Examining the evidence for medical Qigong exercise in the context of clinician recommendations and health system implementation: a critical review

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Abstract

Introduction
The purpose of this critical review is to summarise the current evidence for clinicians of both traditional Chinese and Western medicines in order to facilitate informed recommendations and decision-making about qigong.

Materials and Methods

‘Qigong’ was queried on PubMed with appropriate filters. Eleven systematic reviews were chosen to demonstrate the best evidence for qigong.

Results

Five clinically relevant conclusions were made based on current evidence for qigong. (1) Qigong seems to be at least equivalent to exercise in multiple randomised controlled trials for diabetes, hypertension, depression and pulmonary function. (2) Qigong is a good joint-healthy option for patients who have difficulty exercising or who are at risk for exercise-related injury; it should especially be considered in the elderly population. (3) Since qigong appears to be more effective than walking or conventional exercise for depression and is additive to usual treatment, it is a good choice of exercise modality for patients with a comorbidity of depression. (4) Qigong appears to be a good option for patients not wishing to add a second antihypertensive medication or who want to obtain tighter control of their blood pressure. (5) The evidence for qigong is good but not firm. Given that the adverse events from qigong are exceedingly minimal, and given the relatively low cost, the threshold for clinical recommendations should be lower than the threshold for more risky therapies.

Conclusion

There is good evidence supporting the health benefits of qigong for many conditions, but it may never be firm evidence. Qigong also has benefits beyond regular exercise and can be a valuable tool when formulating treatment plans for patients with multiple comorbidities. Clinicians need to make the decision about qigong recommendations based on the available data and weigh that with risks and costs.

Introduction

Unifying principles of qigong

Entire books have been devoted to describing the depth and breadth of qigong, but only a brief overview will be discussed here. There are a variety of qigong techniques, forms and styles, which fall under the general heading of ‘qigong’. This is important because a patient may need a different technique (sitting or standing forms for example) from day to day. However, in general there are basic principles that all qigong follows. Each person practicing qigong tries to harmonise the mind, breath and body. Qigong is often called a walking meditation, which embodies the natural elements of form, force and substance with gentle, slow and sometimes repetitive movements. With practice, the qigong practitioner seeks to balance the Yin and Yang aspects of the four principles of qigong. The Yin aspect of the mind is tranquility; it is balanced with the Yang aspect of the mind, which is concentration. The Yin aspect of the body is relaxation; it is balanced with the Yang aspect of the body, which is motion. Qigong can be practiced alone or in groups, indoors or outside. Qigong is always done to better one’s health, and thus the practice should never push beyond one’s comfort level or physical endurance. For this reason, the author is unable to find any adverse events from qigong reported in the literature beyond initial muscle stiffness similar to starting other new exercises. The cost of learning qigong in a class or from a video is relatively low, and once learned it can be practiced for free at home for a lifetime. Figure 1 briefly demonstrates the variety of movements in qigong.

Qigong in research

Previous systematic reviews were marred by the low number of study participants, a small amount of trials and the poor study designs. The quality and quantity of research on qigong has markedly improved in the last few years and will continue to improve each year. Over half the systematic reviews and meta-analyses used in this critical review were published in the last 3 years and were good-quality reviews with strict inclusion and exclusion criteria. A meta-analysis for qigong’s effect on essential hypertension is based on 903 cases from nine randomised controlled trials (RCTs).

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Another literature review for qigong’s effect on hypertension included 12 RCTs and 1218 subjects. The systematic review and meta-analysis for depression and anxiety is based on 12 RCT’s including 936 participants. The majority of the recent RCTs have resolved the earlier problems with proper randomisation, proper controls, complete data reporting, power calculation and high-quality study design.

Purpose
The purpose of this critical review is to summarise the current evidence for clinicians of both traditional Chinese and Western medicines in order to facilitate informed recommendations and decision making about qigong. This article does not intend to address the large subject of T’ai Chi, external qigong or the physiological and cellular changes that occur during qigong training. It also does not intend to cover aspects of medical care where there is a paucity of evidence for qigong. Rather, the focus is on examining systematic reviews and meta-analyses from studies on relevant conditions that are carried out in the general population to closely approximate a patient’s actual experience.

