



Tai Chi as a Simple Exercise to Increase Immunity and Psychological Well-being: Narrative Review

Nita Fitria^{1*)}, Tati Sumarni², Diana Kusuma Astuti³

¹⁻³ Universitas Padjadjaran

ARTICLE INFO

Article history:

Received 21 January 2023

Accepted 1 April 2023

Published 10 June 2023

Keyword:

Covid-19

Tai Chi

Imunity

Psychological well being

ABSTRACT

Background: COVID-19 is a virus that attacks the human respiratory system and is more at risk of attacking someone with a low immunity level. Apart from having a physical impact, COVID-19 also has a psychological impact. Those impacts need efforts to increase immunity and psychological well-being. The effort that we can make is through a sports program. The right kind of exercise is a moderate-intensity exercise that involves thoughts, emotions, and physical sensations, such as yoga, meditation, and Tai Chi. Purpose: This article aims to analyze the effect of Tai Chi on increasing immunity and psychological well-being in the New Normal era. Methods: This article uses the narrative review method with the keyword "(People OR Adult OR Young Adult AND Tai Chi AND Immunity OR Psychological well being)". The databases used were Cochrane, EBSCO, Pubmed, and Taylor & Francis. 9 articles were obtained, which were then re-selected based on predetermined criteria. Article selection is also carried out using JBI to ensure the articles' quality is appropriate. Results: A literature search resulted in 9 articles showing that Tai Chi has benefits for improving psychological well-being, immunity, and physical function. Conclusion: Tai Chi can improve immunity, physical functioning, and psychological well-being when it occurs regularly. This benefit helps overcome the impact and prevention of COVID-19. Tai Chi programs are relatively easy to do at home and do not need to spend money. Apply quickly and become an effective solution.

This open access article is under the [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Kata kunci:

Covid-19

Tai Chi

Imunitas

Psychological well being

**) corresponding author*

Dr.Nita Fitria, S.Kp., M.Kes., AIFO

Department of Fundamental Nursing,
Faculty of Nursing, Universitas Padjadjaran
Jl. Cipagalo no 3B RT/RW 06/07, Margasari,
Buah Batu, Bandung

Email: nita.fitria@unpad.ac.id

DOI: 10.30604/jika.v8i2.1983

Copyright 2023 @author(s)

ABSTRAK

Latar Belakang: COVID-19 merupakan virus yang menyerang sistem pernapasan manusia dan lebih beresiko menyerang seseorang yang memiliki tingkat imunitas rendah. Selain berdampak pada fisik, COVID-19 juga berdampak pada psikologis. Hal tersebut menunjukkan bahwa diperlukan adanya upaya peningkatan imunitas dan kesejahteraan psikologis. Peningkatan imunitas dan kesejahteraan psikologis dapat dilakukan melalui program olahraga. Olahraga yang tepat adalah olahraga dengan intensitas sedang yang melibatkan pikiran, emosi, dan sensasi fisik seperti yoga, meditasi, dan Tai Chi. Tujuan: Penulisan artikel ini bertujuan untuk menganalisis pengaruh Tai Chi terhadap peningkatan imunitas dan peningkatan kesejahteraan psikologis di era Adaptasi Kebiasaan Baru (AKB). Metode: Penulisan artikel menggunakan metode narative review dengan kata kunci "(People OR Adult OR Young Adult AND Tai Chi AND Immunity OR Psychological well being)". Database yang digunakan yaitu Cochrane, EBSCO, Pubmed, dan Taylor & Francis. Hasil: Pencarian literatur menghasilkan 9 artikel yang menunjukkan bahwa Tai Chi memiliki manfaat untuk meningkatkan kesejahteraan psikologis, imunitas, dan meningkatkan fungsi fisik. Kesimpulan: Manfaat Tai Chi berguna untuk mengatasi dampak dan pencegahan penyakit COVID-19. Kesimpulan Program Tai Chi relatif

mudah dilakukan di rumah sehingga mudah diaplikasikan dan menjadi solusi yang efektif.

This open access article is under the [CC-BY-SA](#) license.



