

# Using the Wii with people with behavioural and psychological symptoms of dementia (BPSD)

StV

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# Background



- ❖ Technology is increasingly being used to maintain functioning and engage people with dementia in activities
  - ❖ Respite DVDs
  - ❖ Robotic animals e.g. Paro
  - ❖ Nintendo Wii



# How is Wii Sports used?



- ❖ Gaming program by Nintendo - used with TV
- ❖ Participant uses hand held controls which imitate sporting equipment e.g. tennis racquet and track movement in 3 dimensions
- ❖ Provides virtual and actual physical participation in tennis, golf, boxing, baseball or bowling activities
- ❖ Provides immediate visual & auditory feedback for physical movements
- ❖ Incorporates competition – against the game or up to 4 other people → ↑ Participant motivation



# Why is the Wii used by health services?



- ❖ Commercially available at relatively low cost
- ❖ Can be used by all ages
- ❖ Allows engagement in activities that may not otherwise be accessible
- ❖ Competition may speed up recovery
- ❖ Provides opportunities to develop new skills, interests and confidence
- ❖ Health benefits
  - ❖ Physical fitness
  - ❖ Weight loss



# Setting Setting



1. 30 bed nursing home for people with severe behavioural disturbance due to dementia or mental illness (inner eastern Melbourne)
2. St Vincent's Aged Psychiatry Service purchased Wii Sports late in 2008
  - ❖ Set up in a communal lounge area
  - ❖ Residents were invited to participate in Wii Sport games of their choice.
  - ❖ Staff practiced and became familiar with use of Wii



# Introduction of Wii Sport



## 1. Questions:

- ❖ Can people with dementia engage in physical activity using a virtual device?
- ❖ Can people with dementia benefit from participating in Wii Sport activities?

## 2. Initial findings:

- ❖ Responses of residents and staff were favorable → people with dementia can engage in 'virtual' and actual physical activity using the Wii with benefits in:
  - ❖ ↑ Social interaction, ↑ interest, ↑ engagement of staff in providing activity



# Study Design (1)



## Wii Sport activity group procedure

- ❖ Wii Sports console set up in a lounge area with seating for spectators
- ❖ Resident approached by a staff member
- ❖ Invited to participate in a Wii Sport of their choice
- ❖ Wii Sport activity group facilitated by Nursing Staff or the Activities Coordinator
- ❖ Other residents also invited to participate
- ❖ Frequency of sessions at resident's volition



## Study Design (2)



- ❖ Can people with dementia engage in physical activity using a virtual device? ✓
- ❖ Can people with dementia benefit from participating in Wii Sport activities? ✓
- ❖ Does participation in Wii Sport activities affect behavioural and psychological symptoms in people with dementia?
- ❖ Does level of interest and engagement change when people with dementia participate in Wii Sport activities?

