The use of Skype™ family conversations compared to regular telephone calls to reduce agitation in nursing home residents with dementia

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(i) Aims of the project

This project aims to explore the use of Skype™ conversations with family members as a means to reduce agitation in people with dementia residing in aged care facilities.

(ii) Background and significance

The agitated behaviours that often accompany dementia (e.g. pacing, calling out and aggression) are stressful to carers and greatly increase the risk of admission to an aged residential facility. While psychotropic medications are commonly prescribed to reduce the frequency and severity of such behaviours, their efficacy is limited and their side-effects (e.g. falls) can prove onerous and costly (Greve & O'Connor, 2005). There is great interest, therefore, in developing non-pharmacological strategies to alleviate the distress that underpins many behavioural symptoms.

In a recent literature review commissioned by the Dementia-CRC, it emerged that personalized music, recreation therapy and family-made videotapes reduced agitation more effectively than non-personalized stimuli that offered an equivalent level of social interaction (O'Connor *et al*, 2009a,2009b). Treatment effect sizes reached 0.7 in some studies, exceeding those of most psychotropic medications. The largest effect sizes were associated with interventions tailored to participants' backgrounds, interests and skills. For example, music that participants had enjoyed earlier in life reduced agitation better than standard "relaxing" classical music (Gerdner, 2000). These findings may be explained through the *unmet needs* paradigm (Cohen-Mansfield, 2001) which postulates that agitated behaviours stem from normal human needs (e.g. for companionship, sensory stimulation and meaningful activity) that carers have failed to address. Strategies that meet these needs – which vary from person to person and over time – should therefore prove most effective.

In a recent unpublished study, we successfully halved the frequency of agitated behaviours using personalised Montessori-type activities. It was striking, though, that having a research assistant read to participants from a newspaper proved almost as effective, at least with respect to behaviour counts (activities worked better than the control condition in capturing participants' interest and promoting positive affect). Since both approaches, activities and reading, share a one-to-one mode of delivery, we conclude that one-to-one interaction has substantial, untapped therapeutic potential.

It is clearly impracticable, though, for staff members in aged residential facilities to provide sustained personal attention to every resident. Family members, who continue to be recognised by people with dementia when staff members are not, often have a calming effect but their visits are sometimes infrequent and brief. Audiotapes and videotapes of family members speaking to people with dementia, as if engaged in a telephone conversation, have proved effective in previous studies (Garland *et al*., 2007; Cohen-Mansfield & Werner, 1997) but, on follow-up, staff members rarely played the tapes to residents, even when the tapes' benefits were recognised (personal observation). Some

other means is required, therefore, to provide individually tailored, one-to-one contact with a family member.

Family members do sometimes speak by telephone to residents and they might do so more often if it emerged that this style of interaction had a therapeutic effect. This effect might be enhanced further if people with dementia are presented with maximal sensory input by means of modern communication technology. It is possible that confused, disoriented residents, some of whom also have sensory deficits, will derive greater benefit if they can *see and hear* their family member via Skype™ computer software which is now readily available and free of charge.

In a small study of seven family carers who spoke by video phone to relatives in nursing homes, carers felt more involved with the care process and some perceived the conversation to be more focused and of better quality than face-to-face interaction (Savenstedt *et al*., 2009). The proposed study will explore if residents also benefit from enhanced communication technology.

The project thereby addresses a question of fundamental importance: Can we harness human interaction as a treatment of agitated behaviours in dementia in a way that is acceptable, practicable and affordable?

(iii) Research strategy

Study design

We will use a randomised cross-over design in which participants function as their own controls. Thus, all participants will be exposed in random order to both Skype™ interaction and the control condition of regular telephone conversations. We hypothesise that counts of agitated behaviours will be significantly lower during Skype™ conversations.

Subjects & sites

This pilot study will include 20 individuals residing in aged care facilities in south-eastern Melbourne, Victoria.

Inclusion criteria

(1) A chart diagnosis of dementia.
(2) At least one high frequency behavioural symptom outside nursing interventions as established using the Cohen Mansfield Agitation Inventory (Cohen Mansfield, 1986). The inventory will be completed, in discussion with a research assistant, by the staff member in most frequent contact with the resident.
(3) An assessment by the nursing staff and GP that behaviours are not due primarily to untreated or inadequately treated pain, physical illness, major depression or psychosis.
(4) Residence in a high care, or mixed high care and low care, facility for 3 or more months.
(5) Consent to the study by the next of kin or legal guardian.
(6) A family member or other familiar person who is able and willing to engage with the resident in both Skype™ and telephone calls.

Exclusion criteria
(1) A current, life-threatening physical illness as reported by nursing staff.
(2) Behaviours that present a hazard to researchers (e.g. unpredictable aggression).

Measures
We will observe participants for 20 minutes before, during and after conversations. A discretely positioned, trained research assistant (RA) will record if the selected physically agitated behaviour is present or absent at half-minute intervals across the 3 periods giving a maximum of 40 data points per period and 120 per session. Behaviour counts will range from zero to 40 per period. This method was used successfully in previous studies with an inter-rater reliability coefficient of 0.98.

The *primary* measure in this trial will be the change in mean counts of the target physically agitated behaviour across before, during and after intervention phases.

Secondary measures will include participant's predominant levels of engagement and affect at each half-minute interval. We distinguish between 4 types of clearly defined engagement based on the Menorah Park Engagement Scale (Skrajner & Camp, 2007): non-engagement, self-engagement, passive engagement and constructive engagement. For every half minute the predominant type of affect is noted. We will include 3 positive emotions (pleasure, contentment and interest), one neutral and 3 negative emotions (anger, sadness and fear/ anxiety). Inter-rater reliability was established in our recently completed study with an inter-rater reliability coefficient of 0.82 for engagement and 0.92 for affect.

Other outcome measures include the duration of calls, the number and duration of interruptions, and family members' ratings of the acceptability and practicability of Skype™ and telephone calls.

At baseline we will gather information on participants' demographic characteristics and Mini Mental State Examination scores (Folstein *et al*., 1975). In addition, dementia severity will be graded using the Clinical Dementia Rating Scale (Hughes *et al*., 1982) based on information provided by staff.

Study procedure
Participants will be randomly allocated to start with either Skype™ or regular phone calls. After 4 sessions over a 2 week period, they will be crossed to the other condition. Based on experience, we believe that 20 minutes is the maximum feasible length for conversations (though some may finish sooner).

RAs will initiate Skype™ calls via an iPad, or telephone calls, at a pre-arranged time slot. Topics of conversation will not be prescribed, provided only that the style of interaction is kept consistent. Family members can include or display other people, pets or objects via Skype™ if they are also included or discussed in telephone calls.

Statistical rationale and analysis

We will use two-way repeated measures analysis of variance to test the significance of changes in the number of physically agitated behaviours over time (before, during, after treatment). We will use simple main effects to determine the specific effect of the Skype™ intervention relative to the control condition and we will test for the interaction between treatment and time. Simple contrasts will be used to tease out more detailed relationships, including testing the primary hypothesis that Skype™ interaction reduces the frequency of physically agitated behaviours significantly more than regular phone calls.

Analysis will be by intention to treat. Baseline characteristics of participants who drop out during the study will be compared to those who complete it to assess patterns of loss to follow-up and provide insights into the degree to which results can be generalised.

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