Chinese Six Arts for People with Mild Cognitive Impairment or Early Signs of Dementia
A Pilot Study

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Background

• Group-based cognitive stimulation and exercise programmes shown to be effective in dementia for cognition, ADL, and QoL (Woods et al, 2012; Forbes et al, 2013)

• How to implement?

• A cultural framework to structure cognitively stimulating activities and physical exercise for Chinese population developed in Hong Kong (Wong et al, 2014)

• Theoretically applicable to people with mild cognitive impairment and early signs of dementia with adaptation


Six Arts

- Confucian philosophy
- Perfection: ideal of education
- Correspond to modern-day mind-body domains
- Relevancy of Confucian values in Asian countries
- Ecological activities to deliver real-life benefits

Principles

- Ecological validity
- Cultural appropriateness
- Stimulating and enjoyable
- Continued practice


Six Arts: Examples

<table>
<thead>
<tr>
<th>Activity Code</th>
<th>Key Domain</th>
<th>Level*</th>
<th>Theme</th>
<th>Time (mins)</th>
<th>Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>R001</td>
<td>Rites</td>
<td>A1</td>
<td>Festival</td>
<td>15</td>
<td>4 2 4 1 4 1</td>
</tr>
<tr>
<td>M001</td>
<td>Music</td>
<td>C2</td>
<td>Chinese opera</td>
<td>5</td>
<td>4 4 1 1 3 1</td>
</tr>
<tr>
<td>A001</td>
<td>Archery</td>
<td>B2</td>
<td>Chinese crafts</td>
<td>25</td>
<td>4 1 4 1 4 3</td>
</tr>
<tr>
<td>C001</td>
<td>Charioteering</td>
<td>C1</td>
<td>Chinese opera</td>
<td>5</td>
<td>2 3 1 4 1 1</td>
</tr>
<tr>
<td>L001</td>
<td>Literacy</td>
<td>B1</td>
<td>Idioms</td>
<td>10</td>
<td>4 1 2 1 4 1</td>
</tr>
<tr>
<td>N001</td>
<td>Numeracy</td>
<td>A2</td>
<td>Local delicacy</td>
<td>15</td>
<td>3 1 2 2 3 4</td>
</tr>
</tbody>
</table>

*Minimum functioning level requirement for cognition (A: mild, B: mild-to-moderate, C: moderate) and physical frailty (1: low 2: high)

Multidimensional Activities

Meaningful, cognitively stimulating, socially engaging leisure activities reduce dementia risks & MCI:

- Reading & writing
- Crossword puzzles
- Board/card games
- Playing musical instruments
- Dancing
- Physical activities
- Social networks size & frequency

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Figure. Kaplan-Meier curves for the cumulative risk of development of amnestic mild cognitive impairment (aMCI) according to tertiles on baseline Cognitive Activity Scale (CAS) scores at enrollment; adjusted for age, sex, education, and chronic illnesses.
Methods

Programme development
• 8 participants; 6 trial sessions

Pilot
• 4 partnering NGO units
• 59 recruited: 31 Six Arts, 28 controls

Intervention & control groups
• Intervention group: 24-weekly Six Arts
• Control group: monthly gatherings

Assessments
• Baseline & 6 months
• Cognition (MoCA), QoL (WHOQoL-BREF)
• Feedbacks (focus groups)

<table>
<thead>
<tr>
<th>Time</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 mins</td>
<td>Warm up with sharing and practicing brain health exercise to encourage participations and energize the group</td>
</tr>
<tr>
<td>45 mins</td>
<td>Main activities of the brain health training programme.</td>
</tr>
<tr>
<td>5 mins</td>
<td>Warp up with sharing to ensure the experience is enjoyable</td>
</tr>
</tbody>
</table>
Programme Adaptation

**Rites**

*Intrapersonal and Interpersonal*

- Making a personal album
- Sharing personal feelings/experience and
- leaving messages and blessings for other participants
Programme Adaptation

Music and Rhythm

- Singing old songs and sharing own experience or feeling
- Music jamming
Programme Adaptation

Archery
Visuospatial, Fine Motor and Attention

• Sharing the story of “The Giving Tree” (愛心樹)
• Collective drawing
Programme Adaptation

Charioteering
Kinesthetic and Gross Motor

- Group exercises
Programme Adaptation

*Literacy*
Language and Verbal Skills

• Chinese calligraphy class
Programme Adaptation

Numeracy
Executive Function, Logic and Mathematics

- Learning to play board games and sharing personal tips and techniques
Results: Cognition

- No difference in baseline MoCA score (19.6 ± 4.6 vs 21.9 ± 2.5)
- Difference after 6 months (20.6 ± 5.5 vs 26.5 ± 3.0, p=0.01)
- Between-group difference in the change in MoCA score was significant (Mann-Whitney U 101.0, p=0.01).
Results: QoL

- Difference in social relationship domain (-2.7 in control vs 7.8 in Six Arts, Mann-Whitney U 50.5, p<0.05).
- Changes in other domains of quality of life statistically not significant.
Further Explorations

- Improvement in cognitive performance associated with higher education level and younger age
- Participant engagement:
  - novelty and multitude of activities; care needed to match interest and ability to avoid “failure”. Trainer encouragement and patience is key
- Group dynamics:
  - a friendly member acted as a catalysis in fostering social interaction
- Session sequence:
  - Music and Archery can be introduced later as rapport and positive social interaction are essential. Rites can be the last theme to wrap up the learning experience

<table>
<thead>
<tr>
<th>$r$</th>
<th>MoCA score change</th>
</tr>
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<tbody>
<tr>
<td>Age</td>
<td>-0.58**</td>
</tr>
<tr>
<td>Education</td>
<td>0.46*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attendance rate</th>
<th>Mean</th>
<th>Range</th>
<th>S.D.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>82.7%</td>
<td>41.7%-95.8%</td>
<td>11.5%</td>
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</table>

<table>
<thead>
<tr>
<th>Satisfaction (1-5)</th>
<th>Mean</th>
<th>Range</th>
<th>S.D.</th>
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<tr>
<td></td>
<td>4.58</td>
<td>3.3-5.0</td>
<td>0.47</td>
</tr>
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</table>
Conclusions

• Initial evidence of effectiveness in people with mild cognitive impairment or showing early signs of dementia on improving cognition and social QoL
• Feasible and well-received in this population, can be ran in community centres with very basic facilities.
• Further investigations needed to investigate the effects of age and education
• Programme fine-tuning: the level of challenges, more time should be allowed with some flexibility
Acknowledgement

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