

The effect and utility of exercise in the mental health of individuals with advanced cancer: a systematic scoping review

Sarah Zhang¹, Daniel Hilbers¹, Alan T. Bates^{1,2}, Raymond W. Lam¹, John-Jose Nunez^{1,2}

¹ Department of Psychiatry, UBC; ² BC Cancer Agency

Background

There is increasing evidence that exercise may have positive effects on mental health in people with cancer. However, this trend is drawn from research primarily conducted in people in early stages of cancer or in remission, rather than in advanced cancer.

As advanced cancer is associated with a higher symptom burden, it is unclear whether exercise has clinical utility in this subgroup, as it may have different therapeutic effects and barriers. As such, we completed a systematic scoping review to map the nature and extent of what is known about the effect and utility of exercise in the mental health of individuals with advanced cancer.

Methods

- Scoping review conducted following PRISMA guidelines, using Covidence for systematic review management Protocol pre-registered on Open Science Framework
- Search strategy created based on eligibility criteria (key elements shown below) – see OSF protocol for full details

Population	Individuals with advanced cancer (including perspectives from clinicians and caregivers) <ul style="list-style-type: none"> • Advanced cancer = stage III or IV, metastatic, end-stage/late-stage, palliative
Concept	Effect and utility of exercise on mental health Including multimodal interventions involving exercise
Context	Primary peer-reviewed qualitative and quantitative research Publication date: from inception to April 4, 2024

- Medline, EMBASE, PsycINFO, CINAHL databases searched
- 2 reviewers independently screened citations; conflicts resolved by consensus or third reviewer
- Data extracted and tabulated in a chart for quantitative and thematic analysis

