

Technology and the Cognitive Health of Older Adults – A Meta-Analysis.

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Background

Population aging and age-related cognitive declines present unprecedented challenges for the United States and the world. Social, cognitive, and activity engagement has the potential to protect against cognitive declines in middle-aged and older adults. Information communication technologies (ICT) can provide opportunities for all those engagements. Numerous cross-sectional and longitudinal studies suggest that ICT use in late adulthood is associated with cognitive benefits, while experimental studies providing ICTs and ICT trainings to older non-users showed mixed results. The current study aims to: (1) quantify the associations between ICT use and baseline cognition in cross-sectional and longitudinal studies, (2) quantify the protective effects of ICT use on cognitive changes in longitudinal studies, and (3) examine whether introducing ICTs to older non-users has cognitive benefits.

Methods

The present meta-analysis explores the relationship between ICTs, and the cognitive abilities of healthy middle-aged and older adults. An algorithm featuring key terms was utilized to recruit relevant studies through scientific databases (APAPsych Info, PUBMED, Web of

Science). The Algorithm used is listed below:

(computer* OR internet OR online OR tablet* OR "mobile device*" OR smartphone* OR "information and communication technolog*" OR "information and communications technolog*" OR "digital technolog*" OR "digital device*" OR "digital inclusion" OR "social media" OR "social network site*" OR "social networking site*" OR "social network service*" OR "social networking service*" OR "social technolog*") AND (cognit* OR memory OR speed OR "executive function*" OR reasoning OR "fluid intelligence" OR "fluid abilit*" OR "cognitive function*") AND ("older adult*" OR "older people" OR "older person*" OR "older men" OR "older women" OR elderly OR "old age" OR senior* OR "late adulthood" OR "older adulthood" OR "middle adulthood" OR "middle?age*")
In title & abstract.

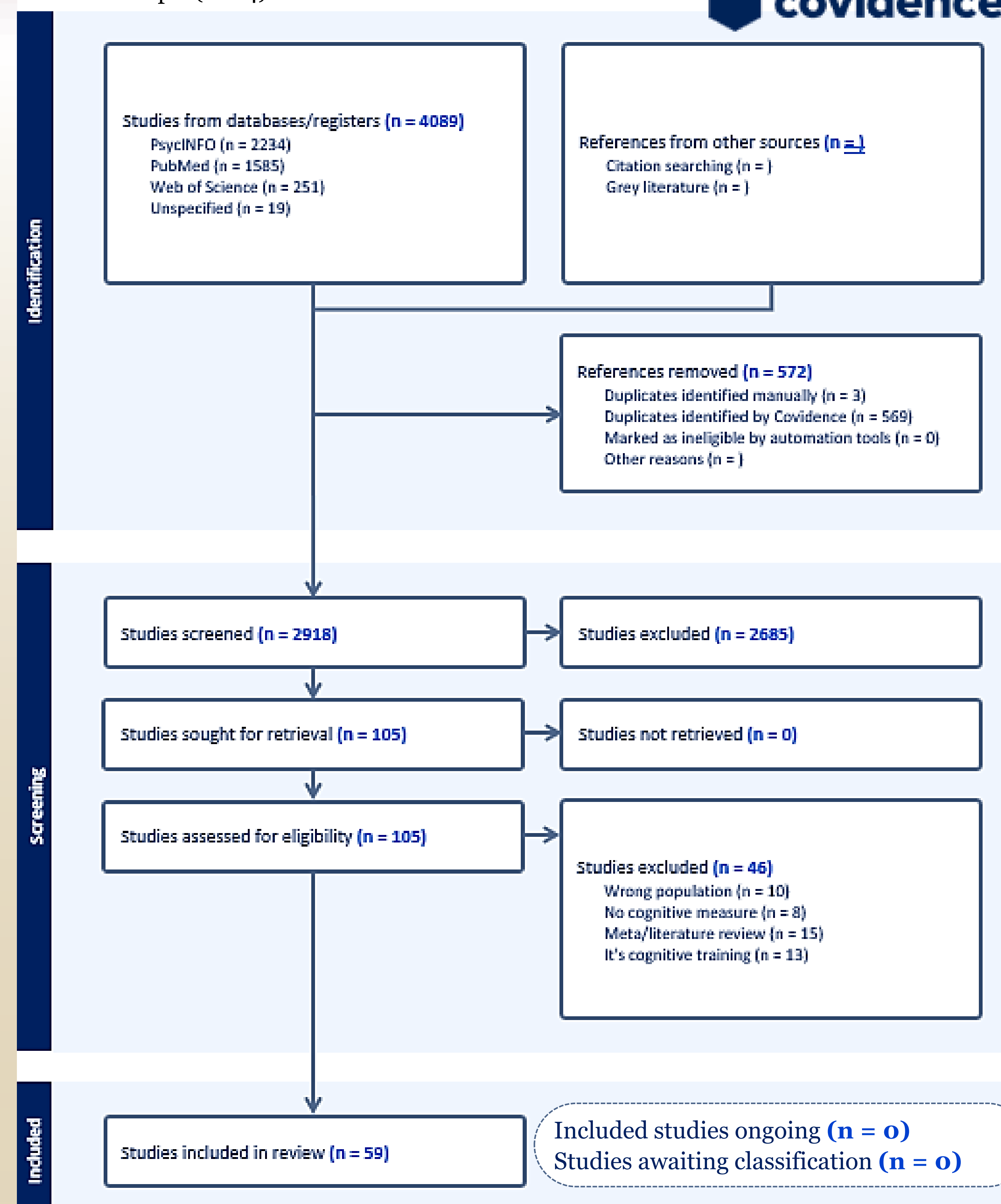
Over 3000+ results were screened for relevance of population and content.

Methods

Our inclusion criteria was studies examining the impact of internet/social media/information communications technology use on cognitive abilities in middle-aged and older adults, and vice-versa. Our exclusion criteria was younger, and/or cognitively impaired populations, cognitive training studies, qualitative studies, and secondary sources such as literature reviews and meta-analysis's.

Results

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Flow Graph. Generated by Covidence, depicting process of identification, screening, eligibility and inclusion steps. (2024).



What we are looking for

We examined applicable studies for quantitative associations of ICT utilization and present cognitive abilities in relevant populations. We examined for potential protective effects on cognitive abilities, as well as any measured impacts on cognitive abilities with introduction to ICTs to novice users.

Future Directions

- ❖ Examine the association between technology use and subjective cognition / perceived cognitive declines.
- ❖ Examine if the association between technology use and cognition is different for normally aging older adults and older adults with cognitive impairments.
- ❖ Examine the influence of technology use on psychosocial outcomes (e.g., loneliness, perceived social support).

Sources

Covidence systematic review software, Veritas Health Innovation, Melbourne, Australia. Available at www.covidence.org. (2024).