REVIEW

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Association between pet ownership and incident dementia: A systematic review

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ABSTRACT

Dementia affects more than 55 million people worldwide, and prevention remains a global priority. Pet ownership is a modifiable factor hypothesized to improve cognitive health, but longitudinal evidence is mixed. We searched PubMed, Embase, CINAHL, Web of Science, and PsycINFO for prospective cohort, case-control, or nested case-control studies in adults without dementia reporting incident dementia and/or dementia-related outcomes. Two reviewers screened, extracted data, and assessed risk of bias. Since studies reporting incident dementia were too few ($n = 3$) and heterogeneous, we conducted a narrative synthesis rather than a meta-analysis. We included six studies. Outcomes spanned conversion to mild cognitive impairment/dementia and worsening neuropsychological trajectories. Two studies suggested a protective association between pet ownership, especially dogs, and incident dementia, while one study found no significant association. For secondary outcomes, dog or cat ownership, with dog walking, was associated with slower cognitive decline, whereas exposure to non-companion animals was associated with increased risk of cognitive impairment. Risk of bias was moderate to high. The type of pets and related behaviors may be more critical than ownership alone.

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KEYWORDS: Pet ownership; Incident dementia; Cognitive decline; Dog walking

Introduction

Dementia represents a significant and growing global health challenge, affecting over 55 million people worldwide, with this number projected to rise dramatically in the coming decades.[1,2] The profound impact of dementia on individuals, families, and healthcare systems indicates the urgent need for effective, accessible, and scalable preventive strategies.[3] While pharmacological interventions remain limited, a growing body of evidence suggests that modifiable lifestyle factors play a crucial role in maintaining cognitive health and mitigating the risk of dementia.[4]

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Pet ownership is a common and culturally significant lifestyle factor that may influence several pathways relevant to dementia prevention. Companion animals, particularly dogs, are often associated with increased levels of physical activity, a well-established protective factor against cognitive decline.[5,6] Beyond physical benefits, the human-animal bond can provide significant psychosocial support, potentially reducing loneliness, social isolation, and stress—all of which are recognized risk factors for incident dementia, defined as new-onset dementia diagnosed during follow-up among participants without dementia at baseline.[7] The daily routines and responsibilities associated with pet care may also promote cognitive engagement and regular sleep-wake cycles, further contributing to brain health.[8,9]

Despite these plausible biological and psychosocial mechanisms, the direct evidence from observational studies linking pet ownership to a reduced risk of dementia remains inconsistent. While some prospective cohort studies have reported a protective association, others have found null or even conflicting results.[10] These discrepancies may be attributable to differences in study populations, duration of follow-up, control for confounding variables, and definitions of both pet ownership and dementia outcomes. To date, no systematic review has comprehensively synthesized the evidence on this important question.

Therefore, we conducted this systematic review of prospective cohort and case-control studies with the primary objective of quantitatively assessing the association between pet ownership and the risk of incident dementia in adults.

CLINICAL SIGNIFICANCE

- While pet ownership, particularly contact with dogs and dog walking, may be associated with healthier cognitive aging, non-companion animal exposure may not confer the same benefit and was linked to worse cognitive outcomes in one cohort.
- Preserved cognitive function may depend more on the type of pet and accompanying behaviors than on pet ownership itself.

Methods

Protocol and registration

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement.[11] A complete PRISMA 2020 checklist is provided as Supplementary Table S1, available online. The review protocol was preregistered with the International Prospective Register of Systematic Reviews (PROSPERO, Registration No: CRD420251055682). One amendment has been made to the registered protocol since its initial submission.

Eligibility criteria

This review included original observational studies, specifically prospective cohort, case-control, and nested case-control designs, that were published in English. Eligible studies had to investigate the association between pet ownership (the exposure) and incident all-cause dementia (the outcome) in adult participants who were free of dementia at baseline. Our primary outcome was incident all-cause dementia among participants who were free of dementia at baseline. However, because only three eligible articles reported incident all-cause dementia explicitly, we broadened the inclusion criteria to also include studies that reported incident dementia defined more broadly, when these outcomes were judged to be conceptually comparable. We defined these secondary outcomes as dementia-related cognitive outcomes, including incident cognitive impairment and longitudinal change of neuropsychological test performance (eg, memory, executive function, processing speed). The comparator group consisted of non-pet owners. We excluded cross-sectional studies, reviews, editorials, case reports, and any studies that did not provide quantitative effect estimates for the association.

