Practice Concepts

Development of Six Arts, a Culturally Appropriate Multimodal Nonpharmacological Intervention in Dementia

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Purpose: There is accumulating evidence for the efficacy of nonpharmacological multimodal stimulation interventions in maintaining cognition and improving quality of life in people with mild-to-moderate dementia. However, the complex nature of these interventions limits their application in practice and research. We report here the design and development of a culturally appropriate framework, the Six Arts, to guide delivery of multimodal interventions in a Chinese community.

Design and Development: The Six Arts are a core set of Confucian philosophy comprising 6 disciplines of rites, music, archery, charioteering, literacy, and numeracy. They correspond to major mind–body functional domains of social functioning; music and rhythm; visuospatial and fine motor skills; kinesthetic and gross motor skills; language and verbal skills; and executive function. Using Six Arts as a framework, we mapped theoretical principles and evidence-based nonpharmacological interventions of cognitive stimulation, physical exercise, and social activities against the 6 functional domains. From 2011, we field-tested the use of Six Arts in structuring intervention programs in 263 people in a dementia day center in Hong Kong.

Results: The Six Arts was operationalized through the development of an intervention activity database, a scoring system for intensity level, and a service delivery model for application in dementia day centers.

Implications: Six Arts can be used as framework for structuring nonpharmacological group intervention programs in dementia day center in a metropolitan Chinese
Dementia is a complex condition that can affect a person’s memory, orientation, language, organization, emotional control, and behavior (World Health Organization, 2012). There is accumulating evidence for the cognitive benefit of nonpharmacological interventions in people with mild-to-moderate dementia (Alzheimer’s Disease International, 2011). There are considerable challenges, however, in translating the current knowledge and integrating it into structured intervention programs, which requires innovation in a theoretically guided manner (NICE-SCIE, 2011). The design of nonpharmacological intervention is often complex, with interacting components, and needs a certain degree of flexibility for tailoring (Craig et al., 2008); people with dementia are a heterogeneous group in terms of functioning level and activity preferences, which prevents a “one-size-fits-all” solution (de Medeiros & Basting, 2013).

We report here the design, development, and field-testing of Six Arts, an attempt to address these challenges by allowing multimodal nonpharmacological interventions to be structured and delivered in a culturally appropriate way for people with dementia in Chinese communities. Much of the evidence and theoretical base applies also to healthy and at-risk elderly populations as primary or secondary prevention, although we will focus the scope of our discussion in people with dementia. The Six Arts intervention is designed with the primary objectives to enhance or maintain general cognition and quality of life in people with mild-to-moderate dementia.

**Design and Development**

**Rationale for a Culturally Appropriate Approach to Dementia Intervention**

Adopting and maintaining a health behavior, such as utilization of nonpharmacological interventions, often require motivation in addition to an understanding of the associated benefits (Marcus et al., 2000). For example, knowledge of the evidence for cognitive health alone may not be a strong enough motivation among older adults for engaging in cognitive, physical, and social activities (Lam & Cheng, 2013). A culturally appropriate approach to dementia intervention offers the advantage of motivating services use by creating meaning in the health behavior. As internalization of cultural values to form personal goals intensifies with age (Fung, 2013), older adults may adopt health behaviors that align with these values more readily.

The Six Arts are a core set of Confucian philosophy comprising six disciplines of rites, music, archery, chariotering, literacy, and numeracy. As spelled out in the Rites of Chou around second century BC (Li, 2000), attaining perfection in the Six Arts is the ideal of education to promote well-rounded human development in morality, arts, sports, humanities, and science. These Confucian values are still exerting their influence in many Asian countries today including China, Korea, and Singapore (Marginson, 2010). The six disciplines correspond to our current understanding of major mind–body functional domains, namely social functioning; music and rhythm; visuospatial and fine motor skills; kinesthetic and gross motor skills; language and verbal skills; and executive function. These are conceptually related to multimodal cognitive, physical, and social activities (Figure 1) that have been associated with cognitive benefits as discussed in the following sections.

**Conceptual Mapping of the Six Arts**

**Rites**

A narrow definition of rites is the practice of proper conduct and etiquette in everyday life and in ceremonies. This maps onto the mind–body domain of social functioning. People with dementia are at risk of social isolation because of their symptoms (de Medeiros, Saunders, Doyle, Mosby, & Van Haitsma, 2011), while sense of social connectedness and social meaning can be created through the shared experience in a number of nonpharmacological interventions, such as cultural arts for dementia (de Medeiros & Basting, 2013). It is also a principle of cognitive stimulation therapy to ensure a supportive and enjoyable social environment, typically within a group context (Woods, Aguirre, Spector, & Orrell, 2012).

