

General comments:

1. Thank you for allowing me to review this interesting and timely work. It is a very interesting systematic review about fibromyalgia and altered gait and walking performance. However, there are a few points that the authors should address. Please take a look at my specific comments below (attached).
2. The state aim "was to verify qualitatively and quantitatively the impact of fibromyalgia on the gait pattern of patients with FM". However, the objective state here does not align with the further described statistical analysis. My understanding (after reviewing this SR) is that the goal "was to perform a systematic review and meta-analyses comparing walking test performance and gait pattern between individuals with and without fibromyalgia".
3. I suggest the search be more cohesive by having a search strategy focused on combining three conceptual groups of terms: (1) fibromyalgia; (2) walk (performance) tests; and (3) gait analysis.
4. I also suggest clarification about the difference between walking test performance and gait pattern analysis.

Specific Comments:

ABSTRACT

Lines 23-24: The objective state here does not align with the further described statistical analysis in the included studies. I suggest the following sentence instead: "The aim of the present review was to perform a systematic review and meta-analyses comparing walking test performance and gait pattern between individuals with and without fibromyalgia".

Line 31: Substitute "of the effect" by "the difference between individuals with and without FM"

Line 34: I suggest changing the word "affected" by "individuals with FM"

Line 36: lowercase for "When"

Line 37: I suggest changing "subjects affected by FM" to "individuals with FM"

Line 38: I suggest changing the word "affected" by "individuals with FM"

Line 40-41: With the analysis performed in this review and the included studies you cannot affirm cause and effect. It is possible to affirm that individuals with FM perform walking tests differently than individuals without FM.

INTRODUCTION

Line 69: Throughout the Introduction, I suggest changing from "FM patients" to "individuals with FM".

Lines 76-81: the 6MWT and TUGT do not quantify the "amount of gait", they both assess physical performance. The 6MWT distance is primarily a measure of walking performance and the TUGT assesses mobility, balance, and walking ability rather than gait analysis. Important to note that Walking is the Action whereas Gait is the Pattern/manner of walking. In addition, Gait analysis is a way to assess the dynamic posture and coordination during movement and by using instruments for kinematic measurements you can quantify the pattern/manner of walking (so is not only gait quality).

Line 79: I suggest the use of "individual's" instead of "subject's"

Lines 84: Considering the concepts and definitions cited above (lines 76-81), I suggest a revision of the meaning of "qualitatively and quantitatively"

Objective

Line 88-89: The objective state here does not align with the further described statistical analysis in the included studies. I suggest the following sentence instead: "The aim of the present review

was to perform a systematic review and meta-analyses comparing walking test performance and gait pattern between individuals with and without fibromyalgia”.

Line 88: Considering the concepts and definitions cited above (lines 76-81), I suggest a revision of the meaning of “qualitatively and quantitatively”

SURVEY METHODOLOGY

Line 92: Not sure about this sub-heading being called “Survey methodology”

Bibliographic search

Lines 98-99: Could you clarify if the search carried out in MEDLINE, SCOPUS, PEDRO, CINHALL and WEB OF SCIENCE databases were performed from database inception to the date of the search?

Lines 100-102: The search terms are limited. I suggest a search strategy focused on combining three conceptual groups of terms: (1) fibromyalgia; (2) walk (performance) tests; and (3) gait analysis. You can explore examples in other published systematic reviews, especially the ones published by the Cochrane Reviews (for example: <https://pubmed.ncbi.nlm.nih.gov/28636204/>).

Lines 100-102: Since 6MWT and TUGT (and 8UGT) are physical/function tests, why these terms were not included in the search? Some article may have been excluded, even though they could provide information related to the tests this review was looking at.

Study selection

Line 109: Could you clarify the reason of studies before 2000 being excluded?

Line 116: I suggest the use of “individuals” instead of “subjects”

Data collection process

Lines 122-124: What data specifically was extracted from the included studies (e.g. participants, fibromyalgia duration, types of outcome measures, study characteristics/ methods)?

Synthesis of results

Line 129: I suggest the use of “patients with fibromyalgia” instead of “fibromyalgia patients”

Line 138: Was the risk of bias and quality of included studies assessed? What tool was used?

What would be the main reason for a down grade in the study quality?

Line 138: How was the effect size calculated (to demonstrate how much one group differed from another)?

Line 138: How was heterogeneity reported (e.g. using a 95% prediction interval, I^2)?

Line 138: How publication bias was estimated?