Search strategy and selection criteria

A systematic search of multiple electronic databases was performed from their inception to August 6, 2025. The databases included PubMed, Embase, CINAHL, Web of Science, and PsycINFO. The full, database-tailored search terms appear in Supplementary Table S2, available online. All articles were extracted and uploaded to Covidence[12] for screening by reviewers. We also manually searched the reference lists of included articles and relevant reviews to identify any additional studies.

Study selection and data extraction

Two reviewers (FF and KM) independently screened the titles and abstracts of all retrieved citations against the eligibility criteria. The full texts of potentially relevant articles were then retrieved and assessed for final inclusion. Any disagreements between reviewers were resolved through discussion and consensus or, if necessary, by consulting a third reviewer (YY).

The same two reviewers independently extracted data from the included studies using a standardized data collection form. Extracted information included: study design, country, participant characteristics (sample size, age, sex), definition and type of pet ownership, follow-up duration, dementia diagnostic methods, and measures of neuropsychological test performance for dementia-related secondary outcomes, such as memory, executive function, and processing speed, reported effect estimates (hazard ratios [HRs], odds ratios [ORs], or relative risks [RR]) with 95% confidence intervals, and confounders adjusted for in the statistical analysis.

Risk of bias assessment

The methodological quality of each included study was independently assessed by two reviewers (FF and KM) using the Newcastle-Ottawa Scale (NOS). The NOS evaluates the risk of bias in observational studies based on three domains: selection of study groups, comparability of groups, and ascertainment of the outcome or exposure. Discrepancies in the risk of bias assessment were resolved through discussion between FF and KM.

Data synthesis

We initially planned to conduct a meta-analysis to pool the effect estimates from the included studies. However, only three studies reported on our primary outcome, and these studies exhibited significant clinical and methodological heterogeneity in participant populations, exposure definitions, and statistical adjustment models.

Given the limited number of studies and the substantial heterogeneity, we determined that a quantitative pooling of results would be inappropriate and potentially misleading. Therefore, we proceeded with a narrative synthesis of the evidence. The findings from the included studies were tabulated and summarized qualitatively, focusing on their key characteristics, quality, and reported associations between pet ownership and incident dementia. We also synthesized dementia-related secondary outcomes, including incident cognitive impairment and longitudinal changes in neuropsychological test performance.

Results

Study selection and characteristics

The database search of PubMed, Embase, CINAHL, Web of Science, and PsycINFO from inception to August 6, 2025 identified 1,059 unique records after removal of duplicates. After screening titles and abstracts, 1,047 records were excluded. Twelve full texts were assessed for eligibility, and six studies met all inclusion criteria and were included in the review. The most frequent reasons for full text exclusion were cross-sectional design or lack of a dementia-related outcome that met our predefined criteria (eg, no information on incident dementia or other eligible dementia endpoints). A PRISMA flow diagram summarizing the process is provided in Fig. 1.

Risk of bias assessment

Across NOS domains, the selection domain was judged low risk in five studies and high in one; comparability was low in four studies, unclear in one, and high in one; outcome ascertainment was low in three and unclear in three. Translating these judgments to risk-of-bias language, one study showed some concerns for bias due to deviations from the intended exposure/comparability, three studies showed some concerns for bias in outcome measurement, and no studies showed concerns arising from selection of the reported result. Consequently, the overall judgment was "some concerns" for most studies ($n = 4$), with one low-risk study and one high-risk study due to limitations in selection and comparability (Table 1).

Primary outcome

Three cohorts (Taniguchi 2023[13], Sun 2022[14] and Branson 2022[15]) reported our primary outcome (Table 2). Two cohorts suggested a protective association between aspects of pet ownership and incident dementia, while one cohort found no association. In a Japanese community sample of 11,194 older adults, current dog ownership was associated with lower odds of incident dementia than past or never ownership (OR 0.60, 95% Confidence Interval [CI] 0.37-0.97). The association was most evident among current dog owners who reported a regular exercise habit (OR 0.37, 95% CI 0.20-0.68) or who were not socially isolated (OR 0.41, 95% CI 0.23-0.73).[13] In the Chinese Longitudinal Healthy Longevity Survey (CLHLS), frequent raising of domestic animals (versus. never) was associated with a lower subsequent risk of incident dementia after multivariable adjustment (HR 0.79, 95% CI 0.64-0.98).[14] By contrast, in the U.S. Health and Retirement Study (HRS), pet caretaking did not appear to be an independent protective factor against cognitive decline. After propensity-score adjustment, the HR for conversion from normal cognition to mild cognitive impairment (MCI) or dementia (HR 1.07, 95% CI 0.87-1.31) was slightly above 1.0 but not statistically significant, suggesting no clear evidence of benefit and no statistically significant increase in risk.[15]

