Functional fitness and quality of life of elderly Lian Gong, Tai Chi and Qigong practitioners

Aptidão funcional e qualidade de vida de idosos praticantes de Lian Gong, Tai Chi e Qigong

Aptitud funcional y calidad de vida de adultos mayores que practican Lian Gong, Tai Chi y Qigong

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Abstract

Objective: To compare functional fitness and quality of life dimensions of elderly participants and non-participants of Lian Gong, Tai Chi and Qigong guided practices.

Methods: This is a case-control study, carried out in the city of São Paulo, SP, Brazil, with 118 elderly people, matched by sex and age: 59 in the case group, participants in body practices, divided into subgroups by time of compliance: < 24 months and ≥ 24 months; and 59 in the control group, non-participants in body practices. For data collection, the following were applied: a questionnaire with sociodemographic and health variables, functional tests and the Medical Outcomes Study 36- Item Short-Form Health Survey (SF-36). Statistical analyzes were performed using R version 3.3.2. The data were initially analyzed in a descriptive way and, then, a univariate logistic regression and the Kruskal Wallis test were performed. The ethical aspects of research with human beings were obeyed.

Results: It was found that, in the case group, elderly people with a time of compliance with practices ≥ 24 months showed a superior result in the functional 30-second chair stand test (p=0.006), as well as better performance in the following quality of life domains: bodily pain (p=0.003); vitality (p=0.021); role emotional (p=0.034); and mental health (p=0.020).

Conclusion: Participation in guided body practices, Lian Gong, Tai Chi and Qigong, can contribute to elderly people's quality of life and functional fitness.

Resumo

Objetivo: Comparar a aptidão funcional e as dimensões da qualidade de vida de idosos participantes e não participantes das práticas orientadas Lian Gong, Tai Chi e Qigong.

Métodos: Estudo caso-controle, desenvolvido no município de São Paulo – SP, Brasil, com 118 idosos, pareados por sexo e idade: 59 no grupo caso, participantes das práticas corporais, divididos em subgrupos por tempo de adesão:< 24 meses e ≥ 24 meses; e 59 no grupo controle, não participantes das práticas. Para a coleta de dados, aplicaram-se: questionário com variáveis sociodemográficas e de saúde, testes funcionais e o instrumento *Medical Outcomes Study 36- Item Short-Form Health Survey* (SF36). As análises estatísticas foram realizadas com o programa R versão 3.3.2. Os dados foram inicialmente analisados de forma descritiva e, em seguida, efetuou-se regressão logística univariada e o teste Kruskal Wallis. Os aspectos éticos da pesquisa com seres humanos foram obedecidos.

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Conflicts of interest: the article "Functional fitness and quality of life of elderly Lian Gong, Tai Chi and Qigong practitioners" is published in a preprint repository and is published in the Research Square database (https://www.researchsquare.com/article /rs-38591/v1), with DOI https://doi.org/10.21203/rs.3.rs-38591/v1. The paper was assessed and reviewed by the Scientific and Associate Editors, in addition to Ad Hoc Evaluators of *Acta Paulista de Enfermagem*.

Resultados: Verificou-se que, no grupo caso, idosos com tempo de adesão às práticas ≥ 24 meses apresentaram resultado superior no teste funcional de levantar e sentar da cadeira (p=0,006), bem como melhor desempenho nos seguintes domínios da qualidade de vida: dor (p= 0,003), vitalidade (p=0,021), aspectos emocionais (p=0,034) e saúde mental (p=0,020).

Conclusão: A participação nas práticas corporais, orientadas, Lian Gong, Tai Chi e Qigong pode contribuir para a qualidade de vida e a aptidão funcional de idosos.

Resumen

Objetivo: Comparar la aptitud funcional y las dimensiones de la calidad de vida de adultos mayores que participan y que no participan en prácticas orientadas Lian Gong, Tai Chi y Qigong.

