Gender Stratified Physical and Psychological Health Status and Its’ Correlation among Community-Dwelling Older Adults

Rajwinder Kaur Hardev Singh¹, Devinder Kaur Ajit Singh¹, Norhamizah Ideris¹, Ponnusamy Subramaniam², Sheela Bai Paneer Selvam³

¹Physiotherapy Programme and Centre for Healthy Ageing and Wellness, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia, ²Health Psychology Programme and Centre for Healthy Ageing and Wellness, Faculty of Health Sciences. Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia, ³Ministry of Health Malaysia

Abstract

Background: Maintenance of physical and psychological health is crucial to prevent general health problems in older persons. There is inadequate information on gender based physical and psychological health status in older adults attending primary care clinics in Malaysia.

Study Design: Cross-sectional study

Methods: 106 participants were required to perform physical performance tests consisting of 30secs chair stand (30sCS), chair sit and reach (CSR), back scratch (BS), timed up and go (TUG), single leg stance (SLS) and 2minutes walk (2MWT) tests. Psychological health measures consisted of Satisfaction with Life Scale (SWLS) and General Health Questionnaire-28 (GHQ-28).

Results: Only CSR was found to be significantly higher in men (M= 1.27, SD= 3.1) compared to women (M= -0.88, SD= 3.67). A significant correlation (p<0.05) was found only in men between GHQ-28 and 30 seconds sit to stand test (r= -0.424), TUG (r= 0.361) and 2 Minute walk test (r= -0.436).

Conclusion: Older males and females had similar physical and psychological measures except for lower limb flexibility which was greater in females. Lower physical performance (lower body strength, mobility and endurance) correlated with higher psychological issues in older males. There may be a need to consider distinct physical and psychological needs between genders in order to provide optimum health prevention and management stategies among older adults.

Keywords: older adults, community-dwelling, physical health, psychological health, primary care, Malaysia

Introduction

The world’s population is ageing and is expected to reach 2 trillion globally by year 2050, with about 50% living in Asian countries ¹. It is estimated that by year 2030, 15% of Malaysian population will be older persons ². Ageing is related to deterioration in physical and psychological health status ³.

Health status is a multifaceted concept determined by the presence or absence of both physical or psychological conditions ⁴. Physical function is referred to the ability to perform movements which assist in performing activities of daily living (ADL) ⁵. While, psychological health status is defined as emotional, mental and behavioural

Corresponding author:
Devinder Kaur Ajit Singh
Physiotherapy Programme and Centre for Healthy Ageing and Wellness, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Malaysia.
E-mail: devinder@ukm.edu.my
Contact number: +603-92897532
wellbeing. It may include attributes such as sleep quality, emotional health, cognitive functioning, health promotion behaviours and satisfaction of life.

It has been shown that ageing process results in increase in body fat, decline in muscle strength, flexibility, agility, endurance and cognitive function. As a result, decline in physical activity levels and functional fitness. Changes in the neuro-musculoskeletal systems and loss of molecular and brain functions leads to simultaneous decline in physical and cognitive function with ageing.

Physical and psychological function are associated and appears as predictors of increased morbidity and mortality in older persons. For example, impairment in activities of daily living, slower walking speed, poor self-rated health, declined cognitive status and two or more clinic visits in the past month were identified as risk factors for depression.

Information pertaining to physical and psychological status in older adults in Malaysia is scarce. The objective of this study was to examine gender specific physical and psychological health status and its correlation in older adults visiting a primary healthcare facility at Malaysia.

Methodology

Participants

106 community-dwelling older adults were recruited from a Primary Care Clinic at Cheras, Malaysia. Participants aged 60 years above and able to walk with or without assistive devices. Exclusion criteria were unable to comprehend and follow instructions in English or Malay language, known neurological and musculoskeletal impairments and on antipsychotic medications. Participants were provided with study information and consent was obtained. Sociodemographic data was obtained. Physical and psychological function were assessed.

Procedure

Physical health status was measured using Functional Fitness MOT (FFMOT). The physical test included 30secs chair stand (30sCS), chair sit and reach (CSR), back scratch (BS), timed up and go (TUG), single leg stance (SLS) and 2minutes walk (2MWT) tests. It has good reliability and moderate-to-good correlation with intraclass reliability values (R) for all tests (0.80 to 0.98). Procedure for these tests are reported previously.

Psychological health status was measured using The Satisfaction with Life Scale (SWLS) and General Health Questionnaire-28 (GHQ-28). The SWLS indicates global cognition of satisfaction with one’s life. It consists of a short 5-items questionnaire. Malay version of SWLS has high internal consistency (Cronbach’s α= 0.83). Higher scores denotes higher satisfaction.