Results

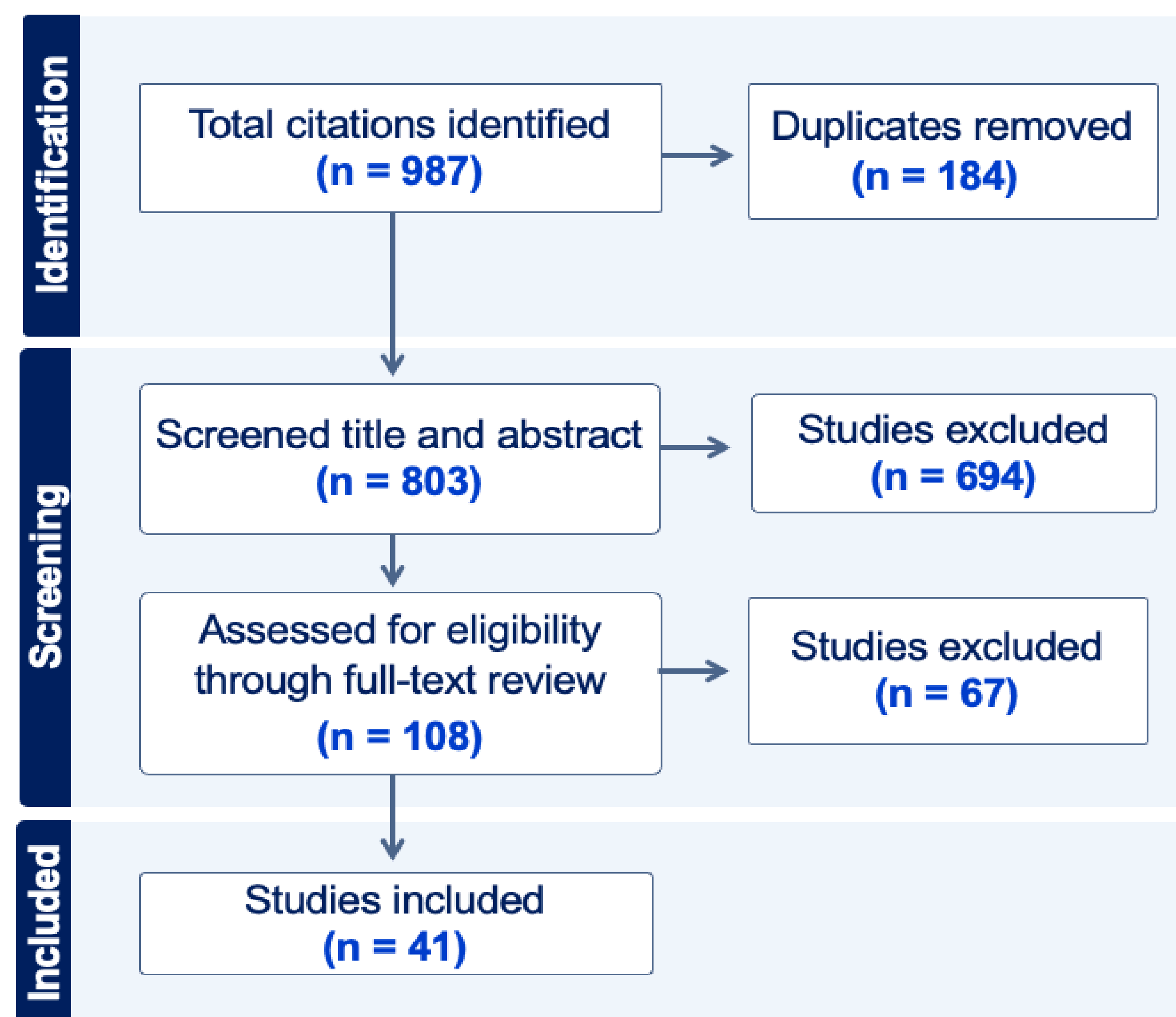


Fig 1. Flow diagram of selection of studies in review

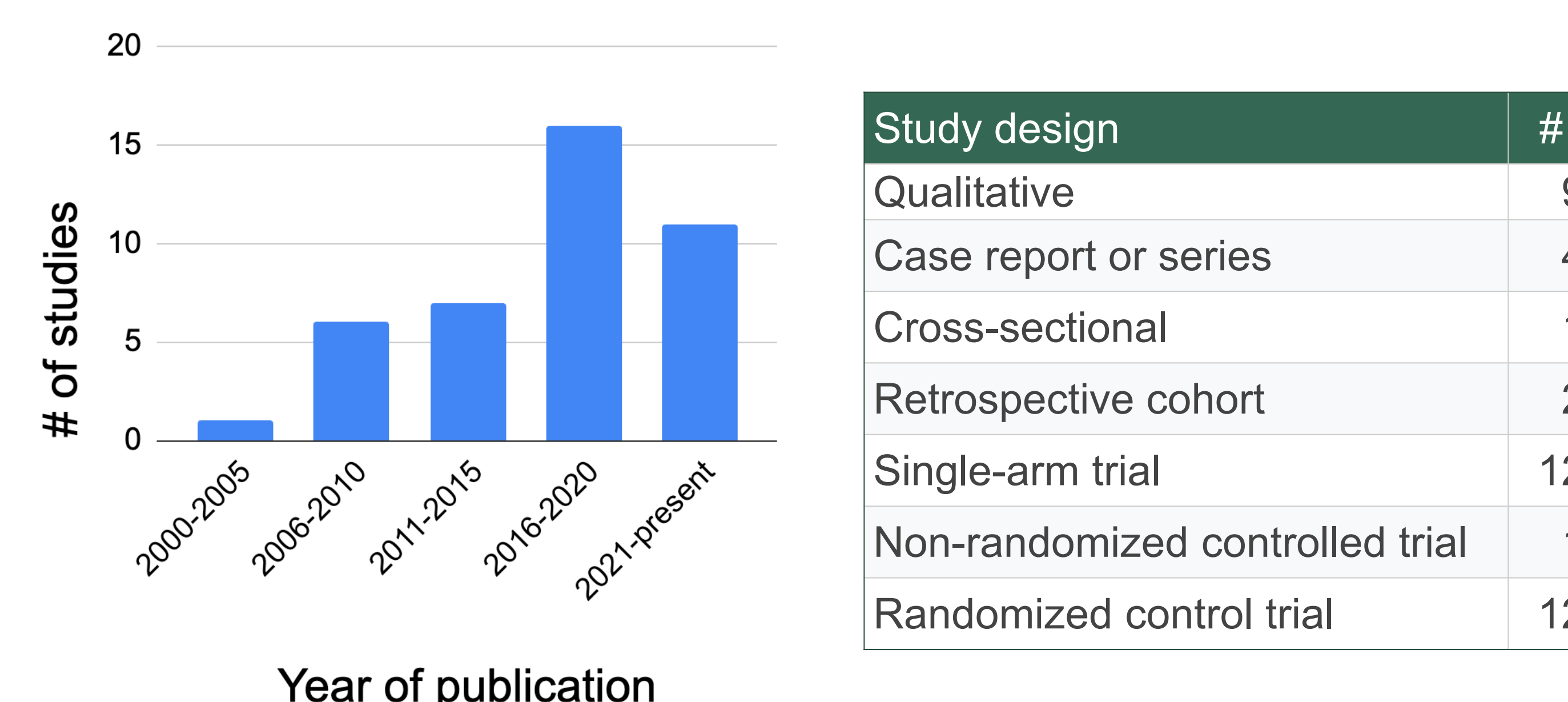


Fig 2. Characteristics of studies

- Study populations varied in definition of advanced cancer, cancer type, treatment status, presence of metastases and psychiatric comorbidities
- Nature of exercise studied included: aerobic, resistance, mobility, mind-body, part of multimodal intervention, supervised/ unsupervised, group/individual
- Most common mental health outcome reported was psychological quality of life, followed by depression and anxiety (by self-reported rating scales)

- Most studies were small in size (70% had n <50) and did not have a control group (68%)
- There were mixed findings on the effect of exercise on mental health, with a generally positive effect seen in 58% of the studies, with the remainder having a neutral or inconclusive effect

Discussion

- Significant heterogeneity in methodology including in study populations, nature of exercise studied, mental health outcomes and related measures used
- Therapeutic effects of exercise on mental health observed in studies across various cancer types/clinical features and types of exercise, including on overall psychological wellbeing, mood and anxiety
- While minimal adverse effects of exercise were reported, lack of energy and poor physical status often described as barriers to exercise
- There were limited RCTs and other high-quality experimental studies; many of the experimental studies included exercise as part of a multimodal intervention so significant confounding exists
- Trend of increasing research on this subject over recent years

Conclusion

- Exercise may be beneficial for mental health of individuals with advanced cancer based on preliminary data with minimal adverse effects
- There is inherent difficulty in conducting research in this population as poor physical health and high risk of decline poses challenges with both participant recruitment and retention
- Further research of rigorous methodology is required to determine best practices for clinical practice

Acknowledgements

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