Secondary outcomes

The remaining three cohorts (Friedmann 2023,[16] Rostekova 2025[17] and Ren 2023[18]) reported secondary outcomes (Table 2, Supplementary Table S3, S4). In the Baltimore Longitudinal Study of Aging (BLSA), pet ownership was associated with slower decline across multiple cognitive domains, including verbal learning and memory and processing speed. Specifically, pet ownership was associated with better California Verbal Learning Test (CVLT) immediate recall ($\beta = 0.264$, $P = 0.001$), short-delay recall ($\beta = 0.051$, $P = 0.018$), and long-delay recall ($\beta = 0.043$, $P = 0.040$), as well as faster processing speed on the Digit Symbol Substitution Test ($\beta = -0.155$, $P = 0.002$) and improved executive function on the Trail-Making Test B ($\beta = -0.012$, $P = 0.001$).[16] Within this cohort, dog owners who walked their dogs demonstrated more favorable trajectories than non-walking dog owners, particularly for set-shifting (Trails B and B-A) and short-delay recall. This suggests that associations may differ depending on whether exposure is defined as dog ownership or dog walking, highlighting heterogeneity in dog-related exposure definitions across studies. In the Survey of Health, Ageing and Retirement in Europe (SHARE), pet ownership was associated with higher verbal fluency scores ($\beta = 0.33$; 95% CI 0.15-0.51; $P = 0.001$) and more favorable memory trajectories, including delayed recall ($\beta = -0.08$; 95% CI -0.13