INTRODUCTION

The COVID-19 pandemic has been going on since 2019 and has improved. At the end of 2021, omicron became a new type of Covid-19 virus. Omicron cases in Indonesia are still increasing. Until February 23, there were 6,580 Omicron cases in Indonesia (Katadata, 2022).

COVID-19 is a virus transmitted by droplets. Generally, this viral infection occurs in the respiratory system. The infected lungs will make antibodies that work to fight viral attacks. COVID-19 causes physical problems for infected people and psychologically impacts non-infected people and health workers. Therefore, to avoid or recover from COVID-19, good immunity is needed.

Several research results evidence the psychological impact caused during a pandemic. Zhang and Ma (2020) show that participants experience light stress due to the pandemic. The average impact indicates an Event Scale (IES) value of 13.6 ± 7 . The study also showed that 52.10% of participants felt fear and anxiety about the COVID-19 pandemic (Zhang & Ma, 2020). Another study by Moccia et al. (2020) stated that 38% of the population in Italy currently feels some form of psychological distress. It cannot be tolerated because psychological problems will affect immunity conditions. Research (Dhabar, 2014) shows that short-term stress can increase immunoprotective acquisition, while chronic stress can withstand the immune response. People with weakened immune systems are at a higher risk of developing Covid-19 disease.

An effort is needed to improve the immune system and psychological well-being, one of which is exercise. Exercise can boost the immune system. The proper exercise to improve immune system function is moderate-intensity exercise because excessive exercise can cause immunosuppression (Liu et al., 2012). The duration of moderate exercise is approximately 45 minutes. In addition to increasing the immune system, moderate exercise can also control psychological well-being. Types of exercise that can increase endurance and control psychological well-being involve thoughts, emotions, and physical sensations (Hofmann, Grossman, & Hinton, 2011). This type of exercise includes yoga, meditation, and Tai Chi.

Based on several types of exercise mentioned, Tai Chi has a positive role in responding to the COVID-19 pandemic, including boosting the immune system, reducing the inflammatory response, rehabilitating respiratory diseases, and improving emotional well-being (Xu et al., 2021). The tai chi analysis was carried out because this intervention can be carried out at home and has a stable tempo, so it is safe for everyone to do it. This positive role can help overcome the psychological and physical problems of COVID-19 sufferers. Therefore, we are interested in conducting literature studies about Tai Chi on increasing immunity. This is because Tai Chi has many benefits, but the latest literature reviews have yet to be found about the benefits of Thai Chi on increasing immunity.

METHODS

The method that was used in this research is narrative review. This is because in accordance with the research objective, namely to analyze tai chi on increase immunity, psychological, and physical well-being. The literature used articles that were obtained from electronic databases based on keywords that have been compiled. The keywords used included a combination of MESH and free-text terms, such as "People" OR "Adult" OR "Young Adult" AND "Tai Chi" AND "Increase Immunity" OR "Improve Immunity" AND "Increase Mentality" OR "Improve mental health" OR Psychological Well Being".

Table 1. PICO as an Approach to Searching for Keywords in Search

Item	Description
P	People OR Adult OR Young Adult
I	Tai Chi
C	-
O	Immunity and Psychological well being

Relevant studies were searched and retrieved from four electronic databases (Cochrane, EBSCO, Pubmed, dan Taylor & Francis). The inclusion criteria for selecting articles are publication in 2012-2022, full text, and writing methods in at least an experimental study cohort. The exclusion criteria from the selection of articles are articles with a study protocol research method. In addition to using inclusion and exclusion criteria, the article also uses JBI to ensure the quality of the articles used in the JBI value.

Articles collected and following the inclusion criteria and JBI value will be analyzed and synthesized by categorizing the analysis of the issue and the potential for problems to arise completion of a solution. Analysis of the article focuses on the effectiveness of Tai Chi on immunity and psychological well-being. The article selection process is described in PRISMA Flow Diagrams.

After a literature search through Cochrane, CINAHL, Pubmed, Taylor & Francais found 3153 articles. Then, the articles were sorted according to the predetermined inclusion and exclusion criteria. The sorting results obtained 13 articles. After that, a screening of title selection, abstract selection, and the full text was carried out for the 13 articles, and the results obtained were 11 articles. The 11 articles were then analyzed and presented in Table 2.

