Reviewer's report

Title: Hand-Grip Strength Among Older Adults In Singapore: A Comparison With International Norms And Associative Factors

Version: 0 Date: 09 May 2017

Reviewer: Gareth Jones

Reviewer's report:

Primary comments:

1. Handgrip strength is a biological 'sex' variable. Therefore, throughout your manuscript you need to correct for gender (men and women), which now become sex (males and females). For example, Paragraph 3 in the abstract …regression analysis was stratified for gender significant associations…this now becomes … regression analysis was stratified for sex significant associations. All these associations - age, height, upper arm circumference are all sex-related. Paragraph 4 in the abstract …HGS in women but not in male…now becomes…HGS in females but not in males. However, you do speak to gender related variables within the discussion …line 203 'occupation' …in this case you are correct to speak about men and women; however, you should delineate that you have moved from a sex-based discussion to gender.

2. You need to explain in the introduction why the addition of upper extremity and comparison to Western values makes your study unique compared to earlier investigations.

3. Study participants - explain how participants selected. Were randomly selected or was this a sample of convenience? Line 66 - explain clearly, who the informant was. Was this a 'proxy' participant in that they completed the survey for the participant?

4. How was hand dominance determined? Edinburgh scale?
5. You need to fully describe the type of muscle contraction being performed 'isometric' and explain how participants should exhale their breath to prevent increased thoracic pressure during the test.

6. If the HGS assessment performed in while seated, as per the ASHT suggests. Then this assessment is not a test of overall body strength, as the arms and trunk not engaged during the maneuver. Higher strength values gained while standing.

7. Explain how the arm circumference was determine. Speak to arm position.

8. Pg 6 line 82 you suggest a structure physical and neurological assessment. Please explain what the neurological component of this assessment.

9. Provide rationale for leaving the last group 85+. What was the maximum age (105 years)? Every other age group is in 5-year intervals while the oldest and arguably the most heterogeneous is likely more than a 5-year interval based-on your standard deviations. How might you account for your sample size in the 85+ group actually representing that group of older adults?

10. On page 8 line 110-115; account for how this distribution across age and ethnicity represents the actual population of Singapore.

11. Why was your study better than the Malhotra et al. study? Results are the same? What really makes your study unique and worth publishing?

12. Pg 15 line 278 you mention 'palm size' but never mentioned this before
Secondary comments:

Pg 1 line 20 (add semi-colon)…stratified by; 5-year…

Pg 1 line 21 (change gender to sex)…groups, sex, and ethnicity.

Pg 1 line 24 (remove 'a')…using multiple linear regression…

Pg 1 line 29 (change sentence)…The mean HGS demonstrate a decreasing trend with increased age across all ethnic groups and sexes.

Pg 1 line 33 (remove 'those of' and 'those) …Males in the youngest age group (60-64) and of Chinese…

Pg 1 line 34 (add 'values')…greater HGS values than their…

Pg 1 line 35 (change gender to sex)…stratified for sex, significant…

Pg 1 line 47 (change women for female and add 's' to males) …HGS in females but not males.

Pg 1 line 51 (add 's' and remove 'population')…older adults in Singapore.

Pg 2 line 11 (remove 'population' add 's') ….HGS in older adults.

Pg 2 line 18 (remove their, change gender to sex)…stratified date into age and sex…

Pg 2 line 20 (change gender to sex) …data by sex…
Auyeung and colleagues [2]

...the sex differences...that females had a...

and others (3.2%) [22].

...total Singapore population [22].

In a recent paper by Malhotra et al., [6]

...using data from the national Social Isolation, Health and Lifestyles Survey (SIHLS).

However, this study only assessed the sociodemographic correlates of HGS such as age, sex, ethnicity, education level and occupation, but did not account for anthropometric correlates of HGS such as, upper arm and waist circumference. Both correlate with HGS [18, 19].

The current study aimed to: (1) Establish...ethnicity; (2) Compare Singapore...countries; (3) Examine sociodemographic...and; (4) Explore the relationship.....

Appropriately reference the handgrip dynamometer ...Name (City, Country)

change women to females and men to males.
Pg 7 line 92 explain the 10/66 diagnostic criteria.

Pg 8 line 122 (change gender to sex)

Pg 8 line 128 changes men to males and women to females. Age is a sex-variable not a gender variable.

Pg 11 Line 177 to 179 - this comparison between women and men (should be females and males) does not clarify if this is a younger or older population.

Pg 11 Line 181. Start new paragraph, you start a new idea regarding ethnic differences ….Few have looked…

Pg 13 line 234. Need a reference to support this statement about nutrition and genetic factors.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.
No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.
Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.
I am able to assess the statistics
Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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