**Music**

Music involves cognitive activities of auditory, melody, and rhythm processing. In healthy adults, musical training/experience has been related to enhanced language skills, verbal memory, and working memory that may mitigate age-related cognitive decline (Bugos, Perlstein, McCrae, Brophy, & Bedenbaugh, 2007; Chan, Ho, & Cheung, 1998). In people with dementia, spared music performance
ability have been noted (Samson, Dellacherie, & Platel, 2009) and a number of studies have tried to use music as intervention for improving quality of life (see de Medeiros & Basting 2013 for a review). Because of the difficulty to investigate the effects of music therapy in dementia, few high-quality studies exist (Vink, Bruinsma, & Scholten, 2004) and majority focused on mood and behavior with evidence of short-term improvement (McDermott, Crellin, Ridder, & Orrell, 2012). In a randomized controlled trial investigating cognitive outcome (language functioning), significant improvement in spontaneous speech was noted (Brotons & Koger, 2000), although research design can be further improved; in particular, there is a need to differentiate between active and receptive music therapy approaches (e.g., mere music listening, Vink et al., 2004). We operationalized this domain to include both music appreciation and production as different levels of intensity.

Archery
Traditionally a war or martial skill, practice of archery was intended for cultivating a person’s mind by training in precision and speed. We defined this as covering visuospatial processing and fine motor activities. Deficits can be observed in people with early Alzheimer’s disease (Kaskie & Storandt, 1995; Kluger et al., 1997). Visual arts such as painting and pottery are some examples of interventions that target these cognitive domains (Kim, 2013; Reynolds, 2010).

Charioteering
Refers to the training of physical strength and balance involved in riding a chariot or a horse. This domain covers kinesthetic and gross motor skills, which can be implicated in dementia, as cognitive impairment is related to increased fall risk (e.g., poor executive function and attention, gait disorder, poor balance) and physical frailty (e.g., lack of exercise due to apathy, Malmstrom & Morley, 2013). On the other hand, the theoretical basis for the general cognitive enhancing effect of exercise in adult is becoming established, and there is evidence that these cognitive benefits can be observed in people with dementia (Forbes, Thiessen, Blake, Forbes, & Forbes, 2013).

Literacy
Also known as the art of books, this discipline is operationalized as language processing and verbal skills, and involves both language generation and comprehension. Dementia is associated with language dysfunction (Bayles, 1982). In healthy adults, processes that involve creative language use (e.g., brainstorming and creative writing) are associated with verbal and semantic memory (Shah et al., 2013). Imagining the future and other fictitious experiences requires the use of semantic knowledge to construct novel events and extraction and flexible recombination of episodic memory, which are selectively impaired in people with different types of dementias (Irish, Addis, Hodges, & Piguet, 2012). Although designed mainly for improving quality of life in people with dementia and quality of care, creative expression programs (e.g., TimeSlips, a group storytelling program) that reinforce language generation, communication, and free expression were shown to improve engagement and alertness (Fritsch et al., 2009). On the other hand, a learning therapy program that involves reading and writing single syllables to reading aloud fairy tales, tailored to individual cognitive functioning level, showed benefits in general cognition and communication, although

<table>
<thead>
<tr>
<th>Non-pharmacological approaches</th>
<th>Traditional six arts disciplines</th>
<th>Contemporary mind-body functional domains</th>
</tr>
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<tbody>
<tr>
<td>Cognitive activities</td>
<td>Music</td>
<td>Auditory music &amp; rhythm</td>
</tr>
<tr>
<td></td>
<td>Archery</td>
<td>Visuospatial fine motor</td>
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<td></td>
<td>Literacy</td>
<td>Language verbal skills</td>
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<tr>
<td></td>
<td>Numeracy</td>
<td>Executive function</td>
</tr>
<tr>
<td>Physical activities</td>
<td>Charioteering</td>
<td>Kinesthetic gross motor</td>
</tr>
<tr>
<td>Social activities</td>
<td>Rites</td>
<td>Social functioning</td>
</tr>
</tbody>
</table>

Figure 1. Conceptual mapping of traditional Six Arts disciplines, contemporary functional domains, and nonpharmacological approaches.
because of the program design (which also includes simple arithmetic exercise), specific effects of this language exercise that does not involve creative expression need to be further studied (Kawashima et al., 2005).