RESULTS AND DISCUSSION

Psychological effects on society are another effect of the COVID-19 pandemic apart from physical impact. The COVID-19 pandemic's psychological effects are fear, anxiety, light stress, and psychological pressure (Zhang & Ma, 2020; Moccia et al., 2020; Li et al., 2020). If it cannot be tolerated in this condition, stress can reduce immunity, especially in long-term stress that causes obstacles to the immune

response (Dhabar, 2014). COVID-19 is easy to attack in someone with a weak immune system, which can increase positive cases (CDC, 2020).

One of the efforts that can improve psychological well-being and the immune system is exercise. The right sport for this situation is exercise with moderate intensity. One of them is Tai Chi. Based on the literature search regarding the effectiveness of Tai Chi on immunity and psychological well-being, eleven relevant articles were obtained from 4 databases, namely Cochrane, EBSCO, PubMed, and Taylor & Francis.

The eleven research articles come from various countries. Most of the research conducted in China is four studies. Other studies were conducted in Japan, Iran, Taiwan, Switzerland, Australia, New York, and England. The article is divided into three main sub-themes of Tai Chi's influence: physical function, psychological well-being, and immune system. Table 2, Tai Chi, gives a detailed description of Tai Chi to increase immunity, psychological, and physical well-being.

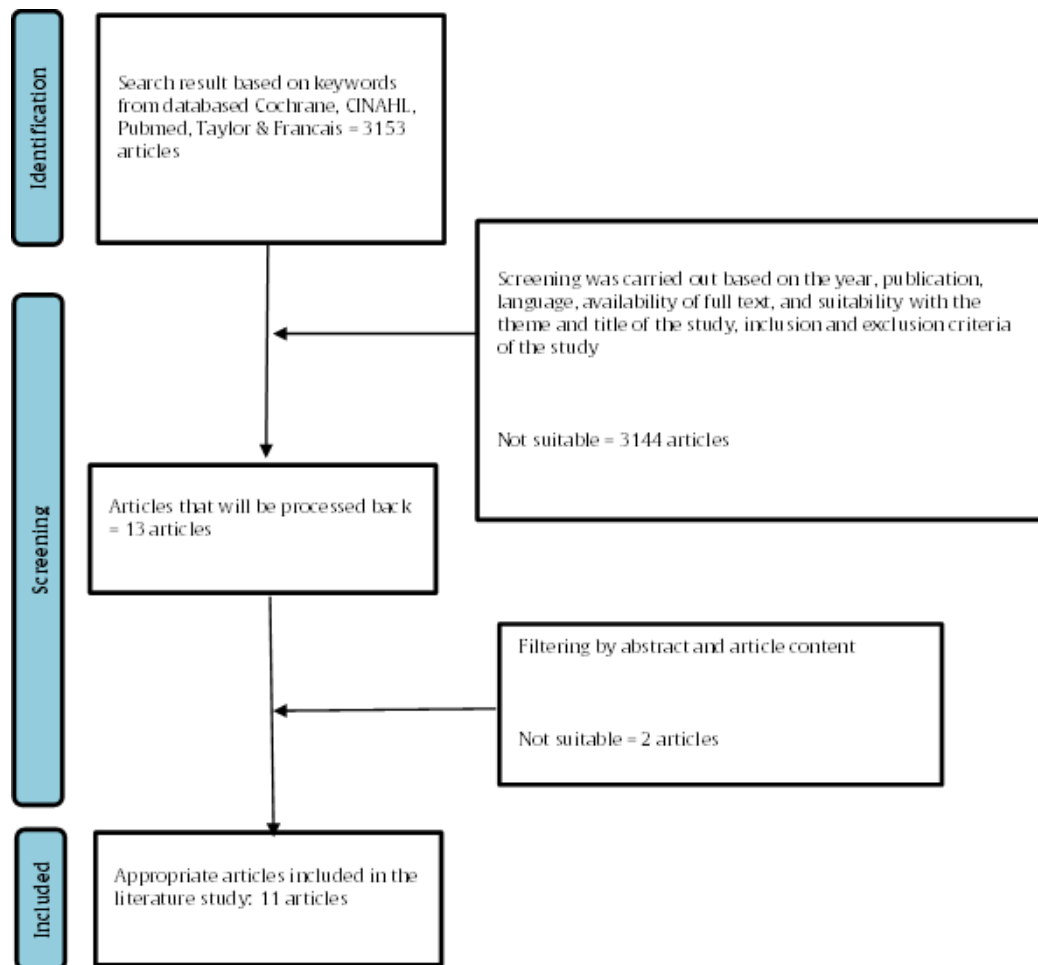


Diagram 1. PRISMA Flow Diagrams

Table 2. Tai Chi to Increase Physical Function, Psychological Well-Being, and the Immune System

The Tai Chi Influence	Results of the Effectiveness of Tai Chi	Reference
Physical Function	Significant improvement in physical function, physicalrole, and vitality. Tai Chi also decrease pain body score. Tai chi is able to increase the Q o L indicator in DM patients	Liu, X et al., (2012)
	Increase movement ranges and decrease significantly the total length of the locus on one leg. That shows that tai chi is highly recommending for maintaining body balance.	Harada et al., (2018)
	After the intervention for eight weeks, QOL experienced a significant improvement	Tajik et al., (2018)
	There was an increase in balance after the tai chi intervention. During the 6-month follow-up, there was a decrease in the incidence of falls and the length of time they fell.	Gao et al., (2014)
Psychological Well-Being	Improve immunity and psychological well-being The long-term solid practice of Tai Chi reduces symptoms of depression	Tai, H.C. et al., (2018) Walther, Lacker, &

