Symposium on Yoga Research

Mindfulness Yoga for Parkinson’s: A Holistic Rehabilitation Approach

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Hong Kong
7.4 million people in 1,110 km²
Backyard of Hong Kong
Parkinson's disease

Movement disorder
Neurodegenerative disease

Idiopathic & incurable
Parkinson's disease

- Resting tremor
- Stiffness, masked face
- Stooped posture, freezing of gait, postural instability
- Slowed movement (Bradykinesia)
- Cognitive impairment (reduced attention & executive function)
- Stiffness, masked face
- Sleep disturbances (insomnia, excessive daytime sleepiness)
- Neuropsychiatric problems (anxiety, depression)
- Autonomic dysfunction (constipation)
To adopt a complementary, non-pharmacological lifestyle approach
A lifestyle approach
to live well with chronic illness

“the evidence-based practice of helping individuals and families adopt and sustain healthy behaviors that affect health and quality of life.”

(American College of Lifestyle Medicine, 2019)
LIFESTYLE MEDICINE

Lifestyle change
Active
Motivation
Compliance
Yoga as a Lifestyle Intervention
Mindfulness Yoga

Psychologically informed physical therapy, to maintain mental awareness through physical exertion, and to unite one’s body-mind-spirit.
Mindfulness
The awareness that arises from paying attention, on purpose, in the present moment and non-judgmentally.

Asana
Pranayama
Jon Kabat Zin
Mindfulness Meditation
Mindfulness Yoga for Parkinson’s: A Holistic Body-Mind-Spirit Rehabilitation Approach

“adaptation and application of Yoga techniques and practices to help individuals with Parkinson’s to manage their health conditions, reduce motor symptoms, alleviate psychological distress, and cultivate spiritual resilience, confidence and acceptance.”
Effects of Mindfulness Yoga vs Stretching and Resistance Training Exercises on Anxiety and Depression for People With Parkinson Disease: A Randomized Clinical Trial

Jojo Y. Y. Kwok, PhD, MPH, BN, RN; Jackie C. Y. Kwan, MSocSc, PDMH, BSW, RSW; M. Auyeung, MBChB; Vincent C. T. Mok, MD, MBBS; Claire K. Y. Lau, MSc, BN, APN; K. C. Choi, BSc, PhD; Helen Y. L. Chan, PhD, BSN, RN

IMPACT  Clinical practice guidelines support exercise for patients with Parkinson disease (PD). To our knowledge, no randomized clinical trials have tested whether yoga is superior to conventional physical exercises for stress and symptom management.

OBJECTIVE  To compare the effects of a mindfulness yoga program vs stretching and resistance training exercise (SRTE) on psychological distress, physical health, spiritual well-being, and health-related quality of life (HRQOL) in patients with mild-to-moderate PD.

DESIGN, SETTING, AND PARTICIPANTS  An assessor-masked, randomized clinical trial using the intention-to-treat principle was conducted at 4 community rehabilitation centers in Hong Kong between December 1, 2016, and May 31, 2017. A total of 187 adults (aged ≥ 18 years) with a clinical diagnosis of idiopathic PD who were able to stand unaided and walk with or without an assistive device were enrolled via convenience sampling. Eligible participants were randomized 1:1 to mindfulness yoga or SRTE.

INTERVENTIONS  Mindfulness yoga was delivered in 90-minute groups and SRTE were delivered in 60-minute groups for 8 weeks.
Research process

U.K. Medical Research Council’s Framework for Complex Interventions (Craig et al., 2013)

- **Feasibility/piloting**
  1. Testing procedures
  2. Estimating recruitment/retention
  3. Determining sample size

- **Development**
  1. Identifying the evidence base
  2. Identifying/developing theory
  3. Modelling process and outcomes

- **Implementation**
  1. Dissemination
  2. Surveillance and monitoring
  3. Long term follow-up

