

No evidence of coverage bias in phone surveys designed to estimate the size of the UK cat and dog populations



Murray, J.K., Browne, W.J. and Gruffydd-Jones, T.J.

Department of Clinical Veterinary Science, University of Bristol, Langford, Bristol, UK



SUMMARY: The cat-owning and dog-owning status of households were not associated with household “contactability”, (“contactable” households defined as those that reported a landline, that did not screen their calls, and which were not registered as ex-directory or with the Telephone Preferential Service). These results suggest that despite limited coverage of telephone surveys, coverage bias is unlikely to affect estimates of UK owned cat and dog population sizes.

BACKGROUND

Estimates of owned cat and dog populations have recently been published, derived from data collected by telephone surveys using random digit dialling (Downes et al., 2009) and from households randomly selected from the UK electoral roll (Murray et al., 2010). However, telephone surveys exclude some households from the sampling frame, potentially leading to coverage bias.

- Approximately 50% of UK households are estimated to be “ex-directory” (www.192.com)
- 14% of a sample of 1315 UK households had no fixed telephone line in 2006 (E-Communications household survey, 2007).
- 20% of UK households were estimated to be Telephone Preferential Service (TPS)-registered in 2004 (Scottish Crime and Victimization Survey, 2005).



AIM OF THE STUDY - To determine whether the cat- and dog-owning status of households was associated with whether or not respondents reported that their households were contactable by landline telephone, based on: the presence of a household landline, not being registered as ex-directory or with the TPS, and not using call screening.



MATERIALS AND METHODS

The following advertisement was placed on “Google” web pages that were unrelated to telephone services and pets (e.g. Weather forecast sites, news sites).

Chance to win £50
Live in the UK? Please complete a 2 min questionnaire for Bristol Uni
www.survey.bris.ac.uk/smvfsa/q1

A short online questionnaire was completed by willing participants. Respondents were instructed that the aim was to collect information relating to their household telephone. A demographic section included two questions relating to whether cats and dogs were present in the household.

- It was recognised that the web-based sample was unlikely to provide a representative sample of UK households; however, this sampling method was considered suitable to explore the association between household landline characteristics and cat/dog ownership in a National sample.

Univariable and multivariable logistic regression models were used to test the following variables :

- Cat-owning (CO) household (yes/no)
- Dog-owning (DO) household (yes/no)
- Location (London/non-London)
- Household tenure (Own/Rent house)
- Gender of respondent (male/female)
- Age category of respondent

- Number of people in household (1,2,3,4,5+)

- Highest level of qualification achieved by a household member

for association with four outcomes:

- Has Landline, Not ex-directory, Not TPS-registered, Do not screen calls.

The data were then combined in order that risk factors for the outcome of “contactable/non-contactable households” could be investigated.

The study had 80% power to detect OR of ≥ 2.5 for the combined outcome.

RESULTS

481 web-based questionnaires were completed (Aug/Sept 2009).

- Characteristics of the web-based sample were compared graphically with the characteristics of the phone-based sample (Murray et al., 2010) and National data in Figures 1, 2 and 3.

Key: Web Phone National data

Figure 1

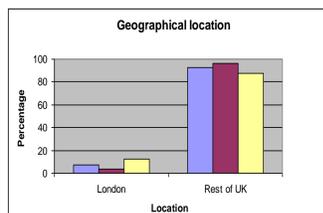


Figure 2

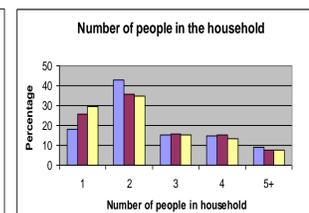
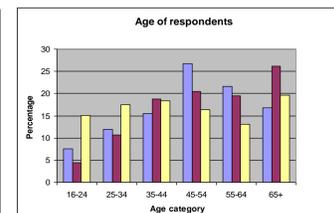


Figure 3



The main results of the analyses are summarised in the table below:

Outcome	Multivariable analysis:	OR (95%CI)	P-value
Landline	Own house	12.76 (4.74-34.37)	<0.001
	Non-London	3.50 (1.31-9.36)	0.01
Not ex-directory	DO house	2.03 (1.16-3.53)	0.01
	Respondent aged ≥ 65 yrs	3.12 (1.70-5.74)	<0.001
	Own house	2.20 (1.28-3.78)	0.004
Not TPS-registered	Rent house	4.47 (2.66-7.53)	<0.001
	≥ 2 people in household	2.28 (1.22-4.24)	0.01
Do not screen calls	CO house	0.54 (0.34-0.87)	0.01
CONTACTABLE HOUSEHOLD	Univariable analysis: (all variables $P > 0.05$)		
	CO house	0.59 (0.26-1.31)	0.19
	DO house	1.47 (0.74-2.92)	0.27

CONCLUSION

Although CO households and DO households were significantly associated with call screening and ex-directory status, respectively, the combined analysis suggests that, due to the effect of other factors, overall there was no observed association between CO households and DO households and the “contactability” of the household.

The results of this study can be used to help inform future studies of a probable lack of coverage bias when using telephone surveys based on telephone numbers randomly selected from the electoral roll, to estimate UK cat and dog populations.

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