Métodos: Estudio caso-control, realizado en el municipio de São Paulo – estado de São Paulo, Brasil, con 118 adultos mayores, pareados por sexo y edad: 59 en el grupo caso, participantes de las prácticas corporales, divididos en subgrupos por tiempo de participación: < 24 meses y ≥ 24 meses; y 59 en el grupo control, no participantes de las prácticas. Para la recopilación de datos, se aplicó un cuestionario con variables sociodemográficas y de salud, pruebas funcionales y el instrumento *Medical Outcomes Study 36- Item Short-Form Health Survey* (SF36). Los análisis estadísticos se realizaron con el programa R versión 3.3.2. Los datos se analizaron inicialmente de forma descriptiva y, a continuación, se realizó regresión logística univariada y la prueba de Kruskal Wallis. Los aspectos éticos de la investigación con seres humanos fueron cumplidos.

Resultados: Se verificó que, en el grupo caso, los adultos mayores con tiempo de participación en las prácticas ≥ 24 meses presentaron un resultado superior a la prueba funcional de levantarse y sentarse en la silla (p=0,006), como también un mejor desempeño en los siguientes dominios de calidad de vida: dolor (p= 0,003), vitalidad (p=0,021), aspectos emocionales (p=0,034) y salud mental (p=0,020).

Conclusión: La participación en las prácticas corporales orientadas Lian Gong, Tai Chi y Qigong puede contribuir para la calidad de vida y para la aptitud funcional de adultos mayores.

Introduction

The change in the world demographic profile showed a significant increase in the proportion of elderly individuals, and it is one of the most significant themes of the 21st century. This trend sets up a new epidemiological reality and creates challenges for public policy makers and for the Brazilian health system in terms of ensuring comprehensive care. Thus, the focus is directed to elderly people and their needs, especially those resulting from decreased physical, cognitive, mental/emotional and social autonomy.[1,2]

Nursing literature emphasizes the importance of actions that encourage and provide elderly individuals with compliance and maintenance of a healthy and physically active lifestyle,[3] with quality of life.[2] Regular physical activity, such as the body practices of Traditional Chinese Medicine (BPTCM), seems to be an important habit for maintaining long-term functional fitness, independence and quality of life.[4]

BPTCM are part of the therapeutic resources of Traditional Chinese Medicine (TCM) and the Brazilian National Policy on Integrative and Complementary Practices (PNPIC - *Política Nacional de Práticas Integrativas e Complementares*). They are also called meditative movements,[5] for including, during its execution, body movement, breathing, meditation and relaxation.[5,6]

Studies show that such practices have contributed to promoting health and quality of life for elderly individuals.[7-9] There is evidence regarding the association of such practices in reducing stress, anxiety and depression[10] and in increasing self-efficacy and social support.[11] Moreover, they seem to positively assist in improving physical functioning, balance and consequently preventing falls.[12]

As a gap in the production of scientific knowledge, it is noteworthy that, according to national literature, assessment of these practices, specifically for the elderly population, with a focus on functional fitness, quality of life and social support, is still modest,[13] in addition to the lack of studies with long-term follow-up and control groups in international literature.[14] Thus, this study aimed to compare the functional fitness and quality of life dimensions of elderly participants and non-participants of Lian Gong, Tai Chi and Qigong guided practices, considering longer compliance time, shorter compliance time and control group.

The results of this article can support the development and implementation of strategies to promote healthy aging, since BPTCM are associated with comprehensive care, sensitivity and body awareness, and the opportunity to reframe the ways

of dealing with the health-disease-care process of elderly people.

Methods

This is an observational epidemiological study of the case-control type, carried out in four Units Specialized in Traditional Medicine (USTM) of the Municipal Health Department of São Paulo (MHD-SP). Two belong to the East Regional Health Coordination (RHC), Center for Natural Practices of São Mateus and Center for Natural Practices of Guaianases, one to RHC Centro, Unit of Traditional Medicines Center and one to Southeast RHC, Reference Center in Homeopathy, Acupuncture and Integrative Practices in Health *Bosque da Saúde*. These USTM were selected because they systematically offer a wide variety of care modalities in Integrative and Complementary Practices in Health (ICPH), where the BPTCM Lian Gong, Qigong, Tai Chi Pai Lin, Tai Chi Chuan stand out, among others.[15]

The research was carried out from July 2016 to August 2017.

