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A review of the therapeutic effects of traditional Chinese therapies on hypertension and cancer using qigong as an example

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Abstract. This review examines the therapeutic effects of Qigong, a traditional Chinese practice, on hypertension and cancer-related symptoms. Qigong, characterized by regulated breathing, meditation, and coordinated physical movements, has gained attention as a potential complementary therapy in modern healthcare. For hypertension management, multiple studies indicate that Qigong has effects similar to those of conventional treatments, and it can significantly lower blood pressure (BP) on both the SBP and DBP levels. The practice appears to modulate the sympathetic nervous system and enhance patients' self-efficacy in health-promoting behaviors. In cancer care, Qigong shows promise in alleviating symptoms such as pain, strain, depression, and fatigue, thereby improving overall living quality. Studies point to possible advantages for immunological response and specific biomarkers in cancer patients. However, methodological flaws in many of the current studies limit the evidence, like those with small sample sizes and absence of uniformity in Qigong interventions. While Qigong demonstrates potential as a complementary therapy for symptom management, its direct impact on disease progression, particularly in cancer, remains unclear. Future research should focus on large-scale, rigorous randomized controlled trials to validate these effects and explore optimal implementation strategies. Despite limitations, the non-invasive nature, low cost, and self-administration potential of Qigong make it an attractive option for integration into comprehensive treatment plans for hypertension and supportive cancer care.

Keywords: Qigong, Hypertension, Cancer, Complementary therapy, Symptom management.

1. Introduction

Qigong, a traditional Chinese healing technique, has deep historical roots that trace back thousands of years, although its exact origins remain elusive. The discovery in 1975 of a human figure in a Qigong standing posture on a relief-colored pottery pot, unearthed in Qinghai, China, provides compelling evidence that Qigong practices have been integral to Chinese culture for at least 5,000 years. This ancient practice encapsulates key principles of traditional Chinese medicine (TCM) and philosophy, integrating them into a holistic approach that emphasizes the balance of body, mind, and spirit.

Qigong is primarily characterized by its use of regulated breathing, meditation, and coordinated physical movements. These elements work synergistically to cultivate and direct "Qi" (vital energy) within the body, with the aim of enhancing overall health and well-being. The modern practice of Qigong has evolved into various forms, including the widely practiced Five-Animal Frolics (Wu Qin

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Xi), Yi Jin Jing, Eight-Section Brocade (Ba Duan Jin), and Liu Zi Jue Qigong. Each form is designed to harmonize physiological functions and promote mental tranquility, thereby offering comprehensive benefits that extend beyond physical fitness to encompass psychological and social well-being.

In contemporary China, Qigong is not only a popular exercise for maintaining health but also a recognized therapeutic approach in the management of various chronic diseases. Research and clinical applications of Qigong have demonstrated its potential for the prevention and treatment of many health conditions, with positive effects on the human respiratory, nervous, cardiovascular, digestive, immune and psychological systems, and can be utilized to treat a wide range of health conditions, including hypertension, cancer, diabetes, coronary artery disease, nearsightedness and digestive disorders [1]. These studies suggest that Qigong can play a significant role in improving the quality of life (QoL) for patients by enhancing physical health, reducing psychological stress, and fostering social interaction.

The growing interest in Qigong as a complementary and alternative medicine highlights the need for a comprehensive review of its therapeutic efficacy across a range of medical conditions. This review aims to systematically evaluate the evidence supporting the use of Qigong in the treatment of various diseases, with a focus on its physiological, psychological, and social benefits. By exploring the underlying mechanisms and clinical outcomes associated with Qigong practice, this paper seeks to contribute to the broader understanding of how traditional healing techniques can be integrated into modern healthcare paradigms.

2. Therapeutic effects of Qigong on hypertension

Hypertension is one of the most extensively studied diseases. Qigong has been shown to be beneficial for people with hypertension in an increasing number of studies and experiments conducted in the last few years. A systematic review on the safety and effectiveness of Qigong for hypertension was carried out by Xiong, X. et al. The results showed that Qigong significantly reduces SBP and DBP compared to no intervention. When compared to exercise, Qigong is less effective in reducing systolic BP, but there is no significant difference in reducing diastolic BP. Qigong is more effective at lowering DBP than SBP when compared to antihypertensive medications. Combined treatment with Qigong and antihypertensive drugs can significantly reduce both SBP and DBP [2].

Lee, M. S. et al. also found that Qigong, when used as an adjuvant therapy in addition to antihypertensive medications, significantly lowers systolic BP [3]. The effects of Qigong on the reduction of adult SBP and DBP were assessed by Ching, S. M. et al. The findings indicated that Qigong significantly reduced both, indicating that Qigong can be used as an adjunctive treatment in the complex management of hypertension [4].

