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Author/s:

Phillipou, A;Tan, EJ;Toh, WL;Van Rheenen, TE;Meyer, D;Neill, E;Sumner, PJ;Rossell, SL

Title:

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Date:

2021-10-01

Citation:

Phillipou, A., Tan, E. J., Toh, W. L., Van Rheenen, T. E., Meyer, D., Neill, E., Sumner, P. J. & Rossell, S. L. (2021). Pet ownership and mental health during COVID-19 lockdown. *Australian Veterinary Journal*, 99 (10), pp.423-426. <https://doi.org/10.1111/avj.13102>.

Persistent Link:

<https://hdl.handle.net/11343/298672>

Title: Pet ownership and mental health during COVID-19 lockdown

Short running title: Pets, mental health and COVID-19 lockdown

Authors: Andrea Phillipou^{1,2,3,4*}, Eric J. Tan^{1,2}, Wei Lin Toh^{1,5}, Tamsyn E. Van Rheenen^{1,6},
Denny Meyer¹, Erica Neill^{1,2,4}, Philip J. Sumner¹, Susan L Rossell^{1,2}

¹ Centre for Mental Health, Swinburne University of Technology, Melbourne, VIC, Australia

² Department of Mental Health, St Vincent's Hospital, Melbourne, VIC, Australia

³ Department of Mental Health, Austin Hospital, Melbourne, VIC, Australia

⁴ Department of Psychiatry, The University of Melbourne, Melbourne, VIC, Australia

⁵ Department of Psychiatry, Alfred Health, Melbourne, VIC, Australia

⁶ Melbourne Neuropsychiatry Centre, The University of Melbourne, VIC, Australia

*Corresponding author: Dr Andrea Phillipou, Centre for Mental Health, Swinburne University of Technology, PO Box 218, Hawthorn, VIC 3122, Australia. Ph: +61 3 9214 8755. E: andreaphillipou@swin.edu.au

Word count (abstract): 169

Word count (text): 1,461 (including tables)

Tables: 2; Figures: 0

References: 18

Keywords: cat; dog; pandemic; quality of life; resilience; loneliness

Acknowledgments

AP and WLT are supported by National Health and Medical Research Council of Australia (NHMRC) Project Grants (CIA- GNT1159953, CIA- GNT1161609, respectively). SLR holds a Senior NHMRC Fellowship (GNT1154561), and EJT (GNT1142424) and TVR (GNT1088785) hold Early Career NHMRC Fellowships. The authors would also like to thank their own pets, as well as all of the participants who took the time to participate in this study.

Conflict of Interest

The authors report no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions

All authors contributed to the design of the project, obtained ethics approval, engaged in data collection and interpretation of findings. AP prepared the first draft of the manuscript. EJT conducted the statistical analyses. All authors provided intellectual and editorial input, and agreed to its final form.

Abstract

Owning a pet has often been associated with improved mental health among owners, including enhanced quality of life, and decreased levels of depression and loneliness. The aim of this study was to identify whether owning a cat and/or dog was associated with better psychological wellbeing during a strict lockdown period in Victoria, Australia, during the COVID-19 pandemic. Data were analysed from a large-scale mental health study, the COVID-19 and you: mental health in Australia now survey (COLLATE). The impact of pet ownership on levels of resilience, loneliness and quality of life were examined in a sample of 138 pet owners and 125 non-pet owners. Hierarchical linear regression analyses indicated that pet ownership was significantly associated with poorer quality of life, but not significantly associated with resilience or loneliness, after accounting for situational factors (e.g. job loss) and mood states. Contrary to expectations, the findings suggest that during a specific situation such as a pandemic, pets may contribute to increased burden among owners and contribute to poorer quality of life.

The coronavirus (COVID-19) pandemic has affected the way we live, work and socialise, with significant impacts on mental health (1). Government restrictions and lockdowns implemented to curb the spread of the virus have meant that many of us have been spending more time at home with our pets. Further, according to pet rescue organisations (e.g. RSPCA), quite a number of people have acquired new pets during this pandemic period (2). The mental health benefits of pet ownership pre-pandemic have been shown to include improved quality of life, and reduced levels of depression and loneliness (3-5). Therefore, it may be expected that pet owners would have better psychological wellbeing – including better quality of life, higher resilience, and decreased loneliness – during the COVID-19 pandemic and associated lockdowns compared to people without pets. However, findings have been inconsistent in the literature, and some research has indicated no benefits of pet ownership on psychological wellbeing (6), while other research has identified increased psychological distress of pet ownership, associated with specific environmental factors (e.g. being unmarried; 7). To explore the mental health effects of pet ownership during the COVID-19 pandemic lockdown, we examined data collected through the large-scale COvid-19 and you: mental health in AusTralia now survEy (COLLATE) project (8).