For the case group (CA) selection, elderly individuals, aged ≥ 60 years, of both sexes, users registered in one of the four USTM, practitioners of only one of the guided BPTCM at least twice a week, for a minimum period of six months without interruption, were invited to participate in the research, which configures compliance according to the Transtheoretical Model,[16] being able to practice physical activity in their free leisure time, but without the guidance of a professional, with conditions to respond to the research instruments.

For the control group (CO) composition, elderly individuals, aged ≥ 60 years, of both sexes, users registered in attendance at the four USTM, not participating in physical activity programs or guided BPTCM or others, inside or outside the USTM, for at least six months were invited to participate in the study, being able to practice physical activity in their free leisure time, but without guidance, with conditions to respond to the research instruments.

The sample was constituted, considering the total number of BPTCM participants guided in the four USTM who met the study eligibility criteria, totaling 118 elderly individuals, with 59 participants in the CA group subdivided into two groups, according to the median time of compliance with the same < 24 months and ≥ 24 months and 59 elderly individuals in the CO group.

The CA and CO groups were matched by sex and age, considering a 1:1 ratio between them, accepting an alpha error of 5% and the power of the test (1-β= 80%).

Sociodemographic data were collected using a questionnaire designed according to the study objectives. Functional fitness components, lower and upper limb strength were assessed by 30-second chair stand test[17] and hand grip strength.[18] Lower and upper limb flexibility was measured using chair stand and reach test,[19] and back scratch.[17] Mobility, speed, agility, and dynamic balance were assessed by 8-foot up-and-go test.[17]

Health-related quality of life was measured using the Medical Outcomes Study 36- Item Short-Form Health Survey (SF-36).[20] It is a multidimensional questionnaire, composed of 36 items that encompass the physical health and mental health dimensions and eight domains: physical functioning, role physical, bodily pain, general health, vitality, social funtioning, role emotional, mental health and a comparative question about the current perception of health and a year ago. To assess the results, a score was assigned to each question. Subsequently, these values were transformed into a scale from 0 to 100, with zero being the least favorable score and 100 the most favorable score, and each domain analyzed separately.[20]

Statistical analyzes were performed using the statistical program R version 3.3.2. (R Core Team, 2016),[21] with which, initially, a descriptive analysis of dependent and independent variables was performed using mean, median, minimum and maximum values, standard deviation and absolute and relative frequencies. Univariate Logistic Regression was used to compare the CA and CO groups, for quality of life and functional tests.

The Kruskal-Wallis test was used to compare CA and CO in relation to less (<24 months), equal

or greater (≥ 24 months) practice time, according to quality of life and functional tests. An alpha significance level of 5% was used in the inferential analyzes.

This study was conducted within the ethical standards of human research. This is a text previously published as Preprint in the Research Square repository.

Elderly individuals participated voluntarily, after agreeing and signing the Informed Consent Form (ICF). The research project was analyzed and approved by the Research Ethics Committee (REC) of *Universidade Federal de São Paulo* (Opinion 1,207,437) and by the MHD-SP REC (Opinion 1,237,453).

The present study used the 22 items proposed by the STROBE checklist, recommended for observational studies in epidemiology.[22]

Results

The study sample consisted of 118 elderly people, with 59 (50.0%) cases and 59 (50.0%) controls. Of the total number of individuals shown in Table 1, most are female (91.5% of cases and 89.8% of controls); white (35.6% of cases and 35.6% of controls); with incomplete elementary education (35.6% of cases and 55.9% of controls); married (55.9% of cases and 47.5% of controls); and unemployed (89.8% of cases and 83.1% of controls). Among the diseases mentioned, hypertension prevailed in 64.4% of cases and in 72.9% of controls. There was no statistically significant difference between the case and control groups in relation to sociodemographic variables and reported morbidities.

The median time of compliance with body practices (24 months) was used to subdivide the case group into two subgroups: shorter time of activity (< 24 months) and longer time of activity (≥ 24 months). Thus, comparisons were made of functional parameters and aspects related to quality of life between the three groups, as shown in Tables 2 and 3, respectively.