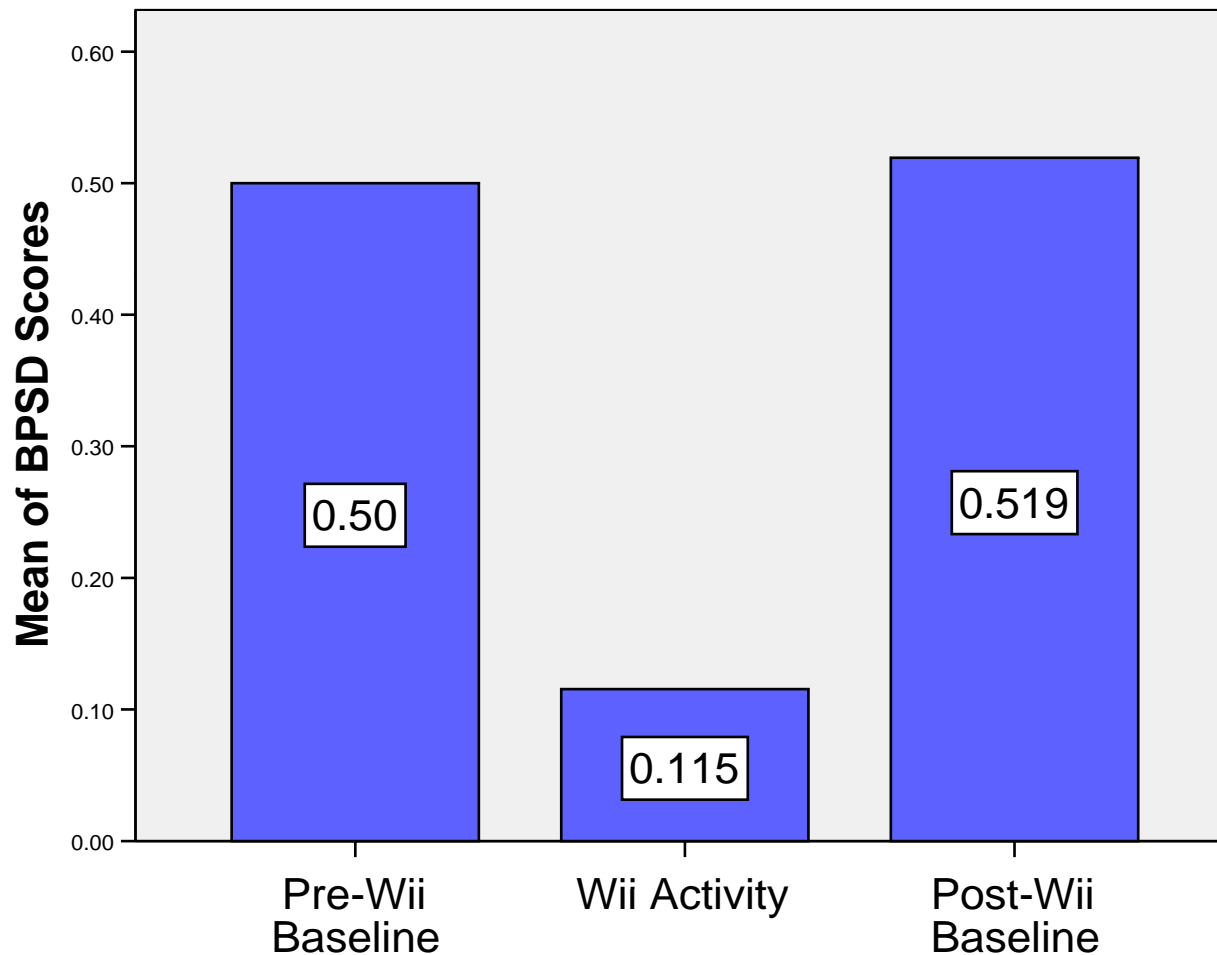
## ❖ Single case analysis



## ❖ Staff member observed and recorded:

- ❖ Type of Wii Sport games used
- ❖ The times of the three intervals
- ❖ The resident's participation in activity: physical, passive, displaying interest
- ❖ Changes in movement fluidity, verbal communication and other observable changes
- ❖ Severity of BPSD (BPSD checklist – Snellgrove & Hecker, 2005) analyzed using Friedman and Wilcoxon Signed Ranks tests