Numeracy
In ancient China, this refers to mathematics and science. This is defined as the cognitive domain of executive function. People with dementia often experience impaired skills in planning and organization; this is one of the target areas in cognitive stimulation therapy sessions and activities (Aguirre et al., 2012). In a 6-month learning therapy designed to target cognitive impairment in dementia guided by brain-activation paradigms, in particular executive function and dysfunction of the association cortices, simple arithmetic operations (and reading) appear to be associated with better maintenance of Mini-Mental State Examination (MMSE) score and improvement in frontal function of conceptualization compared with controls. The arithmetic exercise ranged from counting practice to three-digit division with difficulty level individually tailored (Kawashima et al., 2005). As mentioned previously, however, because of the program design, it is difficult to attribute the benefits specifically to arithmetic or reading exercise.

Evidence and Theoretical Underpinning of Nonpharmacological Approaches in Six Arts
As shown in Figure 1, the nonpharmacological intervention approaches that cover the six functional domains involve multimodal cognitive, physical, and social activities. The role of these activities in affecting brain physiology and function throughout life is generally accepted, with treatment implications for people with cognitive impairment and dementia (e.g., see Burke, Hickie, Breakspear, & Götz, 2007 for a short review).

Cognitive Activities
There is now increasing understanding of the biological underpinnings of how cognitive activities and learning shape cognitive performance even in adulthood (e.g., see Draganski et al., 2004; Maguire et al., 2000; Woollett & Maguire, 2011). In healthy adults, considerable evidence has established the role of leisure mental activities, including reading, writing, and board games, in cognitive health and a lower risk of dementia or mild cognitive impairment (Laurin, Verreault, Lindsay, MacPherson, & Rockwood, 2001; Scarmeas, Levy, Tang, Manly, & Stern, 2001; Verghese et al., 2003, 2006; Wang, Karp, Winblad, & Fratiglioni, 2002; Wilson, Bennett et al., 2002; Wilson, Mendes De Leon et al., 2002). In persons already impacted by dementia, cognitive stimulation in the form of structured group activity has shown clear, consistent evidence of cognitive and quality-of-life benefits, as concluded in a recent Cochrane meta-analyses of 718 participants from 15 randomized controlled trials (Woods et al., 2012). Cognitive stimulation typically involves engaging in activities that require cognitive processing in a group-based social context, emphasizing enjoyment, and aiming at general enhancement of cognitive and social functioning. A range of intervention designs using these principles has been studied, varying in activity content (mostly games and leisure activities such as word games, number games, and art discussion), session length (30–90 min), program duration (4 weeks to 2 years), and frequency (1–5 times per week). An independent review reached a similar conclusion that interventions using cognitive stimulation principles showed consistent efficacy, with effect sizes at least similar to and potentially over and above that of pharmacological treatments (Alzheimer’s Disease International, 2011).

Physical Activities
The benefits of physical activities on cognitive health in older persons are well established (Colcombe & Kramer, 2003; Erickson et al., 2011). A recent Cochrane review examined the effects of physical exercise in 937 people with dementia (Forbes et al., 2013). The key findings were that exercise improves cognitive functioning and activities of daily living, but not depression. The best exercise program design is yet unknown, as there is heterogeneity in the type (aerobic, strength, and balance), duration (2 weeks to 12 months), and frequency (2 times per week to daily) of exercise program used in previous trials.

Social Activities
In older adults, social engagement is related to a lower risk of cognitive impairment independent of other factors such as initial cognitive performance, depression, and physical activities (Barnes, Mendes de Leon, Wilson, Bienias, & Evans, 2004; Bassuk, Glass, & Berkman, 1999; Fratiglioni, Wang, Ericsson, Maytan, & Winblad, 2000; Glei et al., 2005). A clinicopathological study suggested mechanisms through which social activities affect cognition in Alzheimer’s disease (Bennett, Schneider, Tang, Arnold, & Wilson, 2006). In brief, elderly people with pathology of Alzheimer’s disease as shown in their brain autopsy had varying degree of cognitive functioning before death, which is modulated by their social network after controlling for confounding factors such as physical activities and depression. The effect was seen across multiple cognitive domains but most prominently in semantic memory. The authors attributed their findings to cognitive processes involved in social interaction (e.g., language) in building up a reserve against the deleterious effect of Alzheimer’s disease. This view of functional reserve is the theoretical ground for providing environmental stimulation to counteract pathology, whereas other biological
mechanisms such as vascular health and stress may also be involved (Frattigioni, Paillard-Borg, & Winblad, 2004).