Regarding performance in functional tests, there was a better result in the case group with longer compliance time (≥ 24 months) in 30-second chair stand test (p=0.006), when compared to the case group with shorter compliance time (<24 months) and the control group (Table 3).

Regarding quality of life, comparing case and control groups, statistically significant differences were found for the domains: bodily pain, vitality, role emotional and mental health. The case group with longer compliance time (≥ 24 months) had a better score in the bodily pain domain (p=0.003), when compared to the case group with shorter compliance time (<24 months) and control group. In the vitality domain, the case group with longer compliance time (≥ 24 months) had a better score (p= 0.021) compared to the control group. Regarding the role emotional domain, the control group and the case group with lon-

Table 1. Comparison of sociodemographic and morbidity-related variables reported between case and control groups

Variables	Case n(%)	Control n(%)	Total n(%)	p-value[a]
Sex				
Male	5(8.5)	6(10.2)	11(9.3)	0.752
Female	54(91.5)	53(89.8)	107(90.7)	
Skin color reported				
White	21(35.6)	21(35.6)	42(35.6)	0.485
Black	15(25.4)	7(11.9)	22(18.6)	
Yellow	5(8.5)	6(10.2)	11(9.3)	
Brown	18(30.5)	23(39.0)	41(34.7)	
Indigenous		2(3.4)	2(1.7)	
Education				
None	1(1.7)	-(-)	1(0.8)	0.351
Complete elementary education	9(15.3)	3(5.1)	12(10.2)	
Incomplete elementary education	21(35.6)	33(55.9)	54(45.8)	
Complete high school	12(20.3)	11(18.6)	23(19.5)	
Incomplete high school	11(18.6)	7(11.9)	18(15.3)	
Complete higher education	3(5.1)	4(6.8)	7(5.9)	
Incomplete higher education	2(3.4)	1(1.7)	3(2.5)	
Marital status				
Married	33(55.9)	28(47.5)	61(51.7)	0.596
Single	7(11.9)	10(16.9)	17(14.4)	
Widow	15(25.4)	11(18.6)	26(22.0)	
Divorced	4(6.8)	8(13.6)	12(10.2)	
Common-law marriage	-(-)	2(3.4)	2(1.7)	
Paid occupation				
Yes	6(10.2)	10(16.9)	16(13.6)	0.287
No	53(89.8)	49(83.1)	102(86.4)	
Comorbidity reported				
Diabetes				
Yes	13(22.0)	21(35.6)	34(28.8)	0.106
No	46(78.0)	38(64.4)	84(71.2)	
Hypertension				
Yes	38(64.4)	43(72.9)	81(68.6)	0.322
No	21(35.6)	16(27.1)	37(31.4)	

[a]- Univariate Logistics Regression

Table 2. Comparison of performance in functional tests between case (< 24 months and ≥ 24 months) and control groups

Variables	Case		Control (n=59) n(%)	p-value[b]
	< 24 months (n=16) n(%)	≥ 24 months (n=43) n(%)		
8-foot up and go (s)				
Mean (±SD)	5.5(0.8)	5.1(0.8)	5.6(1.1)	0.129
Median	5.2	5.1	5.4	
Minimum-maximum	4.5(7.8)	3.7(7.1)	3.9(8.3)	
30-second chair stand (rep)				
Mean (±SD)	12.9(2.0)	15.6(3.8)	14.3(4.8)	0.006*
Median	13.0	15.0	14.0	
Minimum-maximum	9.0(16.0)	0.0(23.0)	0.0(33.0)	
Sit and reach (cm)				0.134
Mean (±SD))	21.7(10.5)	25.0(9.6)	21.1(10.3)	
Median	23.0	26.0	19.0	
Minimum-maximum	6.0(37.0)	2.0(41.0)	5.0(45.0)	
Chair stand and reach (cm)				
Mean (±SD)	-20.0(-)	0.0(-)	-8.8(12.8)	0.741
Median	-20.0	0.0	-2.5	
Minimum-maximum	-20.0(-20.0)	0.0(0.0)	-29.0(7.0)	
Back scratch (cm)				
Mean (±SD)	-21.9(14.5)	-12.7(13.4)	-13.2(13.1)	0.075
Median	-24.0	-13.0	-15.0	
Minimum-maximum	-42.0(4.0)	-42.0(14.0)	-40.0(21.0)	
Right hand grip strength (kg)				
Mean (±SD)	23.5(5.4)	25.7(7.5)	23.4(7.9)	0.144
Median	22.4	24.3	22.0	
Minimum-maximum	14.3(33.7)	10.0(56.7)	10.3(45.0)	
Left hand grip strength (kg)				
Mean (±SD)	22.5(5.7)	23.9(7.3)	22.3(7.3)	0.213
Median	22.9	23.0	20.0	
Minimum-maximum	14.0(32.3)	1.0(45.7)	6.3(45.6)	