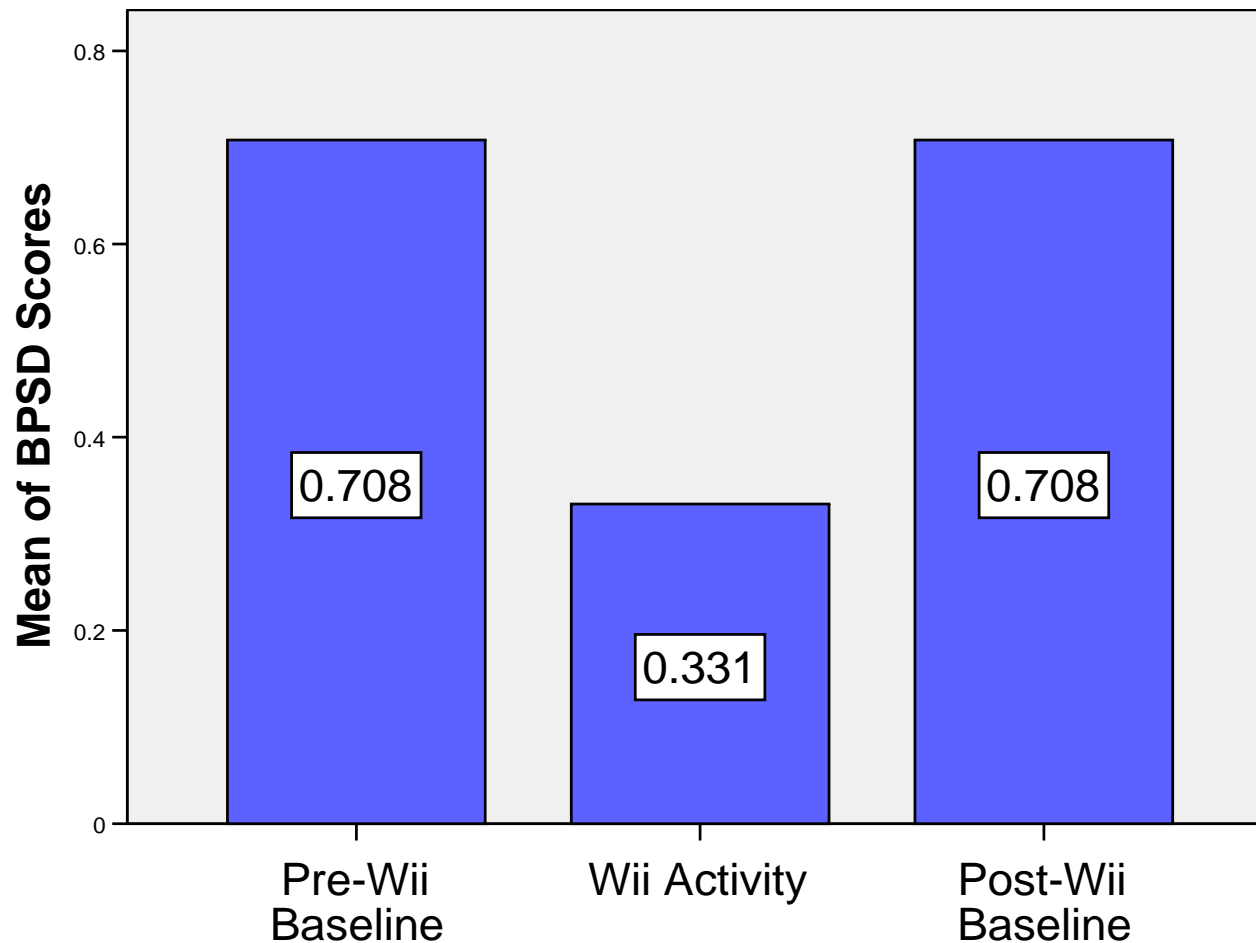
# Results: Mr J's BPSD scores



- ❖ Significant reduction in BPSD scores Pre-Wii baseline to Wii activity ( $p=0.011$ )
- ❖ Significant reduction in BPSD during Wii activity compared to Post-Wii baseline ( $p=0.001$ )

$$\chi^2(2)=15.44, p<0.001$$

# Results: BPSD Scores n=6



- Significant reduction in BPSD scores Pre-Wii baseline to Wii activity ( $p < 0.001$ )
- Significant reduction in BPSD scores during Wii activity compared to Post-Wii baseline ( $p < 0.001$ )

$$\chi^2(2) = 35.84, p < 0.001$$



## Results: n=6 (cont'd)



- ❖ “He became interested when watching a staff member demonstrate what was to be done and when finished, enjoyed watching other residents play”
- ❖ Mrs D liked watching and wanted to participate in the tennis. She became quickly frustrated with the tennis due to poor ability to time her shots”
- ❖ “Mr P was fully capable of all actions (hand motion and buttons) and was even bowling in a stance similar to a person who would really be bowling. He was heard talking to others and asking if there was a bowling centre nearby”.



# Where to from here?



- ❖ Results are limited
- ❖ Several questions raised:
  - ❖ How does the effect of resident participation in Wii Sport compare to participation in a dancing and chair based exercise group?
  - ❖ Is participation in Wii Sport activity related to dementia severity and types of cognitive deficits?
  - ❖ Does verbal or physical aggression increase following participation in Wii Sport boxing activities?