Title:
Can gait measures predict falls in older adults with dementia? A report of a secondary systematic review and meta-analysis

Authors (last name, initials, highest degree, one primary affiliation)
Chan, Wayne L. S., PhD, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University
Pin, Tamis W, PhD, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University
Chan, Jason Y. H., BSc, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University
Siu, George C. H., BSc, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University

Background and purpose:
Falls are very common in older adults with dementia (OWD). Gait performance has been shown to be associated with falls in OWD. Gait measures that can predict falls in this population are yet to be investigated. The purpose of this systematic review was to determine whether gait measures can predict falls in OWD.

Methods:
This is a secondary analysis of a systematic review and meta-analysis. MEDLINE, Embase, PsycINFO, CINAHL, SPORTDiscus, Cochrane Library, and PEDro databases were searched from inception until 27 January 2023 (PROSPERO registration number: CRD42022303670). Retrospective or prospective studies that evaluated the associations between the physical performance measures and falls in OWD were included. The standardized mean difference (SMD) with 95% confidence interval (CI) in each physical performance measure between fallers and non-fallers was calculated.

Results:
Twenty-five studies were included. Dual-task gait speed (SMD = -0.45; [-0.85, -0.05]), dual-task cadence (SMD = -0.41; [-0.81, -0.01]), base of support variability (SMD = 0.25; [0.01, 0.49]), and backward gait speed (SMD = -0.46; [-0.89, -0.04]) could predict falls in OWD. Subgroup analyses showed that gait speed (SMD = -0.21; [-0.38, -0.05]) could identify fallers in those who were staying in residential care facilities or hospitals.

Conclusion:
Gait speed and cadence during dual task, base of support variability, and backward gait speed can be used to predict falls in OWD. Gait speed can be used to predict falls in institutionalized OWD.

Presenting author only:
Name: Dr. Wayne Chan
Mailing address: ST505, Ng Wing Hong Building, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University
Email address: wayne.ls.chan@polyu.edu.hk

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