[b]- Kruskal-Walis; *p≤ 0.05; ±SD - standard deviation; s-seconds; rep - repetitions; cm - centimeter; kg - kilogram

Table 3. Comparison of SF-36 domains between case (<24 months and ≥ 24 months) and control groups

SF-36 domains	Case		Control (n=59) n(%)	p-value[b]
	< 24 months (n=16) n(%)	≥ 24 months (n=43) n(%)		
Physical functioning				
Mean (±SD)	56.9(23.6)	71.0(21.4)	62.2(25.3)	0.062
Median	60.0	75.0	65.0	
Minimum-maximum	15.0(90.0)	10.0(100.0)	10.0(100.0)	
Role physical				
Mean (±SD)	45.3(31.9)	65.7(41.9)	54.2(40.0)	0.113
Median	37.5	100.0	50.0	
Minimum-maximum	0.0(100.0)	0.0(100.0)	0.0(100.0)	
Bodily pain				
Mean (±SD)	43.1(25.4)	67.5(24.7)	56.4(25.9)	0.003*
Median	41.0	72.0	51.0	
Minimum-maximum	12.0(100.0)	22.0(100.0)	12.0(100.0)	
Global health				
Mean (±SD)	58.9(24.3)	71.4(18.1)	66.3(22.3)	0.163
Median	57.5	72.0	65.0	
Minimum-maximum	20.0(97.0)	30.0(100.0)	22.0(100.0)	
Vitality				
Mean (±SD)	59.4(27.7)	72.1(18.7)	61.1(21.8)	0.021*
Median	62.5	75.0	65.0	
Minimum-maximum	0.0(95.0)	10.0(100.0)	5.0(100.0)	
Social functioning				
Mean (±SD)	67.4(28.8)	80.1(23.7)	74.5(26.0)	0.217
Median	75.0	88.0	75.0	
Minimum-maximum	0.0(100.0)	25.0(100.0)	13.0(100.0)	
Role emotional				
Mean (±SD)	37.5(40.2)	69.0(38.8)	61.0(42.5)	0.034*
Median	33.0	100.0	67.0	
Minimum-maximum	0.0(100.0)	0.0(100.0)	0.0(100.0)	
Mental health				
Mean (±SD)	70.0(25.5)	75.7(19.5)	65.4(20.1)	0.020*
Median	76.0	80.0	64.0	
Minimum-maximum	8.0(100.0)	8.0(100.0)	24.0(100.0)	

[b]- Kruskal-Wallis; *p≤ 0.05; ±SD = standard deviation; SF-36 = Medical Outcomes Study Short Form 36

ger compliance (≥ 24 months) had better scores (p=0.034) in comparison with the case group with shorter compliance time (<24 months). In the mental health domain, the case group with longer compliance (≥ 24 months) had a better score (p=0.020) when compared to the control group.

Discussion

The results of this research show similarity regarding the sociodemographic and health characterization of participants of CA and CO groups, with a predominance of women, self-reported white color, low education, married, without paid occupation, with reported hypertension.

These findings are similar to the profile of ICPH users found in two national surveys, with data from the Ministry of Health, in partnership with the Brazilian Institute of Geography and Statistics (IBGE - *Instituto Brasileiro de Geografia e Estatística*), on the use and factors associated with the search for this therapeutic resource by young and elderly Brazilian adults.[23,24]

With regard to the strength of participants' lower limbs, it appears that the longer compliance time of elderly individuals in the CA group to the BPTCM may have been a contributing factor to the improvement of this functional variable, assessed by 30-second chair stand test.

