

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: <http://www.elsevier.com/locate/poamed>

Review Article

Can gait speed test be used as a falls risk screening tool in community dwelling older adults? A review



Zunaidah Abu Samah^{a,b}, Nor Azlin Mohd Nordin^a, Suzana Shahar^c,
Devinder Kaur Ajit Singh^{a,*}

^a Physiotherapy Programme, School of Rehabilitation Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Malaysia

^b Department of Medical Rehabilitation Services, Universiti Kebangsaan Malaysia Medical Center, Malaysia

^c Nutrition and Dietetics Programme, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Malaysia

ARTICLE INFO

Article history:

Received 16 August 2014

Received in revised form

18 February 2015

Accepted 27 April 2015

Available online 7 July 2015

Keywords:

Gait speed

Falls risk screening tools

Community dwelling older adults

ABSTRACT

Introduction: Gait speed is a simple and easy to perform outcome measure that does not require expensive equipment or complex instructions. However, whether gait speed test can be used as a falls risk screening tool among community dwelling older adults is still unclear. **Aim:** The objective of this review was to summarize the evidence on gait speed as a falls risk screening tool among community dwelling older adults.

Material and methods: Articles were searched from two electronic databases, reference lists of studies and reviewed articles. Five articles met the criteria for review.

Results and discussion: Based on the review performed, it was concluded that there is no consensus whether gait speed can be used to identify fallers and non-fallers among community dwelling older adults. The discrimination and predictive validity of gait speed as a tool to identify the risk of falls is not available. However, risk of falls have been categorized into four categories based on gait speed. The categories were <0.6 m/s as slow, 0.6–1.0 m/s as intermediate, 1.0–1.3 m/s as normal performance walker and >1.3 m/s as fast performance walker. Majority of authors have reported high risk of falls among groups with gait speed that ranged 0.6–1.0 m/s. This suggests that decreased gait speed among older adults would likely increase the probability of falls risk.

Conclusions: The discrimination and predictive validity of gait speed test as a tool to identify the risk of falls among community dwelling older adults is yet to be established.

© 2015 Warmińsko-Mazurska Izba Lekarska w Olsztynie. Published by Elsevier Sp. z o.o.

All rights reserved.

* Correspondence to: Physiotherapy Program, School of Rehabilitation Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, Kuala Lumpur 50300, Malaysia. Tel.: +60 1 2546 6442.

E-mail address: devinderkas@gmail.com (D.K.A. Singh).

1. Introduction

Falls among older adults can be considered synonymous with co-morbidity, disability and dependency. Global statistics showed that fall-induced injuries were the fifth leading cause of mortality among older adults.^{1,2} Approximately 30%–60% older adults fall each year.³ In a developed country such as United States of America, more than 15 400 deaths were caused by falls.⁴ The percentage of older adults who experience falls annually varies as 19%–28%, depending on the settings.^{5,6} Malaysia as a nation that is aging has approximately 47% and 33% of its older adults having history of falls in the past year assessed at primary and inpatient care settings respectively.^{7,8} In a recent study, it was demonstrated that approximately 98% of older adults living in residential institutions had a significant high marked risk of falls.⁹

The best predictors of risk of falls are a history of previous falls and walking abnormalities.¹⁰ Walking is an important form of locomotion in activities of daily living and the characteristics of walking are referred to as gait. The recommended longest distance and safest walking velocities during road crossings in healthy adults are 480 m and 30.0–82.5 m/min, respectively.¹¹ However, these parameters depend on age and other related factors. Normal gait speed was found to be influenced by body weight, height, gender and non-dominant hip abduction strength.¹² Gait, balance ability and falls avoidance involve integration of similar systems that include neuromusculoskeletal, visual and vestibular systems.¹³ Thus, gait speed may be a useful tool to screen for risk of falls.

Gait speed test is a reliable, simple and easy to perform outcome measure that does not require expensive equipment or complex instructions. Gait speed test has been used in measuring survival,^{14–16} estimating risk of hospitalization^{17,18} and morbidity levels.^{19,20} The reference values of gait speed is 0.4–1.3 m/s depending on the population and settings where the test was conducted.^{15,17,18,21}

Gait speed has also been tested in relation to falls among older adults in residential homes.²² In this population, gait speeds for those with no history, history and recurrent falls were documented as 0.75 m/s, 0.73 m/s and 0.59 m/s, respectively. Gait speed was reported to have both sensitivity and specificity of above 70% to predict falls among frail older men when using a cut-off value of 0.56 m/s.²³ It is conjectured that speed partly provides stability during movements and acts as a compensatory mechanism for the maintenance of upper body dynamic stability in the prevention of falls.²⁴

There is no published information regarding gait speed in relation to risk of falls among community dwelling older adults. A screening tool should be simple, easy to deliver and have the ability to detect future disability or incidence such as falls, institutionalization and cognitive decline.²⁵ These screening should be performed at a prevention phase in order to provide early intervention.^{26,27} To answer whether gait speed test can be used as a risk of falls screening tool in community dwelling older adults, a review of the literature was performed.

2. Aim

The objective of this review was to summarize the evidence on gait speed as a falls risk screening tool among community dwelling older adults.

3. Material and methods

The reference to an older adult varies, but in most developed countries it is accepted as a person aged 65 years and older.²⁸ To put this into perspective, older adults in this article refer to adults aged 60 years and older in reference to the Malaysian context. The term “community dwelling” describes a population who lives in community housing areas with common facilities.

3.1. Literature search strategy

Two major electronic databases (Medline and CINAHL) were accessed and articles published from 2003 to 2013 were researched. Key search terms used included “gait speed,” “walking speed,” “usual gait speed,” “falls” and “older adults.” Search was limited to English language articles.

3.2. Selection of articles

Articles researched were based on specified pre-determined criteria that included prospective study in gait speed as a measurement tool in screening risk of falls among community dwelling older adults. The study population comprised of adults 60 years of age and above.

3.3. Search results

In total, 175 articles were researched through the two search engines. After excluding non-academic journals (6) and age limitation factors (94), 75 potential articles were identified based on key search terms. Further 70 articles were excluded from the study. Reasons for exclusion included duplicated articles (10), studies not related to falls (57) and incomplete information on gait speed assessment (3). A total of 5 articles were included in the present review.^{5,21,29–31} The overall articles researched and selected to be included in this review are as depicted in Fig. 1.

4. Results

4.1. Study design

All five studies included for the review were longitudinal studies with duration of follow-up from 12 to 24 months. Four studies were conducted in community settings and one study in the laboratory (Table 1).

A minimum of 140 and a maximum of 1 517 participants from community dwelling older adults were involved in reviewed studies.^{5,31} About 60% of the reviewed studies

Download English Version:

<https://daneshyari.com/en/article/2678605>

Download Persian Version:

<https://daneshyari.com/article/2678605>

[Daneshyari.com](https://daneshyari.com)