

Using Video Simulated Presence to reduce resistance to care and increase participation of adults with dementia

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Abstract

Background: Cognitive and functional decline in dementia generally impairs performance of basic care activities. Staff assistance during these activities frequently results in confusion, anxiety, and distress, expressed through resistance to care (RTC). **Methods:** A single-system ABA withdrawal design ($n = 1$) evaluated the effect of video-simulated presence (VSP) for decreasing RTC and increasing participation. A family member pre-recorded videos for use during episodes of RTC, in which the family member spoke directly to the participant to encourage participation. **Results:** Introduction of the VSP significantly reduced RTC during the basic care tasks of feeding and talking medication. This effect was reversed when the intervention was withdrawn. Participation increased following VSP, demonstrating clear trends toward clinical significance. **Conclusions:** This person-centered intervention, based on VSP of a family member, provides encouraging results for reducing RTC and increasing participation of adults with dementia in basic care tasks.

Keywords

activities of daily living, dementia, resistance to care, participation, video-simulated presence

Introduction

Cognitive and functional decline in dementia generally impairs performance of basic care activities of daily living (ADLs).^{1,2} Participation in personal care ADLs, such as eating or showering,³ is a fundamental contributor to quality of life (QOL) in residents with dementia, where participation is defined as active engagement/involvement in activities.^{1,4,5}

Assistance from nursing staff in completion of ADLs frequently results in confusion, anxiety, and distress in individuals with dementia, which is frequently expressed through resistance to care (RTC).⁶⁻⁸ Resistance to care may be expressed by a range of behaviors, including turning away, hitting, pushing away, verbally objecting, screaming, or threatening,^{8,9} exhibited by a person with dementia to oppose assistance with ADLs from a caregiver.^{9,10}

Staff assistance with ADLs within a residential facility often adheres to a standardized format and schedule, creating an impersonal approach to care.^{11,12} However, previous studies have shown that a person-centered approach to care during ADL tasks can reduce the incidence of RTC.⁶ Family involvement in the nursing home (NH) setting is a person-centered approach to care that can improve psychosocial well-being and relieve behaviors related to frustration and agitation in residents with dementia.¹³⁻¹⁵

Simulated presence therapy (SPT) is a person-centered approach which was first described by Woods and Ashley¹⁶

and involves playing a scripted audiotape of a family member in an imitated telephone conversation describing best-loved memories to a person with dementia. Research to date supports preliminary studies,¹⁶ indicating the benefit of SPT for improving disruptive behaviors in individuals with dementia.¹⁶⁻²⁰ A systematic review and meta-analysis conducted by Zettler²¹ presents cautious support for the use of SPT to manage challenging behaviors exhibited by people with dementia. Considerable disparity in methodology and design of previous research conducted in SPT has resulted in varied outcomes. While studies suggest that SPT can reduce the incidence of behavioral and psychological symptoms of dementia, these results are often inconsistent.^{16-20,22,23} This highlights the need for well-designed controlled studies to support the growing knowledge base in this area.²¹ In order to determine the overall effectiveness of this intervention, procedures for delivering SPT must also be evaluated. Participants in a number of studies

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have demonstrated intolerance of the headphones used to deliver the auditory message.^{17,19,20,23}

The majority of SPT studies have used an auditory format without a visual component, and there is limited research into how using a video format (video-simulated presence [VSP]) may promote improved outcomes of SPT. Family-generated videotapes used by Cohen-Mansfield and Werner¹⁸ were found to significantly reduce verbally disruptive behaviors. These initial positive findings highlight potential for more rigorous research in the area of VSP. Past SPT studies have investigated outcomes related only to behavior, and there appears to be little prior research investigating the potential for SPT to decrease RTC and increase participation.

A post hoc investigation into the characteristics of family-generated videotapes which may have been related to positive outcomes suggest the importance of a close relationship between the person with dementia and their family members who make the video recordings.²⁴ The study found that the more effective tapes involved a greater proportion of expressions of love. Therefore, the tone and content included in the VSP tapes developed for use in the present study will be an important consideration.

Based on this, the authors predict that implementing a video-based simulated presence recorded in a personalized manner will generate more effective outcomes for reducing challenging behaviors often exhibited by people with dementia. On this background, this study aims to investigate the effect of VSP for decreasing RTC and increasing participation in ADLs to improve basic care of people with dementia.