2.1. Direct effects of Qigong on BP

After a 10-week Qigong training program, Lee, M. S. et al. discovered that the Qigong group had significantly lower heart rate pressure product, DBP and SBP for patients with essential hypertension. Qigong effectively lowers BP by stabilizing the sympathetic nervous system, as evidenced by the significantly lower levels of stress, adrenaline, cortisol, and norepinephrine that they also observed. This describes Qigong as a potent non-pharmacological treatment [5].

Following ten weeks of Qigong self-training, Lee, M. S. et al. assessed BP, urine catecholamine levels, and ventilation function in 58 patients with mild essential hypertension in the same year. The results showed that SBP and DBP were significantly reduced, urinary catecholamine levels were decreased, and ventilation function was improved in the Qigong group. This implies that by regulating the sympathetic nervous system, Qigong may lower BP and enhance breathing [6].

2.2. Comparison of Qigong with other treatment methods

According to the findings of the study by Ma, J. et al., compared to conventional BP-lowering medication or health education, the combination of Tai Chi and Qigong demonstrated significant effects in regulating SBP and DBP in hypertensive patients. Despite the fact that these exercises are beneficial in lowering BP, the majority of randomized controlled trials have low quality, which may compromise

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clinical evidence. More rigorous designs are needed for future research in order to confirm these findings [7].

2.3. Psychosocial effects

Following the practice, the Qigong group saw notable improvements in self-efficacy and other cognitive perception variables, as well as significant reductions in both SBP and DBP at the psychological and social health level. This suggests that Qigong not only helps to lower BP but also enhances self-efficacy and confidence in health-promoting behaviors in hypertensive patients [8].

2.4. Comparison of different Qigong methods

2.4.1. Baduanjin (Eight-Section Brocade). Xiao, C. et al. demonstrated that the experimental group showed significant improvements in serum nitric oxide, plasma endothelin-1, fasting blood glucose, total cholesterol, triglycerides, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, diastolic BP, and total cholesterol after six months of Baduanjin exercise. The control group showed no signs of change. These results validate the use of Baduanjin Qigong as a viable exercise intervention for patients with essential hypertension to improve cardiovascular health and BP [9].

2.4.2. Tai Chi and simplified Qigong. Rameshkumar, R. et al. tested the effects of Qigong and Taiji simple (QTC) and QTC in combination with heart rate variability (HRV) biofeedback on HRV parameters (primary outcome) and cardiometabolic risk factors and their consequences such as dietary habits, mood regulation, stress, anxiety/depression, sleep quality, waist circumference/percentage body fat, and cognitive performance. In relation to cardiometabolic risk factors and their effects, the study's results should assess the effects of QTC and clarify the possible role of HRV in QTC [10].

2.4.3. Mawangdui Daoyin. The findings of Chen D indicated that high-density lipoprotein cholesterol, DBP and SBP, and nitric oxide levels significantly increased in the Mawangdui-guided surgery group after practice. In contrast, total peripheral resistance, low-density lipoprotein cholesterol, fasting blood glucose, and endothelin-1 levels significantly decreased. This suggests that Qigong may reduce BP by improving vascular endothelial function and reducing angiotensin II-mediated vascular tone [11].

2.4.4. Dongeui Qigong. Although the above-mentioned Baduanjin, Tai Chi, and Mawangdui Daoyin are all effective in improving high BP, not all Qigong methods are equally effective. Park, J. E. et al. found no significant effect of dongeui Qigong on prehypertension and mild essential hypertension. This finding could be attributed to a variety of factors, including Qigong type, participant compliance, target symptoms, and sample size issues [12].

2.5. Limitations and future research directions

Kelley, G. A. et al. explored the interindividual differences in Qigong responses to resting SBP and DBP in adults. Studies have found that Qigong is associated with the reduction of resting SBP and DBP in adults with essential hypertension, but no significant inter-individual differences were found. This shows that other external factors may have an impact on Qigong's ability to lower BP [13].

Overall, most studies have proven that practicing Qigong is beneficial for hypertensive patients. Different types of Qigong may lower BP in various ways and may even enhance self-efficacy and confidence in health-promoting behaviors in hypertensive patients, offering physiological, psychological, and social benefits. However, there are also differences in response among individuals during the implementation of trials. The majority of randomized controlled trials have low quality, so additional high-quality research is still required to confirm Qigong's therapeutic benefits. Simultaneously, it is necessary to continue to deeply study what additional outside factors confirm Qigong's influence mechanism by regulating variables and impact its effect on lowering BP. This will help to better harness the role of Qigong, continue to promote the integration of traditional Qigong into

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the modern medical system, and use it as an auxiliary treatment in the complex management of hypertension.

3. Therapeutic effects of Qigong on cancer patients

3.1. Effects of Qigong on cancer-related symptoms

3.1.1. Fatigue and QoL. Chan, C. L. et al.'s findings suggest that Qigong can help cancer patients with their physical and psychological symptoms, especially on improving QoL, reducing fatigue, and enhancing immune function [14]. Zeng, Y. et al.'s study showed that Qigong/Tai Chi positively affected cancer patients' weariness, immune system performance, cortisol levels, and QoL [15].