The Immune System

Reducing stress levels and reducing stress significantly
Tai chi is proven to be effective in the psychological, social, and environmental dimensions
Improve immune system function, namely CD4 +, NK cells, NKT cells, IFN- γ , IL-4, CD123 + and CD11c +
Increase immunoglobulin A, immunoglobulin G and immunoglobulin M
Regarding immune function and physical health, the Tai Chi group exhibited significantly higher levels of Ig G, and NK cell cytotoxicity. Tai chi also significantly lower waist-to-hip ratio, systolic blood pressure, diastolic blood pressure, and significantly higher vital capacity

Ehlert (2018)
Zheng, S. et al., (2018)
Liao, Chong, Tan, & Chua (2019)
Liu, J. et al., (2012)

Niu et al (2016)
Su & Zhao (2021)

The result of JBI score explained in the table 3.

Table 3. Result Score of Quality Article

No	Author (year)	JBI%	Literature score quality
1	Niu et al (2016)	61,5%	Enough
2	Zhang et al (2018)	84,6%	Good
3	Tajik et al (2018)	92,3%	Very good
4	Liu, X., et al. (2012)	69,2%	Enough
5	Gao et al., (2014)	76,9%	Enough
6	Tai et al (2018)	69,2%	Enough
7	Walther, Lacker, & Ehlert (2018)	69,2%	Enough
8	Liao, Chong, Tan, & Chua (2019)	92,3%	Very good
9	Liu, J. et al., (2012)	61,5%	Enough
10	Su & Zhao (2021)	87,5%	Good
11	Harada et al., (2018)	88,8%	Good

Table 3 shows the scores of all articles obtained after the JBI assessment. The results show that the articles that have been collected meet the JBI score criteria

DISCUSSION

Sport is an effort to increase endurance and control psychological well-being if this exercise is carried out correctly, with an appropriate duration, and considers the components of prescribing exercise in sports, namely FITT (Frequency, Intensity, Time, Type) (Kluwer, 2018). Liu et al. (2012) stated that moderate intensity levels are the proper exercise to improve psychological well-being and immunity. Excessive exercise for the body can cause immunosuppression, so the recommended exercise duration is around 45 minutes (Liu et al., 2012). According to Zaleski (2019), the ideal duration for exercise is 30-60 minutes. Besides paying attention to the level and duration, the type of exercise also needs to be considered. Types of exercise that can increase endurance and control psychological well-being are sports that involve thoughts, emotions, and physical sensations (Hofmann, Grossman, & Hinton, 2011). These types of exercise include yoga, meditation, and Tai Chi.

