



Service Priorities and Programmes
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Physiological profile assessment for fall risks in Hong Kong Chinese community-dwelling older adults

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Introduction

Fall is one of the important public health issues in Hong Kong elderly population. Recognizing the older adults with higher risk of fall and providing them an appropriate intervention is essential. A fall-risk assessment tool – Physiological Profile Assessment (PPA) has been developed and validated. Individual's performance can be compared to a normative database compiled from large-scale Caucasian studies. However, such comparison might not be appropriate because of the ethnical differences in the PPA (Kwan et al. 2013). Hence, developing a normative database of PPA for our population is essential.

Objectives

To establish the normative database of physiological profiles for Hong Kong Chinese community-dwelling older adults.

Methodology

634 community-dwelling elderly aged 60 to 95 were recruited from community-dwelling centers using convenience sampling (75.3 +/- 7.1 years). Demographic information and history of fall were collected. Fallers were classified as those who fell at least once in the past 3 months. Physiological profile for each subject was evaluated by the "short-form of PPA" which included assessment of edge contrast sensitivity, proprioception, knee extension strength, hand reaction time, and body sway area on foam surface with eyes open. Participants were ascertained with monthly fall diaries and follow-up telephone calls for a minimum of 10 months to monitor the incidence of fall.

Result

602 participants (95%) who had completed the falls follow-up data were included in the analysis. Average edge contrast sensitivity, proprioception, knee extension strength and hand reaction time were 18.9+/-3.2 dB, 1.9+/-1.58 degree, 26.7+/-13.3

kg and 344.2 \pm 150.6 ms respectively. Body sway area on foam surface with eyes open was 1444.5 \pm 1577 mm². Our results showed a relatively low incidence of falls, in which 75 (12.5%) and 18 (5.4%) subjects reported one or two or more falls respectively. A fall risk score - a single index score derived from discriminant function analysis of the weighed scores of independent 5 functional measures could be computed. Standardized Z-scores could also be computed for each assessment, facilitating the quick identification of physiological strengths and weaknesses in future clinical and research studies. Comparing an individual's physiological fall-risk profile with an ethnically- and age-matched normative database allows clinicians to identify whether this person has any deficits in vision, proprioception, muscular strength, eye-hand coordination and standing balance. Individuals with higher fall risk scores (i.e. higher risk of falling) should be referred to targeted fall prevention interventions.