Implementing an evidence-based Tai Ji Quan program in a multicultural setting: A pilot dissemination project

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Abstract

Falls in older adults are a significant public health issue and a particularly significant health risk in Minnesota. With accumulating research evidence suggesting that falls can be prevented through exercise, there is an increased public health effort among organizations serving older adults to translate and disseminate evidence-based programs into the community. Such efforts, however, face additional challenges if they are implemented in communities with older adults from different cultural backgrounds and languages. This paper briefly describes a pilot community-based dissemination project, including the initiation, implementation, process, and outcomes, of an evidence-based fall prevention (Tai Ji Quan: Moving for Better Balance formerly known as Tai Chi: Moving for Better Balance) through a local Area Agency on Aging in the Minneapolis/St. Paul metropolitan area in Minnesota (USA). Overall, the program was successfully implemented resulting in adoption by local community organizations serving Asian and, to a lesser degree, East African non-English speaking older adults. Bilingual community instructors were trained to lead the classes resulting in broad participation and improved physical performance by the older adults targeted for the intervention. The results from this pilot study indicate that Tai Ji Quan: Moving for Better Balance can be implemented with positive results in non-English speaking community settings using bilingual leaders.

Keywords: Balance; Dissemination; Falls; Older adults; Tai Ji Quan

1. Introduction

Falls are a major public health problem worldwide and pose a threat to the health and independence of older adults.1 In the United States, each year, one out of three Americans aged 65 years and older fall. Many of these falls result in injuries including bruises, hip fractures, or head trauma, leading to mortality and morbidity, and increased social and economic burdens on the health care system.1 Falls are a particularly significant health risk for older adults in Minnesota which has the 5th highest fall death rate in the United States, with nearly two times the national rate.2

Falls in older adults can be prevented through exercise interventions.3,4 In 2008, the Centers for Disease Control and Prevention (CDC) compiled an inventory that contains evidence-based fall prevention interventions5 that can be adopted for use in community settings (community senior centers, residential facilities, faith based organizations, etc.). Although there is an increasing effort to diffuse evidence-based fall prevention programs into community practice,6 there remains a significant gap in translating and disseminating these programs in diverse community settings that involve underserved older adult populations from multiple language and cultural backgrounds. The pilot project reported in this paper addresses this gap.
This study reports a dissemination project designed to pilot test whether Tai Ji Quan: Moving for Better Balance (TJQMBB), formerly known as Tai Chi: Moving for Better Balance, an evidence-based fall prevention program, could be implemented by minority service providers working with diverse and growing non-English speaking older adult populations in their communities within the Minneapolis/St. Paul metropolitan area in Minnesota, USA. Specifically, the project set out to address three questions: (1) Could this evidence-based program be adopted by organizations that provide services in their communities? (2) Could bilingual leaders in these organizations who had little or no previous experience in Tai Ji Quan learn and then effectively deliver the program to older adults from their communities in their native language? and (3) Would the older adults participate and benefit from participating in the program?

2. Methods

2.1. Target communities

The study geographic area was within the Minneapolis/St. Paul seven-county metropolitan area served by Metropolitan Area Agency on Aging (MAAA). In 2010, over 450,000 adults aged 60+ resided in the seven counties (an increase of 33% from 2000), representing 46% of the state’s older adult population.9 The rapidly growing minority elder population was approximately 9% of the 60+ metro population, up 2% from 2000. Within this demographic, 37% were African Americans (including East African), 34% Asian Americans, 17% Hispanic Americans, and 5.5% Native Americans.9

As the designated area agency on aging for the Twin Cities metro area, the MAAA administers grants and contracts for community services that support older adults in their homes and assists providers to develop new services and deliver evidence-based health promotion programs to communities of diverse backgrounds. As part of the MAAA’s effort to promote evidence-based health programs, this pilot project was primarily targeted at local community organizations in the urban centers of Minneapolis and St. Paul that support non-English speaking older adults from two cultural backgrounds: Asian and East African. Bilingual leaders who were either staff or community members from these organizations were recruited for training and implementing the program. The pilot project was conducted in 2012.

