PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	The Efficacy of Practicing Tai Chi for Older People with Mild Dementia: Protocol for a Randomized Controlled Study
AUTHORS	Lyu, Jihui; Li, Wenjie; Rong, Xiangjiang; Wei, Lian; Huang, Nayan; Champ, Mei; Xiong, Qian; Chen, Xueli; Li, Mo; Li, Fangling

VERSION 1 – REVIEW

REVIEWER	Sean Leng, MD PhD Johns Hopkins University School of Medicine
REVIEW RETURNED	16-Oct-2017

GENERAL COMMENTS	Studying effects of mind-body exercise (Tai Chi) on patients with early dementia through randomized controlled trials in China is a critically important area, particularly given the large aging population and specifically the population with cognitive impairment in China and around the globe. This manuscript describes a protocol for his purpose. The strengths include the use of instruments for cognitive functional assessment that have been validated in the population in China. A miner concern is that the English writing can be further improved.

REVIEWER	Daniel Chan University of New South Wales, Australia
REVIEW RETURNED	07-Nov-2017

GENERAL COMMENTS	This is an innovative study with potential implications for improving the quality of life of early dementia patients. The paper can be improved with some following points: 1. Introduction: resulting in independence need to be changed to "resulting in dependence) 2. Introduction: suggest the word "unreasoning" to be changed to "lack of logical reasoning" The word "evidences" to be changed to "evidence" "dementia person" to be changed to "demented person" Please clarify is CDR score the only used method to define "early dementia"? or you are using MMSE as well or other screening tool? Why use DSM 4, not DSM 5? Is educational level important criteria to consider for inclusion or exclusion especailly in older Chinese? The English needs checking by a native speaker. E.g. “evidences” should be “evidence” etc.

REVIEWER	Deborah Barnes

	University of California, San Francisco, USA
REVIEW RETURNED	12-Feb-2018

GENERAL COMMENTS	This manuscript describes the protocol for development and testing of Tai Chi program adapted for people with mild dementia. • Consider re-framing this is as a pilot RCT with the goals of examining feasibility, safety and proof of concept • Consider adding information on the validity and reliability of the outcome measures in people with early dementia. There is concern that the AVLT may be too challenging. • Please clarify where the intervention will take place (home? center?) and the format (individual? group?). • Clarify who will answer questions regarding ADLs. • Clarify how falls will be measured. • Clearly state the primary and secondary outcomes. There are currently 3 cognitive tests described. Will the primary outcome be a composite global score, or will all three measures be considered as separate co-primary outcomes? The AVLT has many potential scores that can be generated (total learning, delayed recall, etc). Specify which will be examined. This is less of a concern if the study is reframed as a pilot study. • Clarify what effect size was used for sample size calculations. • Please note that drop-out is likely to be greater than 10% over 10 months. • Unclear why 3 dementia specialists are needed to confirm the diagnosis.

VERSION 1 – AUTHOR RESPONSE

Editors comments to Author:
- Along with your revised manuscript, please include a copy of the SPIRIT checklist indicating the page/line numbers of your manuscript where the relevant information can be found (http://www.spirit-statement.org/)
Response: Thanks. We filled in the SPIRIT 2013 checklist and updated it to align with the manuscript.

- Please revise the ‘Strengths and limitations’ section of your manuscript. This section should relate specifically to the methods, and should not include a general summary of, or the rationale of, the study.
Response: Thanks. We followed the suggestions and made the revision.

- Please modify your use of the term ‘demented' through your manuscript. We suggest modifying 'demented patients' to ‘patients with dementia’, and 'demented older people' to 'older people with dementia'.
Response: Thanks. We followed the suggestions and made the revision.

- Please ensure that you improve the quality of language in your manuscript, either with the assistance of an English-speaking colleague or with a professional copyediting agency.
Response: We appreciate your advice and the language of this revised manuscript was further revised by our English-speaking colleagues, Mei Champ and Qian Xiong, who are both lecturers and work at universities in the UK.

Reviewer(s)' Comments to Author:

Reviewer: 1

Reviewer Name: Sean Leng, MD PhD

Institution and Country: Johns Hopkins University School of Medicine

Please state any competing interests or state ‘None declared’: None declared

Please leave your comments for the authors below
Studying effects of mind-body exercise (Tai Chi) on patients with early dementia through randomized controlled trials in China is a critically important area, particularly given the large aging population and specifically the population with cognitive impairment in China and around the globe. This manuscript describes a protocol for his purpose. The strengths include the use of instruments for cognitive functional assessment that have been validated in the population in China. A miner concern is that the English writing can be further improved.
Response: We appreciate your positive advice. The language of this revised manuscript was further embellished by one of our English-speaking colleagues, Mei Champ, who works at the University of the West of England, Unite Kingdom.

Reviewer: 2
Reviewer Name: Daniel Chan

Institution and Country: University of New South Wales, Australia

Please state any competing interests or state ‘None declared’: I know the first author, had collaboration and publications, but that was nearly 10 years ago

Please leave your comments for the authors below
This is an innovative study with potential implications for improving the quality of life of early dementia patients. The paper can be improved with some following points:
1. Introduction: resulting in independence need to be changed to "resulting in dependence)
Response: Thanks. We followed the suggestions and made the changes.