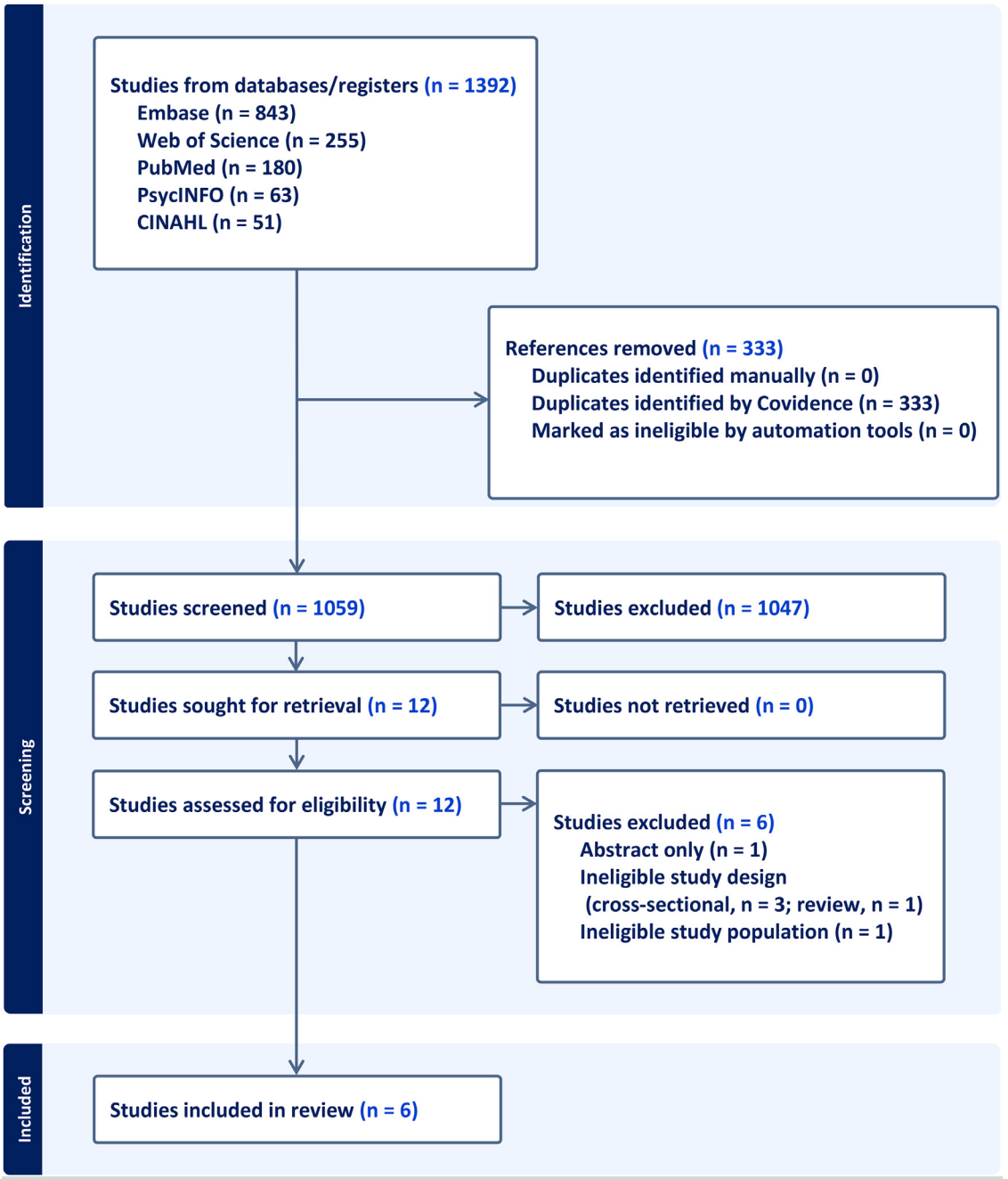

Fig. 1 PRISMA 2020 flow diagram for systematic reviews.

to −0.04; P = 0.001). Species-specific analyses showed beneficial associations for dog and cat ownership, whereas bird ownership was associated with worse verbal fluency (β = −1.35; 95% CI −1.88 to −0.81; P = 0.001) and delayed recall (β = −0.40; 95% CI −0.53 to −0.26; P = 0.001).[17] By contrast, a second analysis of the CLHLS that treated leisure activities as exposures reported that keeping domestic animals or pets was associated with a higher subsequent risk of cognitive impairment defined by Mini-Mental State Examination thresholds (subdistribution

Table 1 Risk of bias for each study.

Author / Year	Ren 2023	Sun 2022	Friedmann 2023	Rostekova 2025	Taniguchi 2023	Branson 2022
Selection	low	low	high	low	low	low
Comparability	low	low	high	low	low	unclear
Outcome	unclear	unclear	low	low	unclear	low

Table 2 Characteristics of each study.

First author, Year, Country	Study Design, Study Period, Participants (n)	Exposure	Outcome	Effect Estimate
Ren, 2023 China	Prospective cohort study, 2014-2018,7107	Pet/ Domestic animal ownership	(a) Cognitive function decline (b) Physical performance limitation (c) ADL disability (d) IADL disability	(a) SHR: 1.279, 95% CI: 1.047-1.562 (b) SHR: 1.090, 95% CI: 0.923-1.286 (c) SHR: 0.619, 95% CI: 0.486-0.788 (d) SHR: 0.916, 95% CI: 0.788-1.066
Sun, 2022 China	Prospective cohort study, 2008-2018,8170	Raising Domestic animals (occasional), Raising Domestic animals (frequent)	Dementia incidence	HR: 0.80, 95% CI: 0.53-1.23 (occasional versus non-owners) HR: 0.79, 95% CI: 0.64-0.98 (frequent versus non-owners)
Friedmann, 2023 United States of America	Prospective cohort study, 2017 - 2020,637	Pet ownership (any type), Dog ownership, Cat ownership	(a) BVRT (b) DSST (c) BNT (d) CVLT immediate recall (e) CVLT short recall (f) CVLT long recall (g) TMT A (h) TMT B (i) TMT B-A (j) Digit Span forward (k) Digit Span backward	(any type pet owners versus non-owners) (a) β: −0.002, SE: 0.032 (b) β: −0.155, SE: 0.050 (c) β: −0.006, SE: 0.001 (d) β: 0.264, SE: 0.071 (e) β: 0.051, SE: 0.021 (f) β: 0.043, SE: 0.021, (g) β: −0.008, SE: 0.002 (h) β: −0.012, SE: 0.003 (i) β: −0.005, SE: 0.003 (j) β: 0.010, SE: 0.009 (k) β: 0.017, SE: 0.010 See Supplementary Table S3 for the full results
Rostekova, 2025 Europe (11 countries)	Prospective cohort study, 2004-2022,16,582	Pet ownership (any type), Dog ownership, Cat ownership, Bird ownership	(a) Verbal fluency (b) Immediate recall (c) Delayed recall	(a) β: 0.33, 95% CI: 0.15—0.51 (b) β: −0.04, 95% CI: −0.08 to − 0.00 (c) β: −0.08, 95% CI: −0.13 to − 0.04 See Supplementary Table S4 for the full results
Taniguchi, 2023 Japan	Prospective cohort study, 2016 - 2020,11,194	Dog ownership, Cat ownership	Dementia incidence	OR: 0.60, 95% CI: 0.37-0.97 (dog versus non-owners) OR: 0.98, 95% CI: 0.62-1.55 (cat versus non-owners)
Branson, 2022 United States of America	Prospective cohort study, 2004-2018,2251	Pet caretaking (responsible for pet care, not only ownership)	(a) Dementia incidence (b) MCI incidence	(a) HR: 1.529, 95% CI: 0.575-4.069 (b) HR: 1.069, 95% CI: 0.870-1.314

