

Thanks for opportunity to review manuscript entitled “Preliminary contribution to the adaptation of the Italian version of the Test of Memory Strategies” for Peerj Journal. The authors translated Test of Memory Strategies to Italian cultural context and examined the validity and reliability of this test in a nonclinical sample of Italian adults. According to my Google citation analyses of this instrument, the strength of the manuscript includes examining factor structure of this scale using confirmatory factor analyses and expanding psychometric studies regarding to this scale with an article written in English language as well as Italian cultural context. Overall, although the article is generally well-written and deserves to be published in this journal, some necessary and minor revisions required before publication of this article. Because my main philosophy of reviewing a manuscript as reviewer and sometimes an editor to improve the manuscript and not punishing the authors, I provided very specific and detailed peer review of the manuscript to increase its quality and citation potential. I hope authors of the manuscript may benefit from my review. Necessary revisions reported section by section with the page and line number and when possible with suggestions.

Necessary Revisions

Title

1. Page 6, Line 1-2: I think title of the article need to be revised for better reflect to study. Translation is a process conducted as a part of linguistic validity. Moreover, reliability analyses also conducted in this study. Thus, one revision may be that ‘ ‘The validity and reliability of Test of Memory Strategies among Italian healthy adults’ ’

Abstract

2. Page 7, Line 34: Sample is unclear in aim sentence. Thus, revising sample as ‘ ‘adult sample’ ’ in a better choice.

3. Page 7, Line 34: According to APA 7 rules, sentence must no begin with numbers. Thus, authors must correct 121 as One hundred twenty one

4. Page 7, Line 34: Reporting of mean and standard deviation is wrong according to APA 7 rules. Thus, following sentence must be revised as “One hundred twenty one healthy participants ($M_{\text{age}} = 45$ years old, $SD = 20.4$) who underwent a neuropsychological examination were involved in this study.” Moreover, it is almost impossible to be mean age exactly 45. Thus, authors also need to report to mean age and standard deviation with two decimal.

5. Page 7, Line 36: Authors also examined convergent validity of Test of Memory Strategies using Pearson correlation analyses and reliability using McDonald's omega. However, they only give information about confirmatory factor analysis. Thus, following sentences need to be revised ' 'Confirmatory Factor Analyses were employed to evaluate construct validity.' ' One revision may be that ' 'Confirmatory factor analyses were employed to evaluate construct validity of TMS. Pearson correlation analyses were used to examine convergent validity of TMS scores. McDonald's omega used to examine internal consistency.' '

6. Page 7, Line 37: Authors need to change assumption in this sentence with expectation as ' '...the assumption that the TMS-1 and TMS-2' '. New form looks like ' '...the expectation that the TMS-1 and TMS-2...' '. Assumption indicates different things in research design (non-testable) and statistics (testable). Thus, it must use with caution.

7. Page 7, Line 39: Authors need to change assumption in this sentence with predictions ' '....in line with the assumption that TMS-1 and TMS-2.....' ' New form looks like ' '....in line with the prediction that TMS-1 and TMS-2.....' '.

8. Page 7, Line 39: The following sentence is awkward and need revision. ' ' The findings suggest that TMS is an adequate measure to assess M and EF while simultaneously presenting preliminary adequate psychometric properties in an Italian sample.' ' One revision may be that ' 'This preliminary findings suggest that TMS is a valid and reliable scale to simultaneously assess M and EF among Italian healthy adults.' '

9. Page 7, Line 49-50: I think authors must remove simultaneous investigation from keywords and must add Italian healthy adults after the psychometric validation

10. Apart from above correction, Abstract section is well written.

Introduction

11. Page 7, Line 59: I think authors must remove well from following sentence ' '.....well interconnected' '

12. Page 7, Line 60-63: I think authors must remove following sentence from the manuscript as they are unrelated to content, difficult to understand and distort flow of paragraph ' ' From an anatomical point of view, this evidence indeed has a functional consequence, indicating the in-time collaboration between these two cognitive processes. EF and M are intertwined: EF plays an essential role in memorization strategies.' '

13. Page 8, Line 67-68: The citation needs for following sentence ‘ ‘A mediation analysis revealed that the EF network had an indirect positive effect on episodic memory performance in the amnesic mild cognitive impairment patients.’’

14. Page 8, Line 84-85: I think authors must remove following sentence from the manuscript as it mind-confusing. ‘ ‘- which includes measures of memory strategies, (Scarpa et al., 2006) -,’’.

15. Page 9, Line 109-110: It is unclear what authors want to mean with levels in following sentence ‘ ‘between different age groups and levels.’’. Do authors mean education levels?