GHQ-28 is a self-report questionnaire with 28-items and 4 subscales (somatic symptoms: items 1–7; anxiety/insomnia: items 8–14; social dysfunction: items 15–21, severe depression: items 22–28). Total score of ≤23 is normal, ≥24 as psychiatric issues and 23-24 as presence of distress. The inter and intra-rater reliability is excellent (Cronbach’s alpha: 0.90).

Data Analysis

Data analyses were conducted using the SPSS version 23 (Statistical Products and Services Solution). Independent t-test was used to examine gender differences for physical and psychological health status. Correlation analysis was conducted between SWLS, GHQ-28 and physical function parameters. Statistical significance of p<0.05 was used.

Results

A total of 106 participants participated [54 males, (mean age (SD): 68.5 ± 6.5) ; and 52 females, (mean age (SD): 67.5 ± 6.0). Only CSR was found to be significantly higher in men (M=1.27, SD=3.1) compared to women (M=-0.88, SD=3.67). Although not significant (p>0.05), men scored higher in 30sCS (lower limb muscle strength; M=13.0, SD=3.8), BS (M=2.4, SD=4.1), SWLS (M=26.7, SD=5.06) and GHQ-28 (M=15.6, SD=7.0) than women (30sCS: 12.8±SD3.0, BS:-3.7± SD 5.0, SWLS:24.9± SD5.23,
Table 1 shows means (standard deviation) of physical and psychological related measures respectively, stratified based on gender. Shapiro-Wilks analysis showed that data was normally distributed. Only CSR test was found to be significantly higher in men (p<0.05) than women. Significant correlation (p<0.05) was found only in men between GHQ-28 and 30sSTS, TUG and 2MWT tests (Table 2).

Table 1: Gender specific Mean (Standard Deviation) of Physical and Psychological Measurements

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>p-value for mean gender differences</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men (n=54)</td>
<td>Women (n= 52)</td>
<td>Total (n= 106)</td>
</tr>
<tr>
<td>Physical related Parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30sCS (reps)</td>
<td>12.96 (3.74)</td>
<td>12.77 (3.20)</td>
<td>12.87 (3.47)</td>
</tr>
<tr>
<td>CSR (cm)</td>
<td>1.27 (3.14)</td>
<td>-0.88 (3.67)</td>
<td>0.21 (3.56)</td>
</tr>
<tr>
<td>BS (cm)</td>
<td>-2.37 (4.17)</td>
<td>-3.73 (4.95)</td>
<td>-3.04 (4.60)</td>
</tr>
<tr>
<td>TUG (s)</td>
<td>8.90 (1.65)</td>
<td>9.04 (1.83)</td>
<td>8.97 (1.73)</td>
</tr>
<tr>
<td>SLS (s)</td>
<td>16.39 (9.09)</td>
<td>17.44 (9.01)</td>
<td>16.91 (9.02)</td>
</tr>
<tr>
<td>2MWT (m)</td>
<td>125.94 (29.03)</td>
<td>126.62 (39.92)</td>
<td>126.27 (34.64)</td>
</tr>
<tr>
<td>Physcological related Parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWLS</td>
<td>26.72 (5.06)</td>
<td>24.90 (5.28)</td>
<td>25.83 (5.23)</td>
</tr>
<tr>
<td>GHQ-28</td>
<td>15.59 (6.96)</td>
<td>14.75 (5.75)</td>
<td>15.18 (6.38)</td>
</tr>
</tbody>
</table>

*Significance level at p<0.05, 95% CI, Independent t-test

# Equality of variance not assumed, p<0.05 on Levene’s test
Table 2: Partial correlation between psychological health status and physical function parameters in men and women controlling for age and ethnicity

