

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

### **Goal:**

The MWB program has previously been shown to be effective at reducing falls among cognitively impaired older adults (DeSure 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 and one half-hour sessions offered once weekly, starting in January 2016. The program was offered to independent living older adults.

Thirteen independent living seniors took part in this program. Of these 13 participants, 9 (69%) were female. The average age was 80 years old (range 62-93). It is important to note that these participants were not formerly diagnosed with Alzheimer's or dementia. Hence, we did not expect to see a large range in scores using the current evaluation measures.

In addition to the participants, there were seven regular mentors; six female (86%) and one male. Ages of the mentors ranged from 62 – 76 years (mean age=66.5 years). In addition to the regular mentors, two participants brought their own caregiver to the class, and there were up to four more volunteer that helped at all or some of the sessions. We do not have age information for the caregivers or the four volunteers.

### **Results:**

This study included 13 participants. Nine were female (69%) and the mean age was 80 years old (range=62-93 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 13 participants, there were seven regular mentors, two caregivers, and up to four additional volunteers. Since there were fewer mentors than participants, some mentors assisted more than one participant. This was appropriate for this group given they were relatively high functioning.

Ten sessions, one and one half-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, participate in brain integration art projects, or simply socialize with other participants and mentors. Attendance was high, especially as the classes were in a location that the participants needed to travel to. Attendance rates of participants ranged from 9 – 13 (mean=12) participants each session, and 7 – 12 (mean==11) mentors each session. Each session also had three different presenters conducting the sessions. Each session included 10 MWB activities, which became progressively more challenging with each session. In addition to the class time, the

presenters 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.

*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 arm swing during walking activity; and (4) observed improved balance

*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, to remember the interviewer's name, and to remember today's date; 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; (2) stated dropping fewer social activities; (3) stated getting less bored; and (4) stated looking forward to doing something today and this week.

*Depression:* (1) Stated less sad and depressed.

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

*Learned behavior:* (1) Less hesitation and improved performance in left-right activity; (2) more likely to initiate coloring during interview; and (3) more likely to sing along with one of the class songs.

The following improvements were noted from the participants (and in some case's their caretaker) during their post-assessment. These items were noted in an open-ended interview format.

*What liked best about MWB:* (1) Liked having a mentor; (2) Warmth felt connecting to every person; (3) Nice feeling after class; (4) fun!; (5) Sharing our love and activities; (6) Puzzles; (7) the Farewell song at the end of class; (8) enjoyed experimenting; (9) I began writing an painting with my left hand. I'm amazed!; and (10) I'm less afraid.

*Health improvements in general:* (1) Walking with more strength; (2) I think before I sit; (3) I focus better on switching left and right; (4) my balance is better and I don't fall anymore!; and (5) I have a new attitude that "I can do this."

*Movement improvements:* (1) I feel more strength and steady sureness; (2) I can stretch more and have more range of motion; (3) I have more energy and love coming to class; (4) better balance; (5) using a walker now instead of a wheelchair; (6) walking straighter and sure-footed; and (7) improved hip and knee joints.

*Memory / focus improvements:* (1) Becoming more aware of each step and where I sit; (2)

improved focus; (3) trying harder; (4) remember names better; and (5) better at paying attention to myself and my own motions.

*Emotional improvements:* (1) I'm always happy when I look forward to class; (2) I'm content; (3) I always smile.

*Other improvements:* (1) motivated to become more outgoing and less private; (2) sleeping better; (3) feeling more comfortable going out and meeting new people; (4) better at Scrabble now; and (5) more confidence.

*Rating of mentors:* On a scale of 1 – 5, mentors were given a mean score of 4.89 (median=5). Comments include: (1) Excellent; (2) helpful without being imposing; (3) observed my limits and didn't push beyond that; (4) Considerate. Always looking out for my best interest; (5) joking; and (6) patient.

*Rating of presenters:* The mean scores for the presenters were all 4.7 – 5.0. Comments for each of the presenters were positive and included the following: (1) Friendly and always smiling; (2) personally interested in me; (3) good at explaining the activities; (4) energetic; (5) professional, knows what she's doing; (6) music is great; (7) laughs; and (8) age appropriate.

*Rating of activities and music:* The activities were given a mean score of (4.89 (median=5.0). The music was given a mean score of 5.0. Favorite activities included coloring, peanut butter, singing, row your boat, whole wheat bread, arrows, and finding a double thumb. In terms of the music, most of the participants stated that "We are love" was their favorite song.

### **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, over-all, 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 = 80 years), and hence stand to greatly benefit for the Move With Balance program. 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 and walking stride, feeling more confident and aware, and needing less supports. Participants stated feeling stronger, more focused on where they step and sit, and having more energy. One participant stated not falling any more.

Cognitively, improvements noted include being less confused and forgetful, and having better memory, being more focused, and trying harder.

Emotionally, participants stated feeling less sad, and more happy and content.

Socially, participants smiled and laughed more, made new friends, had fun, and stated that they were looking forward to something now and that they felt more comfortable going out and meeting new people.

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. Additionally, for the younger mentors, the MWB program has the added benefit of preventing deterioration as this group of older adults become older.

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.