ADL = activities of daily living; BNT = Boston Naming Test; BVRT = Benton Visual Retention Test; β = regression coefficient; CI = confidence interval; CVLT = California Verbal Learning Test; DSST = digit symbol substitution test; HR = hazard ratio; IADL = instrumental activities of daily living; MCI = mild cognitive impairment; OR = odds ratio; SE = standard error; SHR = subdistribution hazard ratio; TMT = Trail Making Test.

hazard ratio [SHR] 1.279, 95% CI 1.047−1.562), while other socially engaging activities were protective. The authors suggested that heterogeneity in species, environmental context, and exposure measurement may explain these divergent findings.[18]

Discussion

In this systematic review, we synthesized the longitudinal evidence on pet ownership and cognitive health. We found that the limited evidence for our primary outcome, incident dementia, was mixed; two studies suggested a protective association, particularly for dog owners, while one found no significant association. For dementia-related secondary outcomes, two of the three included cohorts (BLSA and SHARE) reported that pet ownership, especially contact with dogs and behaviors like dog walking, was associated with slower age-related cognitive decline across domains like memory and executive function, while the analysis of CLHLS reported a higher risk of cognitive impairment when "domestic animals/pets" were grouped together.

Taken together, three themes help reconcile the divergent findings. First, dog-related pet owner behaviors may matter more than ownership alone: studies that observed dog walking find clearer cognitive advantages. In BLSA, dog walking tracked with more favorable trajectories for set-shifting (Trails B and B-A) and short-delay recall. In comparison, improvements in processing speed (Digit Symbol) were seen for dog owners overall, rather than being limited to owners who walked their dogs.[16] Second, benefits are most plausible when pet keeping coexists with social connection and leisure activities, but evidence is mixed. In a large Chinese cohort, pet keeping was linked to lower activities of daily living yet a higher risk of cognitive impairment, while socially/cognitively engaging leisure (eg, playing mahjong) and social participation were protective, underscoring that engagement and activity sit near the center of cognitive health.[18] Third, baseline health shapes who keeps pets and how outcomes relate to pet keeping. In the HRS cohort, pet caretakers had higher odds of diabetes and of ever smoking, and there was no difference in incident MCI or dementia, profiles that could offset modest benefits of animal contact.[15]

Mechanisms that link cognitive function and pet ownership plausibly span biological, psychological, and social domains. Experimental and observational work summarized in the BLSA suggests that the presence of animals can reduce stress responses, which may protect hippocampal function involved in memory and executive control.[16] Daily care provides structure and purpose, and for dog owners routine walks can promote incidental activity and neighborhood contact that strengthen cognitive reserve.[16] Related arguments appear in the broader aging literature where social participation and physical activity correlate with slower cognitive decline and lower dementia risk; pet keeping may be one pathway through which older adults achieve these upstream behaviors.[15]

These studies also highlight important sources of heterogeneity. Inconsistent terminology further complicates comparisons, as labels such as "pets," "companion animals," and "domestic animals" are not used consistently across studies and may carry different meanings across international and cultural contexts. For example, "Raising domestic animals" in Chinese cohorts likely includes livestock or yard animals in rural settings along with companion dogs and cats in urban areas, which introduces environmental exposures and caregiving demands that differ from companion animal contexts studied in Europe and the United States. Measurement strategies vary as well, from global status of ownership to species-specific ownership and to activity-based measures such as walking. Finally, several cohorts rely on self-report for exposure and outcome, which invites misclassification and residual confounding.[14]