- **Evaluation**
  1. Assessing effectiveness
  2. Understanding change process
  3. Assessing cost-effectiveness
Development phase:
SR and meta-analysis of mind-body exercise in PD

Yoga, dance, Tai Chi
- Physical benefits ✓
- Psycho-spiritual effects?
Development phase: A mixed methods study of illness experience

- 54.5% with anxiety and depressive symptoms (Hospital Anxiety & Depression Scale)
- Functional impairment & psychological distress $\rightarrow$ sig. associating factors of impaired HRQOL
- Psychological distress $\rightarrow$ additional 42% of variance in HRQOL

Quantitative: survey (n=123)

Qualitative: individual interviews (n=15)

- PD patients attempted multiple readjustment strategies with the hope to reach a state of calmness. Yet, their outcomes varied.
  Positive and negative emotions and experiences centered on their attitudes towards illness $\rightarrow$ ‘acceptance’
Mindfulness Yoga for Parkinson's

- Functional impairment
- Emotional needs
- Self-transcendence
Theory of self-transcendence
(Reed, 1991; Reed, 2008)
# Overview of the MY-PD program

<table>
<thead>
<tr>
<th>Week</th>
<th>1–2</th>
<th>3–4</th>
<th>5–6</th>
<th>7–8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme</td>
<td>Introducing mindfulness to our body and life</td>
<td>Mindfulness of the body and content of mind</td>
<td>Loving–kindness and compassion</td>
<td></td>
</tr>
<tr>
<td>Pranayama</td>
<td>Controlled breathing</td>
<td>Bee breath, lion breath, cooling breath, alternate nostril breath</td>
<td></td>
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</tr>
<tr>
<td>Dhyana</td>
<td>Mindfulness of breath and body meditation (body scan)</td>
<td>Mindfulness of body and thoughts meditation (body scan)</td>
<td>Mindfulness of feelings and movement meditation (mindful walking)</td>
<td>Loving–kindness and open awareness meditation (dyad practice)</td>
</tr>
<tr>
<td>Asana</td>
<td>Yoga postures and movements</td>
<td>Warm up exercise</td>
<td></td>
<td>Cool down exercise</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sun salutation – a set of twelve yoga poses sequence</td>
</tr>
</tbody>
</table>
The effects of yoga versus stretching and resistance training exercises on psychological distress for people with mild-to-moderate Parkinson’s disease: study protocol for a randomized controlled trial

Jojo Yan Yan Kwok, Jackie Cheuk Yin Kwan, Man Auyeung, Vincent Chung Tong Mok and Helen Yue Lai Chan

Abstract

Background: Psychological distress is prevalent among people with Parkinson's disease (PD) and aggravates their motor symptoms, thereby leading to increased disability, high healthcare costs, and poor health-related quality of life (HRQoL). The under-recognition and adverse effects of the pharmacological management of anxiety and depression among the PD population are considerable. Thus, adopting a Complementary and Alternative Management (CAM) approach to address this problem is important. Yoga, one of the most common “mind-body” CAM therapies, can improve the psychological wellbeing of people with chronic illnesses. However, limited research on the effects of yoga in people with PD has been conducted. This study will determine the effects of yoga on the psychological wellbeing of people with mild-to-moderate PD and will compare these effects with those of stretching and resistance training exercises.

Methods: A community-based, single-blind, randomized trial will be conducted. A total of 125 subjects will be recruited and randomly divided into yoga (n = 63) or stretching and resistance exercise (n = 63) groups. For 8 weeks, the yoga group will receive a weekly 90-min session of yoga, and the control group will receive a weekly 60-min session of stretching and resistance exercises. The primary outcome will be the level of psychological distress measured using the Hospital Anxiety and Depression Scale. The secondary outcomes will include the severity of motor symptoms measured by the Movement Disorders Society - Unified Parkinson's Disease Scale - Part III Motor Examination; mobility, balance, and fall risk measured by the Timed Up and Go test; spiritual wellbeing measured by the Holistic Wellbeing Scale; and HRQoL measured by the Parkinson’s Disease Questionnaire-8. Assessment will be conducted at baseline, 8th, and 20th weeks of follow-ups.