<table>
<thead>
<tr>
<th>Variable</th>
<th>SWLS</th>
<th></th>
<th></th>
<th>GHQ-28</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
<td>Men</td>
<td>Women</td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td></td>
<td>r</td>
<td>p-value</td>
<td>d</td>
<td>r</td>
<td>p-value</td>
<td>d</td>
</tr>
<tr>
<td>30sCS</td>
<td>0.106</td>
<td>0.455</td>
<td>0.01</td>
<td>0.242</td>
<td>0.091</td>
<td>0.06</td>
</tr>
<tr>
<td>CSR</td>
<td>0.133</td>
<td>0.346</td>
<td>0.02</td>
<td>0.146</td>
<td>0.313</td>
<td>0.02</td>
</tr>
<tr>
<td>BS</td>
<td>0.030</td>
<td>0.835</td>
<td>0.01</td>
<td>0.025</td>
<td>0.863</td>
<td>0.01</td>
</tr>
<tr>
<td>TUG</td>
<td>-0.132</td>
<td>0.351</td>
<td>0.02</td>
<td>-0.103</td>
<td>0.478</td>
<td>0.01</td>
</tr>
<tr>
<td>SLS</td>
<td>0.169</td>
<td>0.232</td>
<td>0.02</td>
<td>0.147</td>
<td>0.309</td>
<td>0.02</td>
</tr>
<tr>
<td>2MWT</td>
<td>0.193</td>
<td>0.170</td>
<td>0.04</td>
<td>0.169</td>
<td>0.242</td>
<td>0.03</td>
</tr>
</tbody>
</table>

*Significant difference at p<0.05, 95% CI

Discussion

The aim of the study was to examine physical and psychological health status and its correlation among older adults visiting a primary care clinic. A significant correlation between greater physical performance (lower body strength, mobility and endurance) and lower psychological health status (GHQ-28) in male older adults was demonstrated.

Older men had higher mean scores in mobility (1.5%) and muscle strength of lower limbs (1.5%) compared to women but it was not significant. Previous studies have shown that both genders demonstrated similar lower body strength when stratified by age groups. Nevertheless, rate of decline of lower body strength were higher in men (-4.4% per year) compared to in women (-4.0% per year).

As for lower body flexibility, older men had significantly higher (0.6 times), reflecting higher flexibility in men compared to women. This is supported by the report showing greater decline of lower body flexibility in women (0.7% per year) as compared to men (0.5%) in women compared to men. A plausible reasoning for higher flexibility in men in this study maybe linked to higher levels of outdoor physical activities. Studies have shown greater outdoor participation in men than women by 19.2%.

TUG scores of men in this study (8.9 seconds) is in accordance to TUG normative values reported in Malaysia (8-11 seconds), but it was not the case in women (9.04 seconds) (normative: 10-12 seconds). This indicates women in this study had higher functional mobility. This is supported by the characteristics of the participants in the present study with higher percentage of men having history of falls (27.8%) than women (23.1%).
In a recent meta-analysis, endurance measured using 2MWT displayed an average of 170.05 and 157 metres distance covered by men and women respectively. In comparison, the present study showed lower aerobic endurance (27%: men, 19.4%: women). Note that older adults in our study had comorbidities and were clients at a clinic compared to healthy older adults in previous study. Correspondingly, significant difference in aerobic endurance between different cognitive groups and body mass index were reported in Malaysian older adults.

Regarding psychological health, mean GHQ and SWLS scores were categorised as normal and satisfied respectively. A significant positive correlation existed between GHQ-28 and functional mobility, showing increased TUG performance time was related to increased GHQ-28 scores; indicating lower mobility (longer time to complete TUG) correlated with greater psychological issues or vice-versa in older men. Similarly, in older men, there was a significant negative correlation between GHQ-28 with lower limb muscle strength and endurance, suggesting greater muscle strength and endurance (30sCS: higher number and 2MWT: longer walking distance) correlated with lower psychological issues (GHQ-28: lower scores). These findings are supported by another study, showing greater physical function associated with improved psychological health in community-dwelling older adults.

Our study highlighted that these association is gender specific but the reason is unclear. It could be because older women in our study having generally better physical and psychological health compared to older men. Contrary to other studies, more older men compared to women in the present study had history of falls. Fear of falling is a factor for physical activity participation limitation.

It should be highlighted that only physical function, requiring repetitive movements (e.g. walking and getting out of a chair) were linked with psychological status, instead of static based (flexibility and static balance). Evidence have demonstrated that active, mobile and ambulating older adults are more socially involved. Moreover, older men in the present study reported 9.4% lesser participation in exercise compared to women. Even a low intensity exercise regime performed twice a week for 2 months have significantly lower GHQ-28 scores, indicating better psychological health status among older adults without taking gender into consideration.

This study was limited to one urban primary health care clinic and the results cannot be generalised. Future studies should include multiple urban and rural primary health care settings.

**Conclusion**

In our study, physical and psychological health status were similar in gender, except for lower limb flexibility which was greater in female older adults. Lower physical performance (lower body strength, mobility and endurance) was correlated with higher psychological issues or vice-versa in older males. There may be a need to consider distinct physical and psychological needs between genders for optimum health prevention and management strategies.

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**Conflict of Interest:** The author(s) declare(s) that no conflict of interest exist.

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