16. Page 9, Line 112: Please correct ‘ ‘Fernandes et al. like Yubero et al.’’ as ‘ ‘Fernandes et al., like Yubero et al.,’’

17. Page 9, Line 122-123: I think authors must remove following from the sentence ‘ ‘such as Yubero et al. (Yubero et al., 2011)’’.

18. Page 9, Line 127: I think authors ‘ ‘old adults’’ must be ‘ ‘older adults’’ in the sentence.

Method

19. Page 10, Line 142-143: The following sentence is awkward and need revision. ‘ ‘A sample of 121 participants was recruited between 18 and 89 years (mean age = 45 years old, $SD = 20.4$; years of schooling = 13.2 ± 3.97).’’ Moreover, it is almost impossible to be mean age exactly 45. Thus, authors also need to report to mean age, years of schooling and standard deviation with two decimal. Moreover, please report like this ($M_{age} = 45.xx, SD = 20.4x$)

20. Page 10, Line 148: The citation needs for cut-off score of The Mini Mental State Examination. Is 24 also valid in Italian cultural context?

21. Page 10, Instruments section: Instrument section must rearrange with subtitles. In this form, it is very messy. Moreover, author must give information used standardized neuropsychological tests. Are they valid and reliable in Italian cultural context? Moreover, authors give at worst possible scores of these tests as well as meaning of higher scores. The same thing also valid for Test of Memory Strategies. Authors must add possible score of each list and meaning of higher scores.

22. Page 12, Line 227-229: Authors must divide following sentences to two separate sentences. Correlation coefficients are not a descriptive statistics. ‘ ‘Descriptive statistics of neuropsychological battery and TMS were calculated for the whole sample, including

frequencies, means, and correlation matrix between the scores of each list and between other psychological tests.”

23. Page 12, Line 230: “Confirmatory Factor Analysis” must be ‘ ‘confirmatory factor analysis’ ’.

24. Page 12, Line 231: Authors did not indicate hypotheses in Introduction section. Thus, following must remove from manuscript ‘ ‘and our hypothesis that’ ’.

25. Page 12, Statistical Analyses: Authors must explain each tested competing models and reasons behind testing it in Statistical analyses section. Without theory and empirical findings, testing alternative models are not defensible. Moreover, based on principal component analysis of Fernandes et al., authors must add a competing model that included first four list as EF and TMS-5 as M.

26. Page 12, Statistical Analyses: Which estimation method used in confirmatory factor analyses must be added to statistical analyses section. Moreover, authors must add brief information about assumption testing process in confirmatory factor analyses and correlation analyses.

27. Page 12, Line 239: the writing of MacDonalld’ ω total is wrong and must be corrected as McDonald’ omega (ω)

28. Page 12, Line 239: What authors want to mean with fit index of CFA (Green & Yang, 2009) ? , it is not possible to test an instrument’s’ internal consistency with fit indexes. Authors must remove this wrong information.

29. Page 12, 241-247: Authors must move following information after the sentence of With a set of confirmatory factor analysis (CFA) we compared different models in order to identify the model that best explains our data and our hypothesis that the TMS subtests reflected two-dimensional structure with two latent variables, that we have named as EF, and M. ‘ ‘

We have considered the total score of each single 5 lists as the 5 definitive variables, and we have tested whether the hypothesized model where the EF factor was reflected by the first two TMS list scores, and the M factor was reflected by the TMS list scores number 3, 4 and 5 performed better than other three alternative models. The first model was a tridimensional model (Panel C) where a third factor reflected by the TMS 3 score was created. The second model was a unidimensional model (Panel D). Finally, we created an alternative two-

dimensional model (Panel B) in which list was considered a variable reflecting the factor EF.
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30. Page 12, 247: Authors must remove following sentence no need to write this. ‘ ‘Authors have permission to use this tool.’’

Results

31. Results, General: Authors inconsistently reported statistical findings along them manuscript and in the tables. Authors must report all study findings with two decimals along the manuscript except for p values which must be three decimals.

32. Results, Table 1: Table 1 is unnecessary and must remove from the manuscript and all related information. Authors examine psychometric properties of Test of Memory Strategies not other tests. Hus authors must remove following lines from the results ‘ ‘Table 1 reports descriptive statistics of neuropsychological battery (MMSE total; WMS immediate and delay total; Stroop test; MWSC test; VF test; SF test; Digit span forward and backward test for the global sample.’’ And from statistical analysis section following information ‘ ‘of neuropsychological battery and’’.