Materials and Methods
‘Qigong’ was queried on PubMed with a filter for systematic reviews, guidelines and meta-analyses. Twenty publications were considered, and nine were excluded for poor quality. Eleven systematic reviews and meta-analyses were chosen to demonstrate the best evidence available for qigong.

Results
A summary of the results from the 11 systematic reviews and meta-analyses are presented in Table 1. Table 2 summarises five clinically relevant recommendations based on the available evidence.

Discussion
Analysing qigong for depression and hypertension
Qigong’s benefit for depression must answer two questions: Are its effects due to exercise alone or is there an extra benefit? Also, does a group setting alone help the depression whether qigong is involved or not? To answer the first question, the meta-analysis included three RCTs and 230 patients in total. There was a statistically significant improvement in depression in the qigong group compared to exercise or walking. There appears to be an extra benefit to qigong beyond its physical exercise component, which is likely its focus on a meditative state of mind and synchronous breathing. To answer the second question, two RCTs comprising 120 patients compared qigong to newspaper reading followed by discussion. The results showed that the benefits of qigong were due to more than being in a group setting alone.

Another concern is that research on qigong for depression must specify the severity of depression. The authors of the systematic review state that the studies included clinical depression (presumably major depressive disorder), depressed elders with chronic illnesses, patients with burnout syndrome (which did not show benefit from qigong), adults with depressive mood, women with perimenopausal syndrome and depression and patients with depressive symptoms secondary to chronic conditions including hypertension, diabetes mellitus and subhealth status. Only two of the RCTs examined clinical depression and did show benefit over usual care alone. The rest of the studies examined patients with depression secondary to chronic disease as stated above. For this reason, the clinical recommendations set forth in Table 2 state that qigong could be recommended at this time for patients with comorbidities of depression.

The systematic reviews for qigong’s effect on hypertension are similar to that of depression. There were two systematic reviews on the subject published. The article in 2007 was only able to state that evidence was encouraging but not conclusive. The meta-analyses in this study struggled with different control groups that limited the confidence in the results. Its meta-analysis for qigong plus antihypertensive medication vs.
Table 1 Results from 11 systematic reviews and meta-analyses showing the effectiveness of qigong

<table>
<thead>
<tr>
<th>Subject of the systematic reviews</th>
<th>Summary of results from systematic reviews showing statistical significance but which are often in need of more homogenous outcome measurements</th>
<th>References</th>
<th>OQAQ* score$^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>External qigong is effective at relieving pain but not internal qigong**</td>
<td>10,11</td>
<td>7,5</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Qigong exercise is effective at improving multiple measures of diabetic control alone or in conjunction with medication. It is not more effective than regular exercise for diabetic patients</td>
<td>12</td>
<td>N/A</td>
</tr>
<tr>
<td>Cancer Care</td>
<td>Qigong in cancer care shows a consistent trend towards improved immune function and inconsistent improvement in psychosocial benefits</td>
<td>13,14</td>
<td>N/A,5</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>Qigong combined with medication is effective at reducing mortality, stroke and systolic blood pressure by 12–18 mmHg in hypertensive patients compared to medication alone. Qigong alone is not statistically different than exercise or medication</td>
<td>3,6</td>
<td>7,6</td>
</tr>
<tr>
<td>Depression</td>
<td>Qigong is as effective as cognitive behavioral therapy for depression, is additive to usual care and appears more effective than exercise for depression. Qigong does not improve anxiety symptoms</td>
<td>7</td>
<td>N/A</td>
</tr>
<tr>
<td>Fall risk</td>
<td>Qigong and Tai Chi both show a decrease in fear of falling in the elderly population. Only Tai Chi directly assessed number of falls with beneficial findings in the elderly population</td>
<td>15</td>
<td>N/A</td>
</tr>
<tr>
<td>Lung function</td>
<td>Qigong and Tai Chi improve pulmonary function tests, 6-min walking test, lung function and quality of life in COPD patients. It is not superior to other forms of exercise</td>
<td>16</td>
<td>N/A</td>
</tr>
<tr>
<td>Cardiac Rehab</td>
<td>Qigong is effective at improving multiple parameters of cardiac rehabilitation after a variety of cardiac disease. It is well tolerated in patients with chronic heart disease</td>
<td>17</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*The Overview Quality Assessment Questionnaire (OQAQ) gives a score from 1 to 7; $<3$ = extensive or major flaws; $>5$ = minor or minimal flaws$^5$. N/A = Not available.