Results of our systematic review have several clinical practice, policy, and research implications in improving cognitive health of older adults. When older adults enjoy pets and can safely meet the responsibilities of care, encouraging routines that include outdoor walking and socially engaged activities may support cognitive health. Built environments that facilitate safe walking with dogs and programs that help older adults care for pets during temporary illness may enhance these benefits.[16] At the same time, clinicians should consider comorbidities such as diabetes and smoking history when interpreting the likely balance of risks and benefits for a given person. From a research perspective, this review highlights persistent gaps in exposure measurement and causal inference, including inconsistent definitions that sometimes conflate companion pets with non-companion domestic animals and limited attention to the intensity and context of human-animal contact. Researchers should continue to separate species, intensity of contact, and activity patterns in future longitudinal work, as closing these gaps is likely to strengthen the evidence base needed to better tailor interventions and supportive services to older adults' care needs.[15]

This review has several important limitations. First, we were not able to conduct a meta-analysis because the number of eligible longitudinal studies was small and the exposures and outcomes were not comparable across studies. Second, the overall risk of bias across the included studies is likely high. Confounding by indication and health selection are concerns because pet owners differ from non-owners in health status, physical activity, social connectivity, and socioeconomic position. Third, measurement bias also limits inference. Several studies relied on self-report to classify exposure ascertainment.[14,16] In at least one study, dementia ascertainment was also based on self-reported items.[14]Fourth, reverse causation cannot be excluded, as the direction of effect could be influenced if early cognitive changes alter the ability to own or care for a dog.[13] Although reconstructed pet ownership histories and changes in ownership status reduce these concerns,[16] they do not eliminate the possibility that early cognitive decline influences pet ownership rather than the reverse.[13,16] Fifth,

generalizability is limited, and cultural contexts vary across cohorts and may influence both patterns of pet ownership and the pet-related behaviors that could affect cognitive outcomes. Notably, two of the cohorts were conducted in Japan and China, where norms regarding the role of animals, household structure and caregiving expectations, and opportunities or expectations for dog walking may influence who owns pets and what "pet ownership" entails. Given the small number of available studies, these culture-related explanations remain speculative. Finally, because a meta-analysis was not feasible, we could not formally assess small study effects or publication bias with funnel plots or regression tests, leaving the narrative synthesis vulnerable to the selective availability of positive or null findings.

Conclusion

The type of pets and related behaviors may be more critical than ownership alone for preserved cognitive function. Current evidence, though heterogeneous, suggests that while pet ownership, particularly contact with dogs and dog walking, may be associated with healthier cognitive aging, non-companion animal exposure may not confer the same benefit. For clinicians, promoting pet ownership for dementia prevention is premature based on this evidence. Future studies should separate species and behaviors and account for competing risks to clarify when and for whom pet ownership supports healthy cognitive aging.

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Declaration of competing interest

The authors (Kota Minami, Fumitoshi Fukuzawa, Takaaki Kobayashi, Daniel Delmonaco, Alexandre R. Marra, Fred Ko, Yuji Yamada) declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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SUPPLEMENTARY DATA

Supplementary data to this article can be found online at https://doi.org/10.1016/j.amjmed.2026.03.008.

Supplementary Table S1 Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Page #1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page #1-2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Page #3
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Page #4
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Page #4
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Page #5
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Page #28-37
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Page #5
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Page #5
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Page #4
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Page #5
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Page #5
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Page #5
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Page #5-6
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Page #5-6
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Page #6
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Page #6
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Page #6
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	NA

Supplementary Table S1 (*Continued*)

Section and Topic	Item #	Checklist item	Location where item is reported
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	NA
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	NA
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Page #6
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Page #6
Study characteristics	17	Cite each included study and present its characteristics.	Page #15-17
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Page #6-7
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Page #7-8
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Page #6-7
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	NA
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	NA
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	NA
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	NA
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	NA
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Page #8-10
	23b	Discuss any limitations of the evidence included in the review.	Page #11
	23c	Discuss any limitations of the review processes used.	Page #11
	23d	Discuss implications of the results for practice, policy, and future research.	Page #11
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Page #4
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Page #4
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Page #4
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Page #1
Competing interests	26	Declare any competing interests of review authors.	Page #1
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	NA