RESULTS

Line 139: keep the standard of the other headings by writing it in lowercase

Search and Selection of studies

Line 146: What were the main reasons full-text were excluded? Please provide a % of exclusion by the exclusion criteria.

Line 149: Figure 1 has poor quality

Study characteristics

Lines 152-153: Considering the concepts and definitions of gait and walk cited above (lines 76-81), I suggest a revision of the meaning of “*quality and quantity of movement through different gait analysis tests*”

Lines 158-160: Considering the concepts and definitions of gait and walk cited above (lines 76-81), I suggest a revision of the meaning of “*The gait was analyzed both from a quantitative and qualitative point of view*”

Line 159: The timed up and go test is mentioned in the introduction, but only the 8-Foot Up and Go test is described here. Could you clarify the reason the TUGT is not included here since both tests have the same goal?

Line 164: Considering the concepts and definitions of gait and walk cited above (lines 76-81), I suggest a revision of the meaning of “studies that analyzed the quality of the gait”

Gait analysis from a quantitative point of view

Lines 170: Considering the concepts and definitions of gait and walk cited above (lines 76-81), I suggest a revision of the meaning of “*Gait analysis from a quantitative point of view*”

Line 172: exclude the before “studies”

Lines 178-179: Considering the concepts and definitions of gait and walk cited above (lines 76-81), I suggest a revision of the meaning of “the 6MWT as a quantitative gait analysis test”

Line 184: the quality of Figure 2 is very poor quality.

Lines 196-199: I could not see the “diamond” (which represents the point estimate and confidence intervals of the combined and averaged individual studies) in the forest plot to confirm what is described in this paragraph.

Lines 201-210: The timed up and go has been used more broadly, so I wonder that this is the reason only 6 included studies with the 8UGT. I suggest expanding the search terms.

Gait analysis from a quantitative point of view

Lines 215: Considering the concepts and definitions of gait and walk cited above (lines 76-81), I suggest a revision of the meaning of “*Gait analysis from a quantitative point of view*”.

Line 216: I wonder the reason of some studies exploring gait pattern of individuals with fibromyalgia not being included, such as but not limited to:

- <https://pubmed.ncbi.nlm.nih.gov/32956683/>
- <https://pubmed.ncbi.nlm.nih.gov/16626992/>
- <https://pubmed.ncbi.nlm.nih.gov/22078002/>
- <https://pubmed.ncbi.nlm.nih.gov/28184193/>
- <https://pubmed.ncbi.nlm.nih.gov/16214660/>

Line 218: I suggest the use of “with individuals with fibromyalgia” instead of “this type of patient”.

Lines 225-226: I suggest the use of “distance” instead of “the number of meters walked”.

Line 222 - Table 3: Could you clarify the meaning of a “Gait velocity test”?

Line 231: I suggest table 3 and 4 be merged since they have the same included studies. I makes it easier for the reader.

DISCUSSION

Line 241-243: The aim of the present study was to carry out a systematic review to verify the impairment in the gait of patients with fibromyalgia, both from a qualitative and quantitative point of view.

Line 245: I suggest deleting this sentence.

Line 249: I suggest “the use of the 6MWT has been...” instead of “Its use...”

Line 251: I suggest the use of “progression” instead of “evolution”. I also suggest deleting “the execution of”.

Lines 258-266: I would also argue that another aspect to be considered when an individual with fibromyalgia perform a shorter distance in the 6MWT is that individuals with FM may walk (externally) similarly to individuals without FM but they use internally different muscle recruitment patterns. [Pierrynowski et al. \(2005\)](#) found that individuals with FM preferentially

power gait using their hip flexors instead of their ankle plantar-flexors. Interestingly, individuals without FM use a similar muscle fatiguing recruitment pattern when walking fast which parallels the common complaint of fatigue reported by individuals with FM walking at comfortable speed. Lines 267-280: This discussion would be more interesting if the effect size from the meta-analyses was used to demonstrate how much one group differed from another in the 25 included studies.

Lines 327-335: Could the low physical performance threshold of 0.8 be more applicable for older adults? Since the majority of the included studies had participants at middle-age, they may be more functional than older-adults with FM.

Lines: 341-344: I would suggest to be careful with this affirmation since it is based on only one study. Especially because the quality of the included studies was not presented in this review (which is an important assessment).

CONCLUSIONS

Line 358: With the analysis performed in this review and the included studies you cannot affirm cause and effect. It is possible to affirm that individuals with FM perform walking tests differently than individuals without FM.

Line: What are the implications for practice and further research with the results of this systematic review.