Tai Chi or Tai Chi Chuan is a Chinese martial art that coordinates complex movements and breathing. This martial art uses a gentle style characterized by joint coordination and relaxation, not for tensing muscles, overpowering opponents, or delivering strikes. Therefore Tai Chi can be categorized as a meditation practice focusing on thoughts, movement, breathing, and relaxation (Yeung, Chan, Ceung, & Zou, 2018). Tai Chi can also be a traditional healing practice rooted in traditional Chinese theory. Tai Chi is characterized by coordinated posture and body movements, deep

breathing rhythms, meditation, and mental focus (Zou & Wang, 2017).

The benefits of Tai Chi include improved physical function, psychological well-being, and the immune system. Research by Liu et al. (2012) shows that Tai Chi which is done at least 3 times in 9 days and routinely carried out for 12 weeks, has been shown to improve physical function and quality of life ($p < 0.05$) in DM patients. Another study in Korea also showed that Tai Chi performed for 8 weeks (60 minutes and frequency of at least 2 times a week) proved to be beneficial for increasing muscle strength and lowering blood pressure ($p = 0.05$) (Lee et al., 2020). Another benefit of consistently practicing Tai Chi is that it can overcome balance problems. A clinical study shows that 40 minutes of Tai Chi activities can help overcome balance problems (Harada et al., 2018). This study was supported by Wang et al. (2014), who also stated that Tai Chi was proven to overcome balance problems.

Tai Chi also affects psychological well-being because it is a meditation practice and uses moderate-intensity aerobic movements. Tai Chi effectively increases psychological well-being for 63 minutes in one practice (Tai, H.C. et al., 2018). The practice took place in 10-week intervals or 63 sessions. This study supported Walther, Lacker, & Ehlert (2018), who stated that Tai Chi performed ≥ 4 times per week or in the long term can reduce symptoms of depression and increase personal satisfaction but cannot reduce cortisol testosterone levels. Cortisol is the end product of the hypothalamic-pituitary-adrenal (HPA) axis, which prevents testosterone production by reducing HPG activity and blocking androgen receptors, so cortisol and testosterone together regulate matters related to behavioral status. This direct effect on the HPA axis mechanism can suppress systems associated with dominant systems, such as stress management. High cortisol can signify high-stress reactivity, which is related to biological, psychological, and behavioral changes in the behavioral effects of low or high testosterone (Sherman, G. et al., 2016). Zheng, S. et al., (2018) added that Tai Chi could significantly reduce stress if done for 12 weeks for 2 hours per week.

Besides its benefits as an increase in physical function and psychological well-being, Tai Chi can also boost the immune system. According to the results of research conducted by Ho, R. et al., (2013), showing Tai Chi can enhance cell-mediated immunity and antibody response. Liu et al., (2012) research support this by showing that immune system function increases after 4 months of Tai Chi, namely CD4 +, NK cells, NKT cells, IFN- γ , IL-4, CD123 +, and CD11c +. For immunoglobulin A, immunoglobulin G, and immunoglobulin M after Tai Chi for 6 months (Niu, 2016).

Based on the existing research, synthesis can be produced that the Tai Chi program helps increase immunity and psychological well-being when doing it regularly. The duration of effective Tai Chi practice ranges from 40 minutes to 120 minutes. The ideal frequency of practicing Tai Chi is at

least 2 times a week and regularly done for at least 8 weeks. The limitation of this study is that it needs to specifically explain the benefits of tai chi based on age groups and health problems experienced.

