

## **Move With Balance Evaluation Methods, Results, and Discussion**

### **Fall 2016 Kaunoa Senior Center**

#### **Goal:**

The MWB program has previously been shown to be effective at reducing falls among cognitively impaired older adults (DeSure et al. 2013). The goal of this study was to pilot test evaluation forms to be used to assess the benefits of the Move with Balance (MWB) program with cognitively impaired older adults.

Effects measured through these evaluation forms included: cognitive functioning, emotional expression, physical functioning, social interaction, and practiced learning.

#### **Program and participants:**

Move with Balance was held at the Kaunoa Senior Center, in Sprecklesville, HI. The program was 10 weeks long, with 10 one-hour sessions offered once weekly, starting in September 2016. The program was offered to independent living older adults.

Eight independent living seniors were originally scheduled to participate in this program. Of these eight participants, seven (87.5%) were female and one (12.5%) was male. The average age was 85.5 years old (range 73 – 91). It is important to note that these participants were not Alzheimer's or dementia patients. Hence, we did not expect to see a large range in scores using the current evaluation measures.

In addition to the participants, there were eight regular mentors; 7 (87.5%) were female and one (12.5%) was male. Ages of the mentors ranged from 64 – 81 years (mean age = 70.7 years).

#### **Results:**

This study included eight participants. Seven (87.5%) were female and the mean age was 85.5 years old (range=73 – 91 years). Two participants used walking supports (one wheelchair and one walker). As the sample size was small, the data is presented descriptively only (i.e., no statistical analyses were conducted). In addition to the 10 participants, there were eight regular mentors. Seven (87.5%) were female and the mean age was 70.7 years old (range=64 – 81 years).

Ten sessions, one hour each, were conducted during this program. During each session, participants arrived up to 30 minutes ahead of time. During this time, they had the option to color on pre-printed adult coloring book pages or simply socialize with other participants and mentors. Attendance was high for the first four classes, especially as the classes were in a location that the participants needed to travel to. Attendance rates of participants ranged from 4 – 12 (mean=7) participants each session, and 5 – 8 (mean=6) mentors each session. In addition to the art done before each class, each session included between 12 – 17 MWB activities, which became progressively more challenging with each session. In addition to the class time, the presenter and mentors spent an additional 45 minutes setting up prior to each session and 30 minutes cleaning up.

The following improvements were noted in one or more participants during the post-assessment (in comparison to the pre-assessment). Some improvements are noted twice as they fall within multiple categories. Note that only five participants took part in the post-assessment.

*Physical:* (1) Less hesitation and improved performance in left-right activity; (2) didn't use wall or table as support during walking activity; (3) didn't take short strides and had improved walking gait during walking activity; (4) observed improved balance; and (5) observed improved posture.

*Cognitive:* (1) Less hesitation and improved performance in left-right activity; (2) less confusion; (3) more likely to remember three words mentioned a few minutes earlier and to remember today's day of the week; and (4) observed to forget words less, to repeat themselves less, to speak out of context less, and to mumble less.

*Emotional:* (1) Stated feeling less helpless.

*Social:* (1) More likely to smile back to interviewer and to interact more with the interviewer; (2) stated dropping fewer social activities; (3) stated getting less bored; (4) stated preferring to go out more rather than staying home, and (5) stated looking forward to doing something today and this week.

*Depression:* No changes.

*Satisfaction with Life:* (1) Stated increased sense of purpose.

*Learned behavior:* (1) Less hesitation and improved performance in left-right activity.

Even though only five participants were observed both during pre-assessment and post-assessment, we observed improvements in physical, cognitive, and "outlook in life" (including social behaviors and satisfaction with life).

\* It is important to note that two participants were observed to be worse at the post-assessment on some measures (i.e., less eye contact, remembering words less, walking slower, dropping more activities, feeling in worse spirits, and feeling more hopeless). These observed declines may be considered "normal" progression however. As noted in a prior Move with Balance study, participants in the control group (who did not receive the MWB program) were observed to have an increase in number of falls experienced over the course of six months. Hence, it is possible that these non-physical declines are considered normal declines associated with age.