2.2. Leader training

Eight local community organizations were approached by MAAA staff to solicit interest in implementing the program. Each interested organization signed a memorandum of understanding with MAAA outlining the roles of each in the project. Upon recommendation by their organizations, leaders were contacted by MAAA staff to attend a training workshop in which they learned how to implement the program—TJQMBB. At the 2-day training workshop, conducted by the program developer, leaders learned the program background and implementation protocol for program delivery and practiced the forms and movements. The training was further reinforced by offering leaders six 1.5-h follow-up support sessions organized by a trained local instructor over a period of 8 months.

2.3. Program delivery

The trained leaders delivered the program in their own language to the older adults in their communities in two 12-week sessions with classes twice a week for an hour (a total of 48 classes). MAAA paid organizations US$30 per class session offered. Because this effort was considered a community-based pilot dissemination project, no Institutional Review Board approval was sought. However, verbal consent was obtained from all participants for surveys and physical performance (Timed Up and Go, TUG) evaluations.

2.4. Program

The TJQMBB program is derived from the simplified 24-form of Tai Ji Quan and consists of an eight-form core routine with a variety of built-in practice variations and therapeutic movements. Basic Tai Ji Quan movements have been transformed into therapeutic training for balance and integrated into the daily functioning and clinical rehabilitation of participants. The protocol involves seated, seated-to-standing and standing movements. Specifically, the program involves a set of tailored Tai Ji Quan-based activities that focused on stimulating and integrating musculoskeletal and sensory systems through movements such as ankle sways with feet planted; weight-shifting; trunk rotation, flexion, and extension; and coordinated eyes—head—hand movements. The goals of the program are to improve postural stability and orientation, pelvic mobility and stability, control of body positioning, gait initiation and locomotion, gaze stability, and movement symmetry and coordination; to increase range of motion around the ankle joints; to build lower-extremity strength; and to reduce the risk of falling.8

2.5. Measures

Class attendance information was logged by the leaders and collected, upon program completion, by the MAAA staff. In addition, participant mobility was assessed using TUG, a commonly used measure in fall intervention research, at the beginning of the classes and again at the 24-week program termination (i.e., the end of the second 12-week session). The test was administered by MAAA program staff as time and schedule allowed. Participation was voluntary. Finally, an exit survey/debrief was conducted at the program termination to seek program feedback from participants and leaders.

2.6. Statistical analysis

Paired t tests were conducted on data from the participants who were available for the test at the beginning (baseline) and
at the end of the 24 weeks to examine change in the mobility outcome. Because a 6-month implementation period was recommended, and one of the organizations was only able to offer it for 12 weeks (4 months), data analyzed were from the five organizations that offered the program twice a week for two 12-week sessions (6 months). Analyses were performed using SPSS (Version 19.0 for Windows; IBM, Armonk, NY, USA).

3. Results

Of the eight organizations contacted, six (75%) expressed interest in participating in the project and recommended their staff or community members to attend the leader training. Two (25%) organizations were unable to participate due to logistical reasons (i.e., lack of an implementation site or short on staffing). Of the six implementing organizations, five organizations provided the classes twice a week for two 12-week classes (for a total of 48 sessions). Due to the lack of a classroom, one provided the classes for one 12-week session (for a total of 24 classes).

Ten community leaders completed the 2-day training and most attended the follow-up training reinforcement and experience sharing sessions. Eight of the 10 trained leaders successfully delivered the planned classes in their own native languages in six sites. Two were unable to provide class leadership due to travel and other responsibilities.

Of the organizations offering two 12-week sessions, total participation included 124 people attending at least one class in the first 12-week session and 103 in the second 12-week session. Participants were predominantly of Asian background (69%) with the remainder being East African (30%) and white (1%). Of the 124 first session participants, 64 (52%) also participated in the second session. The percentage of those attending both sessions was significantly higher among the participants of Asian background (64%) versus those of East African background (24%).

Over the total 24-week (48-class) pilot test period, pre- and post-TUG scores were obtained from a total of 40 participants (78% female) who attended both sessions and were available for both tests. Median compliance for the class participation from this group was 43.5 sessions (with a range of 4–48 sessions) across the two 12-week programs. Thirty-one (65%) of the 40 participants tested attended 75% or more of the sessions. Outcome analysis indicated there was a significant pre-to-post change in TUG scores; participants improved their mobility by 2.03 s (95% confidence interval: 1.04–3.01) from baseline (16.32 s (baseline) − 14.30 s (termination), p < 0.001).