Kuo, C. C. et al. found that Baduanjin Qigong exercise significantly reduced moderate-to-severe cancer-related fatigue and improved the QoL and sleep quality in cancer patients. More long-term follow-up randomized controlled trials are required for further validation, but these results suggest that Baduanjin Qigong exercises can be a beneficial addition to cancer patients' care [16].

3.1.2. Anxiety and depression. Deng G. discovered that while Qigong may not directly alleviate pain, it can help with anxiety and mood swings brought on by pain [17]. Adding to this, Sun, F. et al. found that Qigong intervention improved function-related outcomes while having small to moderate effects on anxiety and depressive symptoms. It also showed stronger antidepressant effects when combined with these improvements [18].

3.1.3. Pain Management. Van Vu, D. et al. observed a positive trend in symptom scores when comparing the Qigong group to a control group, or from pre- to post-intervention. This trend suggests the role of Qigong in improving physical symptoms such as weakness, weariness, pain, dyspnea, nausea, dry mouth, constipation, early satiety, vomiting, and appetite loss in cancer patients. It also indicates improvements in psychological symptoms such as depression, anxiety, and emotional distress, as well as potential effects on QoL [19].

3.2. Effects on immune function

Numerous studies have demonstrated the beneficial effects of Qigong on cancer patients' immune systems. Zeng, Y. et al.'s research, for instance, showed that cancer patients' immune systems were positively impacted by Qigong/Tai Chi [15].

3.3. Effects on physiological indicators

According to research by Mazzocco, K. et al., Qigong significantly enhances cancer patients' cognitive function, cancer-related fatigue, and overall QoL. On the other hand, the length and intensity of Qigong practice determined the impact on emotional distress, gastrointestinal symptoms, and sleep quality. Additionally, Qigong had a positive effect on biomarkers in cancer patients, but the effect was closely related to the duration and frequency of practice [20].

3.4. Potential role of Qigong in cancer prevention and survival

Klein P. pointed out the potential benefits of Qigong in cancer prevention and survival [21]. Chang, P. S., & Knobf, T. suggested that the use of Qigong and Tai Chi as an intervention in cancer care not only improves physical functioning and reduces cancer-related fatigue in cancer patients but also promotes spiritual well-being, which in turn improves QoL [22].

3.5. Dose and duration effects of Qigong treatment

Mazzocco, K. et al. emphasized the importance of the dose and duration of Qigong practice on its effects. They found that the effect of Qigong on certain symptoms (such as sleep quality, gastrointestinal symptoms, and emotional distress) depended on the dose and duration of Qigong practice [20].

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3.6. Limitations and challenge

Although Qigong has shown positive effects in numerous areas, its therapeutic effects on cancer itself are not well established. While Qigong has been shown to improve cancer-specific QoL, immune function, fatigue, and cortisol levels in cancer patients, Lee, M. S. et al. point out that there is insufficient evidence from rigorous clinical trials to support Qigong's efficacy in cancer treatment [23].

Tao, W. W. et al. found that Tai Chi improved lung capacity in breast cancer patients, but Qigong had no discernible impact on breast cancer survivors' QoL. This study also had a 74.63% high risk of bias, and future research in this area should focus on improving research methods and interventions [24].

Klein, P. J. et al. found that despite stylistic differences and different kinds of distinctions between Qigong therapies, effective Qigong therapies shared commonalities in content constructs and logical constructs. These findings provide guidance for the design of intervention protocols and the development of community programming for future studies [25].

4. Conclusion

This review focuses on Qigong's potential as an adjunctive treatment for supportive cancer care and hypertension management. Studies show that Qigong can successfully lower BP in hypertension, both SBP and DBP most likely by influencing the sympathetic nervous system. Its effects are comparable to, and sometimes complementary with, conventional treatments. Additionally, Qigong practice is associated with enhanced self-efficacy and confidence in health-promoting behaviors among hypertensive patients.

In cancer care, Qigong shows promise in alleviating cancer-related symptoms and improving overall QoL. Research indicates positive effects on fatigue, anxiety, depression, and pain management. Some studies suggest potential benefits for immune function and certain biomarkers in cancer patients.

However, current research has limitations, including methodological weaknesses and heterogeneity in Qigong practices and intervention protocols. While evidence for symptom management is promising, Qigong's direct impact on disease progression, particularly in cancer, remains unclear.

Future research should focus on conducting large-scale, rigorous randomized controlled trials to validate Qigong's effects. Investigations into the mechanisms of action, optimal "dosage" and duration, and potential synergies with conventional treatments are needed. Studies comparing different types of Qigong could lead to more tailored recommendations for specific patient populations.

In conclusion, while more robust research is required, current evidence suggests that Qigong holds significant promise as a complementary therapy in hypertension management and supportive cancer care. Its non-invasive nature, low cost, and potential for self-administration make it an attractive option for integration into comprehensive treatment plans, potentially improving patient outcomes and QoL.

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