**External qigong involves a practitioner directing qi over an area of concern with their hands, while internal qigong is equivalent to qigong exercise with movement.

antihypertensive medication alone included only 92 subjects total. The second systematic review published in 2008$^3$ included 243 subjects in its meta-analysis for qigong plus antihypertensive medication vs. antihypertensive medication. This article was more confident in its conclusions about qigong’s effect on hypertension. Both systematic reviews concluded that qigong alone was not more effective than exercise or medication but was more effective when compared to no treatment. For this reason, the recommendations in Table 2 specifically recommend its use in combination with medication. Its use as the sole treatment for mild hypertension is supported by these meta-analyses and can be a point of discussion between the patient and physician.

Translating research into clinical decision-making

The final product of research is to draw a conclusion based on the data collected in the study. The research discussed here has meta-analyses with sample sizes that are sufficient for statistical significance with reasonable confidence intervals. Yet the authors of all 11 systematic reviews either cannot draw firm conclusions or they do so with caution for two reasons. The first reason is that the studies do not all use the same outcome measurements or types of control groups. This heterogeneity is a classic problem with most meta-analyses and systematic reviews. The second problem is that while there is randomisation, there is no placebo or double-blind controlled trials. Most trials involving qigong and even exercise for health benefits have this problem. There is good evidence supporting the health benefits of qigong for many conditions, situations and patients that are discussed in this article, but it may never be firm evidence. At some point, clinicians need to make a decision based on the available data and weigh that with the risks and costs.

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Customising treatment plans for patients
It is also important to integrate the complexity of an individual patient into the treatment modality decision. For example, qigong may be the most appropriate exercise modality for a type II diabetic with hypertension, arthritis and depression. Any exercise will be beneficial and will be included as an important part of the treatment plan for all the above issues. Qigong should be recommended as a joint healthy exercise with likely benefits for depression beyond other exercise modalities, such as walking, swimming or stationary bikes. Patient acceptance is also an important issue when discussing treatment modalities during a clinic visit. A recent study from Utah showed improvement in fatigue among a qigong class compared to a stretching class. The study also showed a statistically significant higher rate of class attendance of qigong as opposed to stretching\(^1\). These results suggest that patient acceptance of qigong among older men is not unreasonable to expect. It is also important to remember that patient acceptance is often heavily persuaded by a doctor’s recommendations.

Health system implementation
There is a role for qigong, and indeed any form of exercise, in a system of care and prevention of illness. The upfront cost of implementation and side-effect profile of qigong are low, making it an ideal option for third-party payers who are increasingly becoming more invested in cost containment. It is likely that a combined popularity among patients and increasing recommendation from clinicians will one day influence widespread health system implementation of qigong classes.

Conclusion
Qigong research continues to improve in quality and quantity every year. There are a multitude of RCTs, meta-analyses and systematic reviews that examine qigong’s effect on specific diseases. The major limitation to most of the research is the lack of a possible placebo and the heterogeneity of controls used. However, despite these shortcomings, there is still good evidence that qigong is effective at improving patient health in certain conditions. The evidence also suggests that qigong has benefits beyond regular exercise and can be a valuable tool when formulating treatment plans for complicated patients with multiple comorbidities. Clinicians are encouraged to examine the evidence and recommendations set forth here and throughout the literature.

Abbreviation list
RCT, randomised controlled trial.

References