At the end of the pilot period, exit surveys were collected from 43 volunteer participants and their responses are presented in Table 1. Of the respondents, 91% indicated they would participate again if the class was offered and 100% indicated they would recommend it to a friend or family member. In response to the question “Do you feel that the (Tai Ji Quan) class helped you physically (balance, flexibility, strength)?” 67% of the participants indicated specific benefits gained from participation. Verbatim examples of the narrative responses include: “The class helped me be able to use old muscles I have not used in a while. Now I can stretch my arms up very high”, “I was walking with a cane for a couple of years. After I join the class I am able to walk without a cane”, “After I join the class, I’m able to get up easier than before”, “When I put on my pants, I don’t need to hold onto anything for support”, “Can stand longer without a cane”, and “Because of a stroke, I couldn’t use my arm. But I am able to move and use my arm and lift up to my head.”

A debrief of the leaders at the end of the program indicated strong support for its benefits and the importance of continuing the program. Some of the responses emphasized the usefulness of the training and follow-up refresher classes provided to the leaders while others suggested areas of improvements in training logistics, including: “Too much to absorb in 2 days, spread it out over 3–4 days”, “Clarify what (paperwork) is necessary to collect and hand in”, and “Provide the big picture of how our work fits with Minnesota Board on Aging, the state, etc.” Specific to working with bilingual communities, suggestions included, “for outreach and marketing (have) pictures of similar people doing (Tai Ji Quan)”. Also, there was a mixed response regarding whether to translate the participant registration forms. Some leaders thought it could be an advantage to translate forms while others thought, since there are both cultural and literal translation components, that “translation may not work; (that it) may be better to have a bilingual interpreter (for) language and culture”. One additional factor raised regarding translating forms was whether the participants are literate in their native language and, if not, the bilingual interpreter would need to translate the form when meeting with the participant.

4. Discussion

This pilot study was a community-based implementation project aimed at delivering an evidence-based fall prevention program through organizations that serve primarily non-English speaking older adults of different cultural backgrounds. In some cases, the older adults were not literate in their native language. The program was shown to be successful in terms of (a) adoption by local community organizations, (b) reach of the target older adult population with good participation rates, (c) delivery, in a real world setting, by non-scientific community staff/members, and (d) both perceived and actual benefits derived from this two consecutive 12-week program offering.

Table 1
Participant responses on the exit survey (n = 43).

<table>
<thead>
<tr>
<th>Item</th>
<th>Number of responding “Yes” (%)</th>
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<tbody>
<tr>
<td>Would take the class again</td>
<td>39 (91)</td>
</tr>
<tr>
<td>Recommend the program to a friend or family member</td>
<td>43 (100)</td>
</tr>
<tr>
<td>Do you feel the class helped you physically?</td>
<td>29 (67)</td>
</tr>
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This pilot project is one of the few that address the need for implementing evidence-based interventions in communities with diverse cultural backgrounds. However, findings are consistent with a recent study that shows that it is feasible to implement a Tai Ji Quan program among socioeconomically disadvantaged and mixed-ethnicity community-dwelling older adults, and it can be effective in improving health-related outcomes.\(^{11}\)

### 4.1. Strengths and limitations

A strength of this project was that it was implemented in a real world setting by community practitioners who serve older adults, the target group for TJQMBB. This is also one of the first reported community-based efforts that systematically documented the process and progress of TJQMBB implementation with non-English speaking older adults. However, there were also limitations. First, because it was community-based dissemination project, the pilot study did not have the same degree of scientific rigor as a formal research project in the planning and monitoring of various aspects of the project operation such as recruitment, enrollment, and outcome evaluation. Another limitation is that no information about the incidence of falls among participants was collected, which may be relevant given the program focus on prevention of falls. Finally, since specific organizations were targeted for participation, the degree to which this community uptake approach is generalizable to other communities would need further evaluation.

### 4.2. Lessons learned

Throughout the implementation period, the project received great interest and support from the participating organizations. These included the Lao Advancement Organization of America, Korean Service Center, United Cambodian Association of Minnesota, VOA/Park Elder Center (Hmong), Vietnamese Social Services, and Common Bond Communities (predominantly Somali and Oromo). At the end of the pilot study, all of the participating organizations expressed interest in continuing the program and, in several cases, indicated they would do so without any financial support as it had become a key component of their community offerings.