The following improvements were noted from the participants during their post-assessment qualitative evaluation. These items were noted in an open-ended interview format.

*What liked best about MWB:* (1) Instructors were very well trained; (2) Made me think harder and deeper; (3) I'm appreciative of the group setting (two people); (4) I liked learning to get out of a chair without help; (5) I liked the balance classes (gives me opportunity to practice balancing); (6) Enjoys coming to class and meeting new people and making and renewing friendships; (6) Teachers are fun; (7) I enjoy the physical activity; (8) I enjoy meeting people; (9) It's nice having a change in activity and trying new things.

*Health improvements in general:* (1) My thoughts are more positive and hopeful.

*Movement improvements:* (1) Yes, but I can't think of anything specific at the moment; (2) I learned to get up and out of a chair without help; (3) Improved balance (three people); (4) Walking stronger; (5) Improved left / right brain activities.

*Memory / focus improvements:* (1) Thinking and remembering is easier.

*Emotional improvements:* (1) I feel much more outgoing; (2) Laughing more with others.

*Other improvements:* (1) Gives me hope that I will feel better; (2) Classes help me to be more social; (3) I feel more confident.

The following improvements and/or regressions were noted each week based on the brief assessment the mentor conducted with their mentee before and after each MWB session. On average, each participant self-reported improving either slightly or greatly in terms of energy, focus, and balance, at the end of each session. These levels of improvements were supported by each participant's mentor during an objective evaluation at the end of each session.

**Discussion:**

While we didn't assess cognitive functioning (i.e., MMSE) of the study participants prior to the start of the program, all participants lived independently and were, overall, observed to be relatively high in cognitive functioning (i.e., none diagnosed with Alzheimer's Disease and no severe memory, focusing, or emotional deficits). Hence, there was a "ceiling" effect with the quantitative evaluation we intended to pilot test in this study. Given the ceiling effect in pilot testing these evaluation tools in this current study, it would be useful to re-test these evaluation tools in a population of older adult patients with either Dementia and/or Alzheimer's Disease.

Regardless of the level of functioning of the current participants, the participants in this group were quite old on the average (average age = 85.5 years), and hence stand to greatly benefit for the Move With Balance program. This session of Move with Balance had a low attendance rate and had a high drop-out rate after the fourth class. One participant dropped out due to pneumonia and another dropped out after falling. Not all drop-outs were due to participant personal challenges. One participant dropped out because her son could no longer drive her to the classes.

From the data collected (both quantitatively and qualitatively, the MWB program appeared to be beneficial in having positive effects on physical, cognitive, emotional, social, and learning functioning in non-memory care older adults.

Physically, improvements noted include improved balance, walking stride, and walking gait, having less hesitation, and needing less supports.

Cognitively, improvements noted include improved left / right brain activities, being less confused and forgetful, and having better memory.

Emotionally, participants stated feeling less helpless.

Socially, participants smiled and interacted more, stated that they dropped fewer activities and preferred to go out more, felt less board, and looked forward to doing activities.

Finally, in terms of satisfaction of life, participants stated feeling that they had more sense of purpose and enjoy experimenting with new activities.

Overall, the Move With Balance program is an enjoyable program for older adults, regardless of physical health and mental acuity. Previous studies have already shown that MWB is effective at reducing falls in institutionalized older adults. This study, while not assessing memory-care patients, shows promise in improving cognitive, emotional, and social functioning among older adults.

Future studies need to continue to assess the MWB program with various older adult communities, including: (1) independent living healthy older adults to assess the program's value in preventing future deterioration; (2) independent living and assisted living non-healthy older adults to assess the program's value in preventing falls and in improving memory; (3) assisted living and nursing care memory-care patients to assess the program's value in improving physical, cognitive, emotional, and social functioning in this high risk population.

Finally, in terms of data collection, it would be beneficial to conduct post-tests 3-months, 6-months, and one-year after program completion in order to determine the longevity of the effects. This will help facilities to determine whether the MWB program can be conducted in 10-week increments once or twice a year or if the weekly classes need to be conducted continuously for sustained effectiveness.