Integrated Cognitive, Physical, and Social Activities
Few studies have investigated the combined effect of physical, social, and cognitive activities despite its biological plausibility. For example, an animal model shows that although physical activity enhances brain plasticity, if the exercise is carried out in isolation (as compared with that in a socially enriched environment), the benefits are delayed, whereas the negative effects of exercise-induced stress exacerbated (Stranahan, Khalil, & Gould, 2006). The physiological mechanisms through which social support protects against the negative impact of stress are becoming clear (Gerin, Pieper, Levy, & Pickering, 1992; Heinrichs, Baumgartner, Kirschbaum, & Ehlert, 2003). On the other hand, although interaction between social and cognitive stimulation is seldom studied, cognitive stimulation is typically conducted within a supportive group (Woods et al., 2012). Other studies that have used a combined intervention design include a randomized controlled study of people with moderate-to-severe dementia, in which music-based exercises for 3 months showed significant cognitive benefits on MMSE over control (equal amount of daily conversation, Van de Winckel, Feys, De Weerdt, & Dom, 2004); and another randomized controlled trial that showed improved attention-related performance with a 12-week dual-task training of exercise plus cognitive task over controls undergoing exercise training (Schwenk, Zieschang, Oster, & Hauer, 2010). Further research is needed, however, to investigate additive or synergistic effects of combined intervention strategies.

Guiding Principles in Designing Intervention Activities Under the Six Arts Framework

Ecological Validity
As opposed to a standardized training protocol often used in cognitive training, cognitive activities with greater ecological validity (as used in a number of cultural arts intervention) are more likely to be effective in cognitive enhancement, as task complexity, novelty, and diversity are key elements required for tapping domain-general processes (Moreau & Conway, 2014). This is a principle that underlies cognitive stimulation programs, which aim to stimulate generalized cognitive processes through a wide range of activities (e.g., puzzles, music; Woods et al., 2012).

Cultural Appropriateness
For the same rationale of proposing a culturally appropriate framework, intervention activities that align with the older person’s cultural values would facilitate adherence, as these values have often been internalized to become personal goals in human development (Fung, 2013). Some culturally appropriate activities with existing evidence of cognitive benefit in Chinese people with dementia are Mahjong and Tai Chi (Cheng et al., 2014).

Tailoring to Ensure Stimulating and Enjoyable Activities
As noted in a review of cultural arts intervention in dementia, promising programs share in common a tailoring process to individual needs and interest (de Medeiros & Basting, 2013). In terms of needs, activities should not be over-challenging or under-stimulating for the person. According to current understanding of how learning affects cognitive performance, under-stimulating activities (e.g., passive TV watching or practice of overlearned routines) are unlikely to result in protective or enhancement effects at brain or cognitive levels (e.g., see Maguire, Woollett, & Spiers, 2006; Rundek & Bennett, 2006). On the other hand, failures and over-challenging activities can result in disengagement and nonparticipation, preventing the person from benefiting from the activity. Tailoring can be done by including an intake assessment of the person’s functioning level and other relevant information such as illiteracy and past interest (de Medeiros & Basting, 2013). For example, in a learning therapy program for people with dementia, task difficulty levels were adjusted according to an assessment prior to the training (Kawashima et al., 2005).

Continued Practice
Effects of cognitive enhancement are likely dose-related and not long-sustaining after discontinuation of the activities (Bugos et al., 2007). In cognitive stimulation therapy, for example, a trial with the longest program duration (2 years) appeared to have the largest effect size (Requena, Maestú, Campo, Fernández, & Ortiz, 2006; Woods et al., 2012), suggesting a role for long-term practice. Thus, in the design of the Six Arts intervention, we did not specify a priori duration of the program or number of sessions. Although this has cost implications, the activities can potentially be delivered by trained nonprofessionals, such as care workers at elderly centers and family caregivers to allow more flexible arrangement of maintenance intervention. As has been shown in participatory art programs for older adults and in maintenance cognitive stimulation therapy for dementia, the beneficial effects from these stimulating activities can be delivered by trained nonprofessionals and are not dependent on individual qualities of the instructor (Noice, Noice, & Kramer, 2013; Orrell et al., 2014).