While successful, lessons were learned from the implementation process and qualitative observations. For example, our observations indicate that bilingual leaders were able to learn the program and deliver it effectively to participating older adults in their communities in their native language, although with considerable variability in skill level. Further interactions with leaders at the end of the project suggested that previous knowledge of Tai Ji Quan was not a critical determining factor for successful program delivery. However, it was noted that previous experience in working with older adults, particularly leading older adults in physical activities, was very helpful in teaching and managing class activities. In addition, having a previous relationship with the older adult participants was a benefit to engaging them in the program.

One other observation is that participation and retention tended to be higher in implementation sites with participants from Asian cultures compared to those with East African cultures where organized exercise in general and Tai Ji Quan specifically may be less known or preferred. However, the Asian organizations represented also tended to have older adult programs in place and pre-existing relationships with the bilingual Tai Ji Quan leaders, which could well have contributed to differences in participation. This outcome will be further evaluated in 2013 with the implementation of the program in an East African community center with existing programs and leader relationships with participants.

### 4.3. Program fidelity

An important issue in implementing evidence-based programs is fidelity. While critical elements for program implementation were emphasized during the leaders’ initial 2-day training there was considerable variation among leaders during implementation. Although all bilingual leaders were successful in getting their participants engaged in Tai Ji Quan forms and related movements specified in the training protocol, some were more successful than others in leading the protocol as provided in training. This variability was addressed in the follow-up sessions led by a local leader who had extensive Tai Ji Quan experience and was willing to learn the program protocol. In several situations, one-to-one coaching was provided to raise leader competence and align it to the program protocol. This effort appears to be needed and helpful from time to time during implementation.

Although the protocol is adapted from classic Tai Ji Quan, it has been extensively tailored towards therapeutic training for improving balance in older adults. It is, therefore, critically important, from a program fidelity perspective, that the local trained leaders and/or experts selected are willing to thoroughly adopt the protocol and implement the program as used in the studies conducted.\(^{7,8}\) In this project, having local Tai Ji Quan expertise that was grounded in this protocol to provide follow-up support after the initial 2-day training was an important success factor in the initial stages of implementation. Two significant practical factors are worthy noting in future efforts. First, although a standard program fidelity checklist is available, making a simpler version for the “lay” community leaders/instructors would appear to greatly facilitate ease of program evaluation in community practice. Such a checklist should simplify the evaluation process but retain the major program elements to be evaluated by qualified evaluators. Second, with continued dissemination efforts of this program in communities of different cultural and economic backgrounds across the country, there is the emerging and urgent issue of training qualified and experienced leaders/instructors who can deliver the initial 2-day training workshops and provide on-going mentorship to the leaders.
4.4. Future plans

The success of this 2012 pilot project provided impetus for continued efforts. In 2013, the program was being expanded to additional organizations serving Lao, Cambodian, Hmong, Somali, and Oromo older adults as well as to new communities serving Spanish-speaking, Native American, and African American older adults. In addition, two other Minnesota Area Agencies on Aging have trained leaders and started implementation in more rural communities: Land of the Dancing Sky Area Agency on Aging thru the Mahube-Otwa RSVP and the Central Minnesota Council on Aging. These continued efforts not only allow us to further evaluate the approach used in this project for program adoption but also address the need to disseminate evidence-based programs in rural communities.

Future efforts may consider translating and validating the leader training process and materials into other languages so that the program could be used in non-English speaking settings where bilingual leaders are not available. Also, because the program delivery in this project was supported by modest funding, the ability to implement and sustain the program in the absence of funding should be evaluated. Finally, the impact of adding more Tai Ji Quan forms on sustaining the program over time should be evaluated.

5. Conclusion

In conclusion, results from this pilot study suggest that, working with community organizations serving older adult populations of different cultural backgrounds, TJQMBB can be implemented through trained bilingual leaders. The positive outcomes provide an impetus for on-going program expansion efforts aimed at reaching other communities across service areas covered by the MAAA and broader communities throughout the state of Minnesota.

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