Tai Chi and Qigong practices have a broad theoretical framework,[25-27] and present positive results regarding the increase in lower limb strength of elderly individuals, as observed in the research that assessed the long-term effects (≥ 3 years) of Tai Chi on lower limb strength of elderly individuals, with their sedentary peers, having found better results among practitioners compared to sedentary ones, although the assessment methodology was different.[25]

However, regarding the BPTCM Lian Gong, our findings differ from the research that compared functional fitness of elderly individuals participating in water aerobics, hiking and Lian Gong, in which significant results were found for the strength of hiking participants' lower limbs, when compared to the other two modalities, indicating that Lian Gong practice generated the lowest performance result in the stand-up and sit-down test.[28]

Another study on Lian Gong practice, which compared physical fitness and health-related quality of life of elderly practitioners with sedentary women, also did not observe statistically significant differences between the two groups for the variable lower limb strength, assessed by the same test, although the intervention period was shorter.[29] Such disagreement may be related to the scarcity of studies with the Lian Gong practice, the methodological quality of the research and the different forms of assessment and intervention of participants.

Regarding health-related quality of life, BPTCM, when performed in the long term, can indicate significant changes in diferente quality of life domains.[30,31] It is verified that, over time, proficiency in the execution of movements is achieved, which promotes greater bodily, emotional and cognitive benefits,[6,32] as found in the present study, where practitioners with longer compliance (≥ 24 months) obtained better scores in the SF-36 bodily pain, vitality, role emotional and mental health domains.

Corroborating the present investigation results, research with Qigong practitioners, with more than five years of compliance, attributed the permanence in the practice to health maintenance, the recovery of some comorbidity and quality of life improvement.[33] Another study with Tai Chi practitioners found significant results, when compared to the control group, in the SF-36 physical functioning, general health, vitality and mental health domains.[34]

Such findings may be related to the therapeutic characteristics of Asian practices that encompass dimensions such as uniqueness, where the focus of care is centered on the person and not on the disease; flexibility, which is the adaptation of care to users and their context; complexity, which implies broadening the understanding of illness as the imbalance of vital dynamics, of the being, in addition to the components of a biological nature; and comprehensiveness, where interventions and assessments include objective and subjective results, since they are not limited to just curing the disease.[35,36]

With regard to the benefits of ICPH to elderly individuals' health, the target audience of this investigation, a qualitative study showed that, in the context of Primary Health Care, integrative practices improve elderly individuals' health and well-being, expand their social support and strengthen the bond between health professionals and users,[37] which has an impact on quality of life.

Summing up, BPTCM, as TCM therapeutic resources, seek to integrate physical symptoms, role emotional and the context of life, which complement bodybuilding values or those related to the health-disease-care process, which characterize Western practices.[35,36]

Some limitations of this research should be considered. The case-control design does not allow establishing the causal relationship of the results found, as well as the convenience sampling and volunteering does not allow the generalization of the findings.

Conclusion

When comparing the parameters of functional fitness and quality of life dimensions of elderly individuals participating and not participating in guided BPTCM, considering longer and shorter time of compliance with activities, and the control group, it

was found that participation in Lian Gong, Tai Chi and Qigong practices can contribute to improving functional fitness, especially lower limb strength, as well as improving elderly individuals' quality of life.

Collaborations

Tedeschi MR, Assone T, Ferreira M, Souza KM contributed to study design, data analysis and interpretation, article writing, relevant critical review of intellectual content and approval of the final version to be published.