(Continued on next page)
Objectives

To determine and compare the effects of a MY-PD program versus conventional stretching and resistance training exercises on:

1) psychological distress in terms of anxiety and depressive symptoms;
2) physical health in terms of severity of motor symptoms and mobility;
3) spiritual well-being in terms of perceived affliction and perceived equanimity; and
4) HRQOL, among individuals with mild-to-moderate PD across different time points.
Study design

- Assessor-blind, multi-center RCT
- Convenience sampling of people with mild-to-moderate idiopathic PD (Hoehn and Yahr stage: I to III), from PD support groups (Hong Kong Society for Rehabilitation, Hong Kong Parkinson’s Disease Foundation; Hong Kong Parkinson’s Disease Association) and regional out-patient neurological clinics
- Generalized estimating equations (GEE) analysis with intention-to-treat principle
Study flowchart

Intervention

Dosage:
8 weekly 90-min mindfulness yoga
8 weekly 60-min stretching and resistance training exercises

Format:
15-20 participants per group

Venue:
indoor activity rooms in community rehabilitation centers
Findings

- Recruitment process: Dec 2016 - May 2017
- \( n = 138 \)
- Participation rate = 87.0%
- Overall attrition:
  - T1: 15.2%
  - T2: 18.8%
- No significant difference in sociodemographic characteristics and baseline outcomes among drop-out and non drop-out cases
Participants’ characteristics

Mean age = 63.6 (SD 8.7)
Male: 47.1%
Married: 78.3%
Secondary level of education or above: 81.9%
Living with spouse/families: 89.9%

Table 1. Baseline socio-demographic characteristics of the participants (n=138)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>All (n=138)</th>
<th>Yoga (n=71)</th>
<th>Control (n=67)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>63.6(8.7%)</td>
<td>63.7(8.2%)</td>
<td>63.5(9.3%)</td>
<td>0.901</td>
</tr>
<tr>
<td>Male</td>
<td>65(47.1%)</td>
<td>37(52.1%)</td>
<td>28(41.8%)</td>
<td>0.225</td>
</tr>
<tr>
<td>Female</td>
<td>73(52.9%)</td>
<td>34(47.9%)</td>
<td>39(58.2%)</td>
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</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single/separated/divorced/widowed</td>
<td>30(21.7%)</td>
<td>14(19.7%)</td>
<td>16(23.9%)</td>
<td>0.554</td>
</tr>
<tr>
<td>Married</td>
<td>108(78.3%)</td>
<td>57(80.3%)</td>
<td>51(76.1%)</td>
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</tr>
<tr>
<td>Number of children</td>
<td>1.7(1.0)</td>
<td>1.7(1.0)</td>
<td>1.7(1.1)</td>
<td>0.815</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate/Primary</td>
<td>25(18.1%)</td>
<td>19(26.8%)</td>
<td>6(9%)</td>
<td>0.023*</td>
</tr>
<tr>
<td>Secondary</td>
<td>78(56.5%)</td>
<td>37(52.1%)</td>
<td>41(61.2%)</td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>35(25.4%)</td>
<td>15(21.1%)</td>
<td>20(29.9%)</td>
<td></td>
</tr>
<tr>
<td>Living status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>14(10.1%)</td>
<td>12(16.9%)</td>
<td>2(3%)</td>
<td>0.007**</td>
</tr>
<tr>
<td>Living with spouse/families/friends</td>
<td>124(89.9%)</td>
<td>59(83.1%)</td>
<td>65(97%)</td>
<td></td>
</tr>
<tr>
<td>Social security allowance</td>
<td>102(73.9%)</td>
<td>54(76.1%)</td>
<td>48(71.6%)</td>
<td>0.555</td>
</tr>
<tr>
<td>H&amp;Y stage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2(1.4%)</td>
<td>0(0%)</td>
<td>2(3%)</td>
<td>0.315</td>
</tr>
<tr>
<td>2</td>
<td>42(30.4%)</td>
<td>23(32.4%)</td>
<td>19(28.4%)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>94(68.1%)</td>
<td>48(67.6%)</td>
<td>46(68.7%)</td>
<td></td>
</tr>
<tr>
<td>LEED</td>
<td>2615.0(7186.8)</td>
<td>2685.0(7870.6)</td>
<td>2541.1(6442.0)</td>
<td>0.907</td>
</tr>
</tbody>
</table>