Supplementary Table S2 Search term for each database

Database name	PubMed	Embase	Web of Science	PsycINFO	CINAHL
Date run	8/6/25	8/6/25	8/6/25	8/6/25	8/6/25
Number of results	178	837	256	63	51
Search term	(("Animals, Domestic"[MeSH] OR "Pets"[MeSH] OR "cats"[MeSH] OR "dogs"[MeSH] OR "domestic animals"[All Fields] OR "pets"[All Fields] OR "cats"[All Fields] OR "dogs"[All Fields]) AND ("Dementia"[MeSH] OR "Alzheimer Disease"[MeSH] OR "cognitive dysfunction"[MeSH] OR "dementia"[All Fields] OR "alzheimer*"[All Fields] OR "cognitive disorder"[All Fields] OR "cognitive decline"[All Fields] OR "cognitive function"[All Fields]) AND ("Epidemiologic Studies"[MeSH] OR "case-control"[Title/Abstract] OR ("case"[Title/Abstract] AND "control"[Title/Abstract]) OR "cohort"[Title/Abstract] OR "cohort analysis"[Title/Abstract] OR "follow-up study"[Title/Abstract] OR "observational study"[Title/Abstract] OR "longitudinal"[Title/Abstract] OR "retrospective"[Title/Abstract] OR "cross-sectional"[Title/Abstract] OR "questionnaire"[Title/Abstract] OR "survey"[Title/Abstract]))	(exp domestic animal/ OR exp cat/ OR exp dog/ OR "domestic animal*".ti,ab. OR cat.ti,ab. OR cats.ti,ab. OR dog.ti,ab. OR dogs.ti,ab.) AND (exp dementia/ OR exp alzheimer disease/ OR exp cognitive defect/ OR dementia*.ti,ab. OR alzheimer*.ti,ab. OR "cognitive decline".ti,ab. OR "cognitive dysfunction".ti,ab. OR "cognitive disorder*".ti,ab.) AND (exp epidemiology/ OR exp observational study/ OR exp case control study/ OR exp cohort analysis/ OR exp longitudinal study/ OR exp retrospective study/ OR exp cross-sectional study/ OR exp questionnaire/ OR "epidemiologic study".ti,ab. OR "observational study".ti,ab. OR "case control".ti,ab. OR cohort.ti,ab. OR "cohort study".ti,ab. OR "longitudinal study".ti,ab. OR "retrospective study".ti,ab. OR "cross sectional".ti,ab. OR questionnaire.ti,ab. OR survey.ti,ab. OR "follow up".ti,ab.)	("domestic animal*" OR "cat" OR "cats" OR "dog" OR "dogs") AND ("dementia*" OR "alzheimer*" OR "cognitive decline" OR "cognitive dysfunction" OR "cognitive disorder*") AND ("epidemiologic study" OR "observational study" OR "case control" OR cohort OR "cohort study" OR "longitudinal study" OR "retrospective study" OR "cross sectional" OR questionnaire OR survey OR "follow up")	(cat.ti,ab. OR cats.ti,ab. OR dog.ti,ab. OR dogs.ti,ab. OR "domestic animal*".ti,ab.) AND (exp dementia/ OR exp alzheimer's disease/ OR exp cognitive impairment/ OR dementia*.ti,ab. OR alzheimer*.ti,ab. OR "cognitive decline".ti,ab. OR "cognitive dysfunction".ti,ab. OR "cognitive disorder*".ti,ab.) AND (exp epidemiology/ OR exp longitudinal studies/ OR exp retrospective studies/ OR exp questionnaires/ OR exp surveys/ OR "epidemiologic study".ti,ab. OR "observational study".ti,ab. OR "case control".ti,ab. OR cohort.ti,ab. OR "cohort study".ti,ab. OR "longitudinal study".ti,ab. OR "retrospective study".ti,ab. OR "cross sectional".ti,ab. OR questionnaire.ti,ab. OR survey.ti,ab. OR "follow up".ti,ab.)	(MH "Animals, Domestic+") OR (MH "Cats+") OR (MH "Dogs+") OR XB ("domestic animal*" OR cat OR cats OR dog OR dogs) AND (MH "Dementia+") OR (MH "Alzheimer's Disease+") OR (MH "Cognitive Impairment+") OR XB (dementia* OR alzheimer* OR "cognitive decline" OR "cognitive dysfunction" OR "cognitive disorder*") AND (MH "Epidemiologic Research+") OR (MH "Observational Studies+") OR (MH "Case Control Studies+") OR (MH "Cohort Studies+") OR (MH "Longitudinal Studies+") OR (MH "Retrospective Studies+") OR (MH "Cross Sectional Studies+") OR (MH "Surveys+") OR (MH "Questionnaires+") OR XB ("epidemiologic study" OR "observational study" OR "case control" OR cohort OR "cohort study" OR "longitudinal study" OR "retrospective study" OR "cross sectional" OR questionnaire OR survey OR "follow up")