33. Results, Table 2. Authors must add minimum and maximum scores to Table 2. Moreover, title must be revised such that ‘ ‘Descriptive statistics about subscales and total scores of TMS’’. N must be italic in the Table 2. Mean must be M (italic) and standard deviation must be SD (italic). Notes must be under the table.

34. Results, Table 3, Table 4: The order of Table 3 and Table 4 must be changed. Moreover, authors first give information about goodness on fit indexes of competing models and then result of chi-square nested difference tests in Results section. Additionally, author must add information about using chi-square nested difference test to statistical analysis section. This information is completely missing in that section.

35. Page 12, 267: In this line authors indicated that ‘ ‘In Figure 1 we show the path diagram and the standardized coefficients of our hypothesized model.’’. However, there is no information about standardized factor loadings in the figure. Author must add narratively information about factor loadings for best fitting model and their significance levels to Results section. Moreover, author must add a supplementary material for all competing models standardized factor loadings as well latent factor correlations (if available) as well as item means standards deviations and inter-item correlations of TMS. Without this findings, it is not

possible to demonstrate correctness of statistics as well as evaluate comprehensively to alternative models.

Discussion

37. Page 13, 278-285: Following sentences is not appropriate for Discussion section but rather may be used in Introduction section ‘ ‘Sometimes, in the adult and childhood clinical population, it is difficult to understand if there is a memory or executive function impairment or both just from the interpretation of traditional neuropsychological tests. This study aimed to improve and increase the neuropsychological assessment tools available in Italy to cognitive diagnosis using the TMS, a neuropsychological test already validated in Spanish and Portuguese (Yubero et al., 2011; Fernandes et al., 2018). There is no neuropsychological test for evaluating the interaction between memory skills and executive functions simultaneously in the Italian context. This preliminary study on the Italian population could fill the gap in the neuropsychological test resources for improving diagnosis.’’ Moreover, sometimes is not a word that may be used in a scientific article and must remove.

38. Page 13, Line 290-292: Following sentences is not appropriate for Discussion section and must remove. ‘ ‘Thus, in TMS 1 to 4, we can hypothesize that memory strategies are implicitly suggested by the subdivision in categories (externally facilitated), helping the subject in the encoding of the words.’’

39. Page 14, Line 304-306: Authors did not conduct an independent or dependent samples t-test but indicated that ‘ ‘These results are consistent with the ones found in Yubero et al. (2011), in which none of the groups showed statistically significant differences between TMS-4 and TMS-5, although there was a reduction in the number of words recalled in TMS-5.’’ How it can be possible?

40. Page 14, Line 319-320: Following sentence must be revised as I understand from following sections authors only tested convergent validity of scale. However, author indicated in this sentence that they both used convergent and discriminant validity. ‘ ‘ Another aspect of construct validity — convergent/discriminant validity — was reflected by the correlations of the five TMS subtests with classical tests of the same/different constructs. ‘ ‘ One revision may be that ‘ ‘Another aspect of construct validity -convergent validity — was demonstrated by the correlations of the five TMS subtest scores with neuropsychological tests measuring the similar constructs.’’

41. Page 14, Line 338-339: I am not able to understand what authors want to mean ‘ ‘Moreover, a functional study would be useful to study the correlation with neuroanatomy.’’

42. Page 14, Line 339, Page 15 339-341: The same sentence repeated two times and following must remove ‘ ‘An analysis of the interaction analysis by age group was not conducted in our work, considering the very small and too heterogeneous sample, unlike Fernandes' work.’’

43. Discussion, Limitation Section: limitations of study must significantly improve. Authors must add limitations related to sample (not representative Italian population), using self-report scales, cross-sectional research design, and large age range.

44. Discussion, General: Practical implication section is completely missing in the manuscript and must add after the implications.

45. Discussion, Page 15 350-362: Following sentences is not appropriate for Discussion section but rather may be used in Introduction section ‘ ‘Some tests investigate the executive functions and memory separately (such as Rey Auditory Verbal Test; etc.), but this does not allow to verify if during execution the subject fails due to a slowdown in memory or planning or problem-solving strategies. Instead, the TMS is structured to capture which phase of the test the subject increased the number of errors. A failure in the initial condition would but a clear improvement after diminished executive functions would signify an executive deficit more than a memory problem. If the participant does not improve across time, then a primary memory problem can be noticed.’’

46. All references are wrong as per Peerj rules.

47. Authors must rearrange Table 5 as below, in this form contains a lot of repetition.

	EF	M
	<i>r</i>	<i>r</i>
EF	-	-
M	0.60***	-
Att-Cal	0.45***	0.31***

Notes. EF = executive functions; M = memory;..... * $p < .05$, ** $p < .01$, *** $p < .001$.