Categorical and continuous variables were compared between the two groups using chi-square test and Independent t-test, respectively. Data are presented as mean (standard deviation), or n (%). Abbreviation: H&Y stage, Hoehn and Yahr stage; LEED, Levodopa equivalent dose.
What did we find?

Quantitative findings
Anxiety
(Hospital Anxiety and Depression Scale)

Depression
(Hospital Anxiety and Depression Scale)
Severity of motor symptoms
(Movement Disorder Society Unified Parkinson's Disease Rating Scale, Part III Motor examination (MDS UPDRS III))

Mobility
(Timed up and Go Test)
Perceived affliction
(Holistic Well-being Scale)

Mean HWS affliction subscale vs Timepoint

Perceived Equanimity
(Holistic Well-being Scale)

Mean HWS equanimity subscale vs Timepoint
Health-related QOL
(PD Questionnaire-9)
By practicing yoga, I am now more aware of my body and posture. I learned about the steps for coordinating my body movement, and it worked well. This really helped to reduce the disease impact. I feel much more in control now.

74 years old male with mild PD (diagnosed in 2011)
I used to hide at home doing nothing as my body was so stiff. Yoga has motivated me, and I realized I am still physically capable of doing many things. I am more confident now, less stiff and much happier. I will keep practice to slow down the degeneration.

39 years old female with moderate PD (diagnosed in 2012)

Many exercises train your body. By contrast, yoga trains your mind through body training. Yoga allows me to stay “still”. It’s the connections with your self-consciousness, the state of equanimity which I appreciate the most.

72 years old male with moderate PD (diagnosed in 2009)
To conclude,

Yoga is an effective, safe and appealing complementary lifestyle intervention for stress and symptoms management among patients with mild-to-moderate Parkinson’s disease.

Compared with conventional stretching and resistance training exercise, yoga showed additional benefits on psychological distress, spiritual well-being, and health-related quality of life, with comparable benefits related to motor symptoms and mobility.
A brief online course of Mindfulness Yoga for Parkinson’s:
yoga.nursing.hku.hk
More research questions…

What is the most optimal mindfulness training modality for people with PD?

What are such effects on physiological markers of stress?
‘Mindfulness in stillness’ or ‘mindfulness in motion’? A randomized controlled trial on the effects and acceptability of individual mindfulness techniques – meditation and yoga – on anxiety and depression in people with Parkinson’s disease

General Research Fund (USD126,350)
Project period: Jan 2021 – Dec 2022
Development and implementation of a mHealth-delivered ‘Mindfulness Yoga - Practice Awareness through Cognitive-based Exercise’ (MY-PACE) program for people with Parkinson’s disease in the coronavirus pandemic: A feasibility study

More yoga research projects...
To advocate yoga as a standardized and recognised prescription for chronic illness prevention and rehabilitation.
Acknowledgment
May of all you be well and happy. Namaste.

Yoga may help ease mood disorders in Parkinson's patients

Lisa Rapaport

REUTERS

REUTERS Health - People with Parkinson's disease may have less anxiety and depression when they practice yoga focusing on breathing exercises, a small experiment suggests. The study found that participating in yoga may help reduce symptoms of anxiety and depression in people with Parkinson's disease. The findings suggest that yoga could be a valuable addition to conventional treatments for Parkinson's disease. Further research is needed to confirm these results and to determine the long-term effects of yoga on Parkinson's disease.