

Feasibility study of a digital screen-based calming device on disruptive BPSD in shared areas of an LTC facility

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Purpose In Canada, over half a million people live with dementia, and each year, about 25,000 new cases are diagnosed (Alzheimer Society of Canada, 2016). The neuro-degenerative changes that occur as this disease progresses are accompanied by disturbed emotions, mood fluctuation, altered perception and thought processes, and agitated motor and verbal activity, symptoms commonly referred to as behavioural and psychological symptoms of dementia (BPSD) (Black & Almeida, 2004). BPSD warrant management as they are associated with higher care burden and costs and lower quality of life of both residents and care staff (Cerejeira et al., 2012; Hermann et al., 2006; Khoo et al., 2013). This feasibility/pilot study investigated the effect of MindfulGarden (MG), a digital screen-based calming device, on BPSD occurring in shared areas of a long-term care facility. **Method** Participants were 15 residents (mean age: 87.67 ± 7.26 ; 5m, 10f) screened by the facility's care staff for eligibility based on a diagnosis of dementia and exhibiting disruptive BPSD. A 26-item checklist was used to record frequency and type of BPSD exhibited in shared areas in hours between morning and evening care on 2 separate days [average 8-10 hours observation]. Day-1 provided a baseline; on Day-2, residents were exposed to MG if staff considered BPSD sufficiently intense to warrant intervention. The calming effect of the device was rated by staff as positive, neutral or negative. **Results and Discussion** On Day-1, 2 residents showed no BPSD, 9 exhibited both aggressive and non-aggressive behaviours and 4 exhibited only non-aggressive verbal and/or physical agitated symptoms. Generally, residents were not very active, e.g. they watched TV, sat quietly or slept in the lounge area of their unit. On average, the first BPSD did not appear until after 2.27 ± 1.97 hours of observation. On Day-2, 4 participants showed no BPSD, 7 exhibited both aggressive and non-aggressive BPSD and 4 exhibited only non-aggressive BPSD. Mean wait time for the appearance of BPSD was 2.50 ± 2.85 hours. On Day-2, 7 of the 11 residents exhibiting BPSD were exposed to MG; 3 were exposed once (each with neutral effect), 2 were exposed twice (positive-positive; neutral-positive), and 2 were exposed 3 times (positive-positive-neutral; neutral-neutral-positive). The most common BPSD were repetitive mannerism, restlessness and screaming. Use of MG in this study was analogous to that of a "crash cart". Of the 7 individuals exhibiting BPSD of an intensity deemed by staff to merit intervention, response was mixed, both across individuals and among those with multiple exposures. Logistical issues need to be explored in future studies of this digital therapeutic device, including whether it is more effective to take MG to the person or the person to MG, and standardizing criteria for initiating resident exposure. Technical questions include determining the optimal intensity of MG's visual response to disruptive BPSD and whether the addition of sound will enhance its ability to capture attention and calm residents.

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