. Results revealed invulnerability and a superiority bias among participants due to their perception of high self-efficacy. The latter was then not expressed in their self-reported behaviours, regardless of the type of pet food, which was particularly evident in the area of washing surfaces and utensils commonly used for pet and human food preparation. However, self-reported frequency of washing surfaces, utensils, and hands showed differences among participants, with frequency always significantly higher among those who provide raw meat to their pets. Nevertheless, rinsing raw meat before preparation and thawing frozen raw meat for pets on the kitchen counter were identified as the most important misbehaviors of pet owners who feed raw meat-based diet to their pets. The current study provides further evidence for the need to design tailored educational campaigns on appropriate food safety practises when handling raw pet products for pet owners to prevent serious foodborne illnesses and reduce the spread of antibiotic-resistant bacteria. Given the popular use of online sources by pet owners, online distribution methods should be considered for such targeted approaches.

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