CONCLUSIONS AND SUGGESTIONS

Until today, the pandemic COVID-19 is still a health problem that has not been completed. The community has entered the new habit adaptation period, or the New Normal era, which shows that extra handling must be needed to prevent and deal with COVID-19. One effort that can be made is through the exercise of Tai Chi. Therefore Taucu (Tai Chi to desist Corona) is an appropriate solution to reduce the number of cases of COVID-19 in Indonesia by improving the body's immunity and psychological well-being. That is because the exercise of Tai Chi can improve immunity, physical functioning, and psychological well-being when it occurs regularly. Tai Chi practice can be effective from 40 minutes to 120 minutes. The ideal frequency of practicing Tai Chi is at least two times a week and regularly done for at least eight weeks. Implementation of Tai Chi is also simple and can be done individually to support health protocol, which is physical distancing. The limitation of this study is that it needs to specifically explain the benefits of tai chi based on age groups and health problems experienced. Future researchers can conduct more specific research regarding the benefits of tai chi in certain age groups or those with certain health problems.

REFERENCES

- CDC. (2020). If You Are Immunocompromised, Protect Yourself From COVID-19. Retrieved August 2, 2020, from <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/immunocompromised.html>
- Dhabar, F. S. (2014). Effects of stress on immune function: the good, the bad, and the beautiful. *Immunol Res*, 58(2–3), 193–210. <https://doi.org/10.1007/s12026-014-8517-0>
- Gao, Q., Leung, A., Yang, Y., Wei, Q., Guan, M., Jia, C., & He, C. (2014). Effects of Tai Chi on balance and fall prevention in Parkinson's disease: A randomized controlled trial. *Clinical Rehabilitation*, 28(8), 748–753. <https://doi.org/10.1177/0269215514521044>
- Harada, S. T., et al. (2018). Impacts of Tai Chi on balance in healthy young adults. *International Medical Journal*, 25(2), 92–94.
- Ho, R. T., et al. (2013). The effect of t'ai chi exercise on immunity and infections: A systematic review of controlled trials. *Journal of Alternative and Complementary Medicine*, 19(5), 389–396. <https://doi.org/10.1089/acm.2011.0593>
- Hofmann, S. G., Grossman, P., & Hinton, D. E. (2011). Loving-kindness and compassion meditation: Potential for psychological interventions. *Clinical Psychology Review*, 31(7), 1126–1132. <https://doi.org/10.1016/j.cpr.2011.07.003>
- Lee, S.-H., Kim, B.-J., Park, I.-H., Hwang, E.-H., Park, E. J., Jang, I., & Hwang, M. (2020). Effects of taichi on grade 1 hypertension: A study protocol for a randomized controlled trial, 21(1), 177. <https://doi.org/10.1186/s13063-019-4028-6>
- Li, Z., Ge, J., Yang, M., Feng, J., Qiao, M., Jiang, R., ... Yang, C. (2020). Vicarious traumatization in the general public, members, and non-members of medical teams aiding in COVID-19 control. *Brain, Behavior, and Immunity*, 88(March), 916–919. <https://doi.org/10.1016/j.bbi.2020.03.007>
- Liao, S. J., Chong, M. C., Tan, M. P., & Chua, Y. P. (2019). Tai Chi with music improves quality of life among community-dwelling older persons with mild to moderate depressive symptoms: A cluster randomized controlled trial. *Geriatric Nursing*, 40(2), 154–159. <https://doi.org/10.1016/j.gerinurse.2018.08.001>
- Liu, J., et al. (2012). Effect of Tai Chi Exercise on Immune Function in Middle-aged and Elderly Women. *Journal of Sports Medicine & Doping Studies*, 2(6), 1–8. <https://doi.org/10.4172/2161-0673.1000119>
- Liu, X., et al. (2012). The effect of Tai Chi on health-related quality of life in people with elevated blood glucose or diabetes: A randomized controlled trial. *Quality of Life Research*, 22(7), 1783–1786. <https://doi.org/10.1007/s11136-012-0311-7>
- Moccia, L., Janiri, D., Pepe, M., Dattoli, L., Molinaro, M., Martin, V. De, ... Nicolaa, M. Di. (2020). Affective temperament, attachment style, and the psychological impact of the COVID-19 outbreak: an early report on the Italian general population. *Brain Behav Immun*, 87, 75–79. <https://doi.org/10.1016/j.bbi.2020.04.048>
- Niu, A. (2016). Participants, Effect of "Tai Chi" Exercise on Antioxidant Enzymes Activities and Immunity Function in Middle-Aged. *Afr J Tradit Complement Altern Med*, 13(5), 87–90. <https://doi.org/10.21010/ajtcam.v13i5.12>
- Sherman, G., et al. (2016). The interaction of testosterone and cortisol is associated with attained status in male executives. *Journal of Personality and Social Psychology*, 110(6), 921–929. <https://doi.org/10.1037/pspp0000063>
- Su, Z. J., & Zhao, J. X. (2021). Comparative Study of the Effects of Tai Chi and Square Dance on Immune Function, Physical Health, and Life Satisfaction in Urban Empty-Nest Older Adults. *Frontiers in Physiology*, 12(October), 1–8. <https://doi.org/10.3389/fphys.2021.721758>
- Tai, H. C., et al. (2018). Effect of Tai Chi Synergy T1 exercise on autonomic function, metabolism, and physical fitness of healthy individuals'. *Evidence-Based Complementary and Alternative Medicine*. <https://doi.org/10.1155/2018/6351938>
- Tajik, A., Rejeh, N., Heravi-Karimooi, M., Samday Kia, P., Tadrissi, S. D., Watts, T. E., ... Vaismoradi, M. (2018). The effect of Tai Chi on quality of life in male older people: A randomized controlled clinical trial. *Complementary Therapies in Clinical Practice*, 33(October), 191–196. <https://doi.org/10.1016/j.ctcp.2018.10.009>
- Walther, A., Lacker, T. J., & Ehlert, U. (2018). Everybody was Kung-Fu fighting—The beneficial effects of Tai Chi Qigong and self-defense Kung-Fu training on psychological and endocrine health in middle aged and older men. *Complementary Therapies in Medicine*, 36, 6872. <https://doi.org/10.1016/j.ctim.2017.11.021>
- Wang, F., Lee, E.-K. O., Wu, T., Benson, H., Fricchione, G., Wang, W., & Yeung, A. S. (2014). The effects of tai chi on depression, anxiety, and psychological well-being: a systematic review and meta-analysis. *Int J Behav Med*, 21(4), 605–617. <https://doi.org/10.1007/s12529-013-9351-9>
- Wolter, K. (2018). *Exercise Testing and Prescription*. (M. Bayles & A. Swank, Eds.) (1st ed.). US: American College of Sport Medicine.
- Xu, S., Baker, J. S., & Ren, F. (2021). The positive role of tai chi in responding to the covid-19 pandemic. *International Journal*