Application and Operationalization in Real-World Practice
The Six Arts framework was conceived within the context of a nongovernmental organization specialized in
community-based dementia care in Hong Kong. The idea originated from the last author of this paper, who is aware of the need for culturally appropriate practice for Chinese from his 30 years of clinical experience in geriatric medicine specializing in dementia care. A working group was formed in 2009 consisting of experienced dementia care specialists with background in occupational therapy, elderly care, and nursing services, with regular meetings to review literature and summarize frontline experience for model development. Field-testing was started in April 2011 by applying the Six Arts framework in structuring daily programs in a dementia day center that served a daily maximum of 40 people with mild-to-moderate dementia; a total 263 people have undergone the intervention. The intervention framework was then fine-tuned based on clinical observation and feedback from frontline workers, participants, and family caregivers. Operationalization was completed in 2013 with a component activity database, a dimensional intensity scoring system, and a service delivery model.

Component Activity Database
After an activity analysis by occupational therapists and social workers based on the abovementioned guiding principles, nonpharmacological intervention activities are included in a database. Each interventional activity is recorded in the database with a unique activity code. To allow tailoring, each activity is assessed for its appropriate functioning level, with reference to both cognitive and physical ability, including three main levels (A: mild, B: mild-to-moderate, and C: moderate level of cognitive impairment) and two subgroups (1: low and 2: high physical frailty). The cultural theme (e.g., traditional Chinese festivals); time requirement; instructions and materials required; key Six Arts domain; and an intensity rating along the six dimensions were also recorded. The database is used for planning group interventional activities. Table 1 shows examples of activities included in the database.

### Dimensional Intensity Rating
For each interventional activity, a proxy rating of intensity is calculated based on duration of the activity (in minutes) and its involvement of each of the six domains (see Table 1). The latter is derived from a consensus rating by an occupational therapist and a psychologist on a simple 4-point scale (1 refers to limited involvement or minimal stimulation and 4 indicating high level of active use). For example, a group practice of Chinese dance that requires partnering would be given a score of 4 on charioteering, 4 on rites, 3 on music, and 1 on literacy. This rating is derived in an attempt to capture the multidimensional nature of most nonpharmacological interventional activities. As with any attempts to quantify processes involved

<table>
<thead>
<tr>
<th>Activity</th>
<th>Key domain</th>
<th>Level</th>
<th>Theme</th>
<th>Time required (mins)</th>
<th>Rites</th>
<th>Music</th>
<th>Archery</th>
<th>Charioteering</th>
<th>Literacy</th>
<th>Numeracy</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>R001</td>
<td>Rites (social)</td>
<td>A1</td>
<td>Festival</td>
<td>15</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>M001</td>
<td>Music (auditory)</td>
<td>C2</td>
<td>Chinese opera</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>A001</td>
<td>Archery (visuospatial)</td>
<td>B2</td>
<td>Chinese crafts</td>
<td>35</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>C001</td>
<td>Charioteering (kinesthetic)</td>
<td>C1</td>
<td>Chinese opera</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>Collaborative lanterns making and riddles</td>
</tr>
<tr>
<td>L001</td>
<td>Literacy (language)</td>
<td>B1</td>
<td>Idioms</td>
<td>10</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>N001</td>
<td>Numeracy (executive)</td>
<td>A2</td>
<td>Local delicacy</td>
<td>15</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: Minimum functioning level requirement for cognition (A: mild; B: mild-to-moderate; C: moderate) and physical frailty (1: low; 2: high).
in nonpharmacological interventions, we wish to point out that the method will necessarily fall short of capturing the richness and dynamic nature of the intervention; nevertheless, it provides a proxy record for potential use in quantitative research and for communication with family caregivers.

**Service Delivery Model**
Profiles of individual participants are gathered during intake assessment, including their cognitive performance level and symptoms assessed using the MMSE and Clinical Dementia Rating Scale (interview with an informant), activities of daily living using the Barthel Index, Lawton instrumental activities of daily living, as well as other demographic and personal history relevant to care planning. Each person with dementia is then assigned to a group of similar cognitive and functioning levels, with matched preference and other demographic background (e.g., education, past occupation) as far as possible. The average group size is 8–10 people. With the help from dementia care assistants, an interventionist (occupational therapist or social worker) develops a monthly activity plan for the group by selecting from the database interventional activities appropriate for the group’s functioning level and interest. A session plan is automatically generated for the dementia care assistant to make necessary preparation and arrangements. Each session lasts around 45 min; it is structured with a warm-up period (with both social and physical exercise elements), a main activity, and a wrapping up or closing sharing to ensure the experience is enjoyable. Three sessions are scheduled each day, with lunch and breaks between sessions.