References

1. Minayo MC. O imperativo de cuidar da pessoa idosa dependente. Cien Saude Colet. 2019;24(1):247-52.
2. Veras RP, Oliveira M. Envelhecer no Brasil: a construção de um modelo de cuidado. Cien Saude Colet. 2018;23(6):1929-36.
3. Boustros GE, Morais JA, Karelis AD. Current concepts in healthy aging and physical activity: a viewpoint. J Aging Phys Act. 2019;27(5):755-61.
4. Cunningham C, O' Sullivan R, Caserotti P, Tully MA. Consequences of physical inactivity in older adults: a systematic review of reviews and meta-analyses. Scand J Med Sci Sports. 2020;30(5):816-27.
5. Brasil. Ministério da Saúde. Portaria N° 971, de 03 de maio de 2006. Aprova a Política Nacional de Práticas Integrativas e Complementares (PNPIC) no Sistema Único de Saúde. Brasília (DF): Ministério da Saúde; 2006 [citado 2022 Jan 24]. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/pnpic.pdf
6. Pölönen P, Lappi O, Tervaniemi M. Effect of meditative movement on affect and floin Qigong Practitioners. Front Psychol. 2019;22(10):2375.
7. Martin KR, Druce KL, Murdoch SE, D'Ambruoso L, Macfarlane GJ. Differences in long-term physical activity trajectories among individuals with chronic widespread pain: a secondary analysis of a randomized controlled trial. Eur J Pain. 2019;23(8):1437-47.
8. Easwaran K, Gopalasingam Y, Green DD, Lach V, Melnyk JA, Wan C, et al. Effectiveness of Tai Chi for health promotion for adults with health conditions: a scoping review of meta-analyses. Disabil Rehabil. 2021;43(21):2978-89. Review.
9. Tajik A, Rejeh N, Heravi-Karimooi M, Kia SP, Tadrisi SD, Watts TE, et al. The effects of Tai Chi on quality of life in male older people: a randomized Controlled trial. Complement Ther Clin Pract. 2018;33:191-6.
10. Zhang S, Zou L, Chen LZ, Yao Y, Loprinzi PD, Siu PM, et al. The effect of Tai Chi Chuan on negative emotions in non-clinical populations: a meta-analysis and systematic review. Int J Environ Res Public Health. 2019;16(17):3033.
11. Lo OY, Conboy LA, Rukhadze A, Georgetti C, Gagnon MM, Manor B, et al. In the eyes of those who were randomized: perceptions of disadvantaged older adults in a Tai Chi trial. Gerontologist. 2020;60(4):672-82.
12. Sun W, Ma X, Wang L, Zhang C, Song Q, Gu H, et al. Effects of Tai Chi Chuan and brisk walking exercise on balance ability in elderly women: a randomized controlled trial. Motor Control. 2019;23(1):100-14.
13. Antunes CP, Lagranha DM, Sousa MF, Silva AM, Fraga AB. Revisão sistemática sobre práticas corporais na perspectiva das práticas integrativas e complementares em saúde. Rev Educ Fisic Esport lazer. 2018;30(55):227-47. Review.
14. Wang D, Wang P, Lan K, Zhang Y, Yingli Pan Y. Effectiveness of Tai Chi exercise on overall quality of life and its physical and psychological components among older adults: a systematic review and meta-analysis. Braz J Med Biol Res. 2020;53(10):e10196.
15. São Paulo (Estado). Secretaria Municipal de Saúde da cidade de São Paulo. Medicinas Tradicionais – práticas corporais. São Paulo (SP): Secretaria Municipal de Saúde da cidade de São Paulo; 2014 [citado 2019 Nov 18]. Disponível em:

http://www.prefeitura.sp.gov.br/cidade/secretarias/saude/atencao_basica/medicinas_tradicionais/index.php?p=20382