2. Introduction: suggest the word "unreasoning" to be changed to "lack of logical reasoning"
The word "evidences" to be changed to "evidence"
"dementia person" to be changed to "demented person"
Response: Thanks. We changed the word “evidences” to “evidence”, and “dementia person” to “people with dementia”.

3.Please clarify is CDR score the only used method to define "early dementia"? or you are using MMSE as well or other screening tool? Why use DSM 4, not DSM 5?
Response: Thanks. The CDR is a structured-interview protocol, the scoring of which is based not only on the performance of the subjects but also the information from the informants. It is a comprehensive and reliable tool for assessing and staging dementia, more valid than MMSE or any other screening tool. Thus we define a participant to be mild dementia or dementia in early stages when he/she gets a CDR score of less than 2, just as most other literatures do.
In DSM 5, the term “major neurocognitive disorder” was used instead of “dementia”, which maybe more humanized and is an advantage. However, DSM 5 has not been widely used in China. Chinese clinicians and researchers master the DSM 4 diagnostic criteria for dementia much better than DSM 5 diagnostic criteria for neurocognitive disorder. Thus we chose DSM 4 criteria to diagnose dementia and we believe this would not affect the quality and validity of this study.

4.Is educational level important criteria to consider for inclusion or exclusion especailly in older Chinese?
Response: Thanks. Because Tai Chi exercise is easy to practice if guided by a therapist or a coach, and it does not rely much on an individual's educational background, we didn't consider education level for inclusion or exclusion. Moreover, we considered educational level when cognitive assessments were carried out. We strictly applied the instruments with their cutoffs for different educational levels if there are any, such as MMSE.

5. The English needs checking by a native speaker. E.g. "evidences" should be "evidence" etc.
Response: We appreciate your comments and advice. The language of this manuscript has been revised by our English-speaking colleagues, Mei Champ and Qian Xiong, who both work at universities in the UK. The first author makes the decision whether these suggestions are implemented.

Reviewer: 3
Reviewer Name: Deborah Barnes

Institution and Country: University of California, San Francisco, USA

Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below
This manuscript describes the protocol for development and testing of Tai Chi program adapted for people with mild dementia.
• Consider re-framing this is as a pilot RCT with the goals of examining feasibility, safety and proof of concept
Response: Thanks. We followed your suggestion and made the revision.
• Consider adding information on the validity and reliability of the outcome measures in people with early dementia. There is concern that the AVLT may be too challenging.
Response: Thank you for your suggestion. We added a Chinese version of Shape Trail Making Test to measure participants' visual search speed, scanning, speed of processing, mental flexibility, as well as executive functioning, which has been proved to be suitable for Chinese older people.
• Please clarify where the intervention will take place (home? center?) and the format (individual? group?).
Response: Thanks. According to your suggestion we added the information in the revised manuscript. The intervention will take place in the senior apartments where participants are living (all Participants will be recruited from long-term care facilities nearby Beijing Geriatric Hospital). The intervention will be practiced in groups of one therapist with five to eight participants.
• Clarify who will answer questions regarding ADLs.
Response: Thanks. According to your suggestion we added the information in the revised manuscript. The scoring of ADL is based on the information provided by the participant's informant, who might be a family member or a caregiver.

• Clarify how falls will be measured.
Response: Thanks. A fall will be defined as the experience of a sudden, involuntary, unintentional change of position, on the ground or in a lower plane. When assessing a definite fall, we will try to get an eyewitness account or recordings of security cameras (all of the areas in the senior apartments where participants live will be monitored by 24-hour security cameras).
• Clearly state the primary and secondary outcomes. There are currently 3 cognitive tests described. Will the primary outcome be a composite global score, or will all three measures be considered as separate co-primary outcomes? The AVLT has many potential scores that can be generated (total

learning, delayed recall, etc). Specify which will be examined. This is less of a concern if the study is reframed as a pilot study.
Response: Thanks. We made it clear in the revised version that the primary outcome is the score of delayed recall of WHO-UCLA-AVLT. The secondary outcome is score of the Shape TMT.

• Clarify what effect size was used for sample size calculations.
Response: Thanks. The effect size used for sample size calculation is the mean difference of the primary outcome between the intervention group and the control group. We described this in detail in the revised manuscript.

• Please note that drop-out is likely to be greater than 10% over 10 months.
Response: Thanks. According to your suggestion, we recalculated the sample size using an estimation of 15% drop-out rate.

• Unclear why 3 dementia specialists are needed to confirm the diagnosis.
Response: Thanks. Currently there is no definite clinical index or biomarkers for the diagnosis of dementia, and the DSM criteria for dementia contains several items, some of which are subjective. An accurate diagnosis relies on the experience of the clinician. Thus we in our design, there will be three dementia specialists to confirm the diagnosis, which ensures the accuracy of the diagnosis as much as possible.