Group dynamics and participant performance are assessed on a daily routine basis and recorded using the Behavior Rating Scale by frontline staff for review by the supervising interventionist.

Participants and their caregivers have the flexibility to decide the number of days per week they are joining the intervention depending on circumstances and physical strength. The usual mode is to start with 1–2 days per week, and many would opt for increments as the person’s condition improves, allowing a higher activity level. With the activity plan and dimensional intensity score, reports can be generated for explaining to family caregivers what is happening in the intervention, with a simple average score calculated for each of the Six Arts derived for the particular session. An example is given in Figure 2 for a 45-min session that included 10 min of warm-up with sharing and physical exercise, 25 min of main activity of Chinese songs and lyric-related games, and 10 min of wrap-up with group singing and sharing. With the help of a common language, namely the Six Arts, communication between professionals and families with dementia can be facilitated.

**Discussion**
We presented here the design and development of the Six Arts for multimodal nonpharmacological intervention in dementia. The conceptual background, evidence and theoretical support, guiding principles, and application and operationalization were described. This framework was developed in view of the need for culturally appropriate approach to deliver the complex intervention of cognitive,
physical, and social activities that shows evidence of efficacy in enhancing cognition and quality of life in people with dementia. With 2 years of field-testing experience in a dementia day center in Hong Kong, we have an operationalized model ready for formal evaluation. The operationalized service incorporates an activity plan and intensity score for reports generation; when combined with a readily understood, culturally appropriate framework, it enables people with dementia and their family to interpret the intervention in a manner that enhances communication and shared decision making.

Cultural appropriateness and a multimodal approach are two key elements in Six Arts. Based on current knowledge as outlined in this paper, the theoretical cognitive benefits would be associated mainly with the multimodal approach of the intervention, with each of the six domains (i.e., social functioning; music and rhythm; visuospatial and fine motor skills; kinesthetic and gross motor skills; language and verbal skills; and executive function) impacting on general cognition through different but inter-related pathways. Potential quality-of-life benefits, on the other hand, would be attributable to its cultural relevance, which adds meaning to the intervention, facilitating adherence and communication. In Hong Kong and many other Confucian communities, traditional values are still largely held by older persons, with the Six Arts being viewed as a virtue of lifelong learning at an individual level and of communal harmony at the societal level (Marginson, 2010). By adopting it as a framework for cognitive health, the emphasis is shifted from illness and treatment to health and self-actualization potential, which may help reducing the stigma and fear often associated with dementia.

Evaluation of complex interventions is methodologically challenging (Craig et al., 2008). As part of our planned approach to evaluative the Six Arts, key data on intervention delivery are captured with a database and rating system. This may help future design of dose-finding studies by providing intervention data that can link with baseline characteristics and outcome measures of the person with dementia. Further research can also evaluate the possibility of individualized intervention, for example according to specific needs of the person, by enhancing intensity in specific functional domains. Cost-effectiveness data are needed, including possible maintenance intervention delivered by family caregivers at home with support from professional staff, as has been done in certain exercise programs, cultural arts intervention, and cognitive stimulation therapy (Forbes et al., 2013; Woods et al., 2012).

It will be an empirical question whether the Six Arts is applicable to people with other cultural backgrounds, or if the potential benefits would be specific to a certain cultural membership. Although there is no theoretical ground to suggest that a multimodal approach should deliver its cognitive effects differently in different cultures, the meanings and values associated with Six Arts are nevertheless culturally specific. At present, we can speculate that the intervention may be applicable in Confucian education countries and areas, such as Japan, Korea, Mainland China, Taiwan, Singapore, and Vietnam. This may also apply to certain Asian communities within Western countries such as those in North American and Australia where Confucian philosophy has been influential.

In Mainland China alone, the number of persons aged 60 years or older will reach 440 million by 2050 (United Nations, 2013). As the world’s largest aging population, Chinese elders will be particularly impacted by the upcoming surge in dementia prevalence. Intervention and preventive strategies targeting this population are urgently needed. Our initial experience suggests that the Six Arts framework can be applied for structuring nonpharmacological intervention for dementia in Chinese communities; its effectiveness should be rigorously evaluated to allow potential further application.

References