16. Fallon EA, Hausenblas HA, Nigg CR. The transtheoretical model and exercise adherence: examining construct associations in later stages of change. Psychol Sport Exerc. 2005;6(6):629-41.
17. Rikli RE, Jones CJ. Development and validation of a functional fitness test for community-residing older adults. J Aging Phys Act. 1999;7(2):129-61.
18. Stevens PJ, Sydall HE, Patel HP, Martin HJ, Cooper C, Aihie Sayer A. Is grip strenght good marker of physical performance among community-dwelling older people? J Nutr Health Aging. 2012;16(9):769-74.
19. Fitness Canada. Canadian Standardized Test of Fitness (CSTF) Operations Manual. 3rd ed. Ottawa: Fitness and Amateur Sport; 1987. 40p.
20. Ciconelli RM. Tradução para o português e validação do questionário genérico de avaliação de qualidade de vida "Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36) [tese]. São Paulo: Universidade Federal de São Paulo; 1997. 148 p.
21. R Core Team. A language and environment for statistical computing: a foundation for statistical computing. Vienna: R Core Team; 2013.
22. Vandenbroucke JP, von Elm E, Altman DG, Gøtzsche PC, Mulrow CD, Stuart J, et al. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Explanation and Elaboration. Epidemiology. 2007;18(6): 805-35.
23. Marques PP, Francisco PM, Bacurau AG, Rodrigues PS, Malta DC, Barros NF. Uso de práticas integrativas e complementares por idosos: pesquisa nacional de saúde 2013. Saúde Debate. 2020;44(126):845-56.
24. Boing AC, Ribeiro Santiago PH, Tesser CD, Furlan IL, Bertoldi AD, Boing AF. Prevalence and associated factors with integrative and complementary practices use in Brazil. Complement Ther Clin Pract. 2019;37:1-5.
25. Zhou M, Peng N, Dai Q, Li HW, Shi RG, Huang W. Effect of Tai Chi on muscle strength of the lower extremities in the elderly. Chin J Integr Med. 2016;22(11):861-6.
26. Wehner C, Blank C, Arvandi M, Wehner C, Schobersberger W. Effect of Tai Chi on muscle strength, physical endurance, postural balance and flexibility: a systematic review and meta-analysis. BMJ Open Sport Exerc Med. 2021;7(1):e000817.
27. Zurita AR. Efectos del Tai Chi sobre la calidad de vida relacionada com la salud em los mayores. Rev Esp Geriatr Gerontol. 2010;45(2):97-102.
28. Nunes ME, Santos S. Avaliação funcional de idosos em três programas de atividade física: caminhada, hidroginástica e Lian Gong. Rev Port Cien Desp. 2009;9(2-3):150-9.

29. Azevedo AR, Cavaglieri CR, Vilarta R, Maciel RS, De Martino MM, Sonati JG. Lian Gong for health promotion: a strategy used in primary health care in Brazil. J Family Med Community Health. 2015;2(6):1-6.

30. Han-Cheol K , Il-Myeong K , Sung-Woon K. The long-term effect of Tai Chi exercise on exercise self-efficacy and self-perceived health status in the elderly. Indian J Science Technology. 2016;9(25):1-8.

31. Zhou Z, Zhou R, Li K, Zhu Y, Zhang Z, Luo Y, et al. Effects of Tai Chi on physiology, balance and quality of life in patients with type 2 diabetes: a systematic review and meta-analysis. J Rehabil Med. 2019;51(6):405-17.

32. Wayne PM, Hausdorff JM, Lough M, Gow BJ, Lipsitz L, Novak V, et al. Tai Chi training may reduce dual task gait variability, a potential mediator of fall risk, in healthy older adults: cross-sectional and randomized trial studies. Front Hum Neurosci. 2015;9:332.

33. Jouper J, Hassmén P, Johansson M. Qigong exercise with concentration predicts health. Am J Chin Med. 2006;34(6):949-57.

34. Pereira MM, Souza VC, Paula AP, Moraes CF, Nobrega OT, Gomes L. Tai Chi Chuan improves functionality and quality of life in elderly men with low bone mineral densit. Geriatr Gerontol Aging. 2017;11(4):174-81.

35. Nascimento MC, Luz MT, Nogueira MI, Barros NF. A categoria racionalidade médica e uma nova epistemologia em saúde. Cien Saude Colet. 2013;18(2):3595-604.

36. Sousa IM, Hortale VA, Bodstein RC. Medicina Tradicional Complementar e Integrativa: desafios para construir um modelo de avaliação do cuidado. Cien Saude Colet. 2018;23(10):3403-12.

37. Santos MS, Amarello MM, Vigeta SM, Horta AL, Tanaka LH, Souza KM. Práticas integrativas e complementares: avanços e desafios para a promoção da saúde de idosos. Rev Min Enferm. 2018;22:e1125.