Supplementary Table S3 Characteristics of Friedmann 2023

BVRT			
	Effect estimate (OR / HR / SHR / RR)	SE	p-value
Pet ownership (any type)	-0.002	0.032	0.382
Dog ownership	0.098	0.047	0.035
Cat ownership	-0.058	0.045	0.199
DSST			
	Effect estimate (OR / HR / SHR / RR)	SE	p-value
Pet ownership (any type)	-0.155	0.05	0.002
Dog ownership	-0.172	0.073	0.018
Cat ownership	-0.082	0.07	0.243
BNT			
	Effect estimate (OR / HR / SHR / RR)	SE	p-value
Pet ownership (any type)	-0.006	0.001	0.001
Dog ownership	-0.005	0.002	0.024
Cat ownership	-0.005	0.002	0.016
CVLT Immediate recall			
	Effect estimate (OR / HR / SHR / RR)	SE	p-value
Pet ownership (any type)	0.264	0.071	0.001
Dog ownership	0.239	0.102	0.019
Cat ownership	0.231	0.099	0.021
CVLT short recall			
	Effect estimate (OR / HR / SHR / RR)	SE	p-value
Pet ownership (any type)	0.051	0.021	0.018
Dog ownership	0.06	0.031	0.049
Cat ownership	0.061	0.03	0.042
CVLT long recall			
	Effect estimate (OR / HR / SHR / RR)	SE	p-value
Pet ownership (any type)	0.043	0.021	0.04
Dog ownership	0.043	0.03	0.151
Cat ownership	0.071	0.029	0.014
TMT A			
	Effect estimate (OR / HR / SHR / RR)	SE	p-value
Pet ownership (any type)	-0.008	0.002	0.001
Dog ownership	-0.007	0.003	0.025
Cat ownership	-0.004	0.003	0.185
TMT B			
	Effect estimate (OR / HR / SHR / RR)	SE	p-value
Pet ownership (any type)	-0.012	0.003	0.001
Dog ownership	-0.01	0.004	0.009
Cat ownership	-0.005	0.004	0.155
TMT B-A			
	SE	Effect estimate (OR / HR / SHR / RR)	p-value
Pet ownership (any type)	0.003	-0.005	0.042
Dog ownership	0.004	-0.007	0.072
Cat ownership	0.004	-0.001	0.763
Digit Span forward			
	Effect estimate (OR / HR / SHR / RR)	SE	p-value
Pet ownership (any type)	0.01	0.009	0.269
Dog ownership	-0.002	0.013	0.871
Cat ownership	0.002	0.013	0.878
Digit Span backward			
	Effect estimate (OR / HR / SHR / RR)	SE	p-value
Pet ownership (any type)	0.017	0.01	0.072
Dog ownership	0.018	0.014	0.178
Cat ownership	-0.01	0.013	0.466

Abbreviations: RR, relative risk

Supplementary Table S4 Characteristics of Rostekova 2025

Verbal fluency score			
	β	95% CI	p-value
Pet ownership (any type)	0.33	0.15-0.51	0.001
Dog ownership	NA	NA	NA
Cat ownership	1.02	0.74-1.31	0.001
Bird ownership	− 1.35	− 1.88 to − 0.81	0.001
Immediate recall score			
	β	95% CI	p-value
Pet ownership (any type)	− 0.04	− 0.08 to − 0.00	0.035
Dog ownership	− 0.06	− 0.12 to − 0.01	0.03
Cat ownership	NA	NA	NA
Bird ownership	− 0.32	− 0.43 to − 0.20	0.001
Delayed recall score			
	β	95% CI	p-value
Pet ownership (any type)	− 0.08	− 0.13 to − 0.04	0.001
Dog ownership	− 0.13	− 0.20 to − 0.06	0.001
Cat ownership	0.09	0.01 - 0.16	0.019
Bird ownership	− 0.40	− 0.53 to − 0.26	0.001