- of Environmental Research and Public Health*, 18(14).
<https://doi.org/10.3390/ijerph18147479>
- Yeung, Chan, Ceung, & Zou. (2018). Qigong and Tai-Chi for Mood Regulation. *Focus*, 16(1), 40–47.
<https://doi.org/10.1176/appi.focus.20170042>
- Zaleski, A. (2019). Exercise for the Prevention and Treatment of Hypertension -Implications and Application. Retrieved August 21, 2020, from
<https://www.acsm.org/blogdetail/acsm-certified-blog/2019/02/27/exercise-hypertension-prevention-treatment>
- Zhang, Y., & Ma, Z. F. (2020). Impact of the COVID-19 pandemic on mental health and quality of life among local residents in Liaoning Province, China: A cross-sectional study'. *International Journal of Environmental Research and Public Health*, 17(7). <https://doi.org/10.3390/ijerph17072381>
- Zheng, S., et al. (2018). The Effects of Twelve Weeks of Tai Chi Practice on Anxiety in Stressed But Healthy People Compared to Exercise and Wait-List Groups–A Randomized Controlled Trial. *Journal of Clinical Psychology*, 74(1), 83–92.
<https://doi.org/10.1002/jclp.2248>
- Zou, L., & Wang. (2017). Traditional Chinese Baduanjin Qigong for Older Adults : A Mini-Review. *Journal of Gerontology & Geriatric Medicine*, 1(3), 1–2.
<https://doi.org/10.19080/OAJGGM.2017.01.555561>.