The COLLATE project received ethical approval from the Swinburne University Human Research Ethics Committee and complied with the Declaration of Helsinki. Members of the general public, residing in Australia and aged 18 year or older, were invited to participate. The study is described in detail elsewhere (8). Briefly, it includes a series of anonymous online surveys, open for 72 hours from the 1st-4th of each month, beginning in April 2020. The data included in the current paper were collected in September 2020, from individuals residing in the state of Victoria, who were approximately halfway through a strict three-month lockdown (9). Respondents were recruited through social media and other advertisements, participant

registries and non-discriminative snowball sampling. All respondents were asked to self-identify whether they owned a pet, and the type of pet/s they owned.

The COLLATE survey covers a broad range of questions probing different aspects of mental health. Only the measures relevant to the current paper are described here (further details can be found in (8)). The *UCLA Loneliness Scale-Revised* (10) was used to assess levels of loneliness, with higher scores indicating increased loneliness. The *Brief Resilience Scale* was administered to assess resilience (11), with higher scores representing increased resilience. The *European Health Interview Surveys-Quality of Life* (EUROHIS-QoL) was used to measure quality of life, with higher scores indicative of better perceived quality of life (12). Current negative mood states were assessed with the *Depression Anxiety Stress Scale* (DASS-21) (13), with higher scores indicative of increased negative emotional states.

Pet ownership was defined as owning a cat and/or dog specifically. Other pets (e.g. fish, chickens) were excluded, as evidence of the mental health benefits of owning these types of pets is still equivocal, and focusing on cats and dogs provided a more homogenous sample given the similarities in level of care and interaction with pet owners. Sample characteristics of pet (n=138) and non-pet (n=125) owners are presented in Table 1. Hierarchical linear regression analyses were employed to examine whether pet ownership significantly contributed to three psychological wellbeing domains (quality of life, resilience, and loneliness) above other situational factors (all binary variables other than age), such as living alone or with others (including dependent children), working from home, having lost one's job, and age. Negative mood states (depression, anxiety and stress) were also accounted for in line with evidence of their contribution to psychological wellbeing (14, 15). Analyses were undertaken with SPSS V27. Cases with missing data for each regression were deleted listwise. Multicollinearity was assessed by examining Variance Inflation Factors (VIF) (16).

[Insert Table 1]

As can be seen in Table 2, accounting for situational factors and mood states (DASS Total), pet ownership was significantly associated with reduced quality of life, but not resilience or loneliness. All VIFs were within the acceptable range (<2). Situational factors as a whole and DASS Total were significantly associated with all three psychological wellbeing domains.

[Insert Table 2]

Unlike findings of several previous non-pandemic studies, these current findings suggest that having a cat or dog was associated with reduced life satisfaction, perhaps resulting from increased pressures in a lockdown situation. For example, strict lockdown restrictions may have disrupted both pets' and pet owners' regular routines (e.g. dog walking), thus diminishing quality of life. Indeed, in a recent study, pet owners reported unique hardships during the COVID-19 pandemic that were related to changes in everyday life, including concerns related to meeting pets' social and behavioural needs (17). Alternatively, the findings may reflect the possibility that those with poorer life satisfaction, irrespective of the pandemic, may be more likely to acquire pets.

Notably, we did not assess when participants had acquired their pets, thus the data may have been unduly influenced by participants who had acquired a new pet during the pandemic. Consequently, the associated challenges, such as toilet training, may have been exacerbated in a lockdown setting. Further, as data were not collected prior to the pandemic, it was not possible to ascertain whether the findings were a consequence of the pandemic or reflected a lack of

difference in pet versus non-pet owners more generally in this particular cohort of individuals. It should be noted that the current findings emerged after controlling for recognised situational and mood state factors, suggesting a significant and independent association between pet ownership and quality of life. Unexpectedly, no significant influence of pet ownership on resilience and loneliness was observed, which contrasted with previous pre-pandemic research (5, 18).

Although a reasonable sample size was recruited for this study, future research would benefit from recruiting an even larger sample to replicate the current study and ensure effects between groups can be appropriately identified. Examinations of future explanatory models for quality of life, resilience, and loneliness could also include other contributory variables that are beyond the scope of the current research question (e.g. financial situation, socioeconomic status). Furthermore, undertaking further qualitative research to disentangle the complex contributions of different variables would be beneficial, and could have the potential to inform more specific needs of pet owners. Critically, the current findings provide an important indication that the established understanding that pet ownership improves mental health may not hold during a pandemic lockdown situation.

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