Methods

Design

A single-system ABA withdrawal design ($n = 1$) was used to evaluate the effect of VSP in an adult with dementia. Rather than investigating the mean group differences, this design enabled investigation of VSP outcomes at an individual level.²⁵ Using the ABA withdrawal design strengthened internal validity as the participant served as their own control.²⁵

The ABA design involved alternating conditions the participant was exposed to. During baseline (A_1 phase), the participant was exposed to normal operating procedures to encourage occupational participation. During intervention condition (B phase), the participant was exposed to VSP immediately prior to being exposed to normal operating procedures. In the withdrawal (A_2 phase), baseline conditions were repeated. Studies on SPT have illustrated the possibility of repeated use of simulated presence media due to short-term memory limitations of individuals with dementia, thus indicating the potential for withdrawal of the intervention to demonstrate the effect of intervention.^{16,18}

Setting

The study was conducted in a 124-bed NH within a larger aged care facility. The NH contained private bedrooms and shared

bathrooms. Observations took place in the main dining/sitting room, a common hall, and in a smaller sitting room. The participant was observed during occupational tasks including mealtimes, taking medications, or mobilizing from one room to another. The VSP interventions were implemented in these common areas while the participant was involved in the above occupational tasks.

Participant

After receiving approval from the local institutional Human Research Ethics Committee, 1 resident living in the NH was recruited using purposive sampling,²⁶ according to the following inclusion criteria: (a) diagnosis of dementia, (b) able to engage with the video, recognize the family member, and comprehend what is being said to them on the video, and (c) frequently demonstrated RTC when staff attempted to assist with basic care tasks such as showering, dressing, or giving medication. Informed consent was provided by a legal guardian on behalf of the participant with dementia.

The participant's level of cognition was assessed using the cognitive impairment module of the subject interview scale of the Psychogeriatric Assessment scales (PAS).²⁷ Levels of agitated behavior were assessed in terms of verbal, physical, and nonphysical aggression using the Cohen-Mansfield Agitation Inventory (CMAI).²⁸ Functional impairment was assessed using the Resource Utilization Groups (version 3) Activities of Daily Living scale (RUGIII-ADL). The RUG-ADL has been successfully used in geriatric settings to indicate the level of functional impairment by measuring care requirements of a resident based on nursing dependency.²⁹ A demographic description of the study participant may be found in the results section.

Intervention

A_1 and A_2 phase. Normal operating procedures were observed in both the A phase conditions. This involved staff interacting with the participant to encourage/facilitate participation in occupational tasks including eating, taking medications, transfers, and mobilizing from one room to another. Normal facilitation procedures involve staff using verbal prompts/encouragement and providing physical assistance such as spooning food to the participant's mouth, or handing the participant medications and a glass of water.

VSP B phase. The VSP intervention used in this study was a modification of SPT originally developed by Woods and Ashley.¹⁶ The family member who agreed to participate in the study was asked to make individual 30- to 60-second videos in which the family member spoke directly to the participant asking them to comply with staff requests and prompting them to participate in specific tasks. The family member targeted tasks based on nurse report and their own knowledge of their relative's participation restrictions. Videos prompted the participant to comply with medications, meals, and drinks, and also included a general video to promote social reassurance and thus

compliance with general care tasks such as transfers or mobility. The VSP recordings were played according to the task at hand and were played in situ using an iPad which permitted ease of application during a range of tasks within the setting. Prior to playing the VSP, verbal permission was always gained from the participant by the researcher asking "would you like to watch a video of your daughter?". The VSP was played immediately prior to staff attempting normal procedures to facilitate occupational participation. During longer tasks such as eating a meal, the VSP intervention was replayed up to 3 times throughout the task.

Measurement of Resistance to Care and Participation

The primary outcome of the study was to measure RTC and occupational participation in residents with dementia. Resistance to care was defined as any behavior involving the participant refusing or objecting to participate in a task, such as refusing to drink, or objecting to being mobilized from one room to another. Participation was defined as active engagement/involvement in activities.⁴ A study-specific data collection tool was developed by the researchers based on concepts from the positive response schedule (PRS) for severe dementia,³⁰ which is designed specifically for adults with dementia and demonstrates sound reliability and validity.^{30,31} The data collection tool for the current study was adapted to specifically include items pertaining to RTC and participation, which were the particular focus of the research. The adapted tool had 19 items across 4 domains including active engagement, passive engagement, nonengagement and affect (refer to Appendix A). Data collection commenced when a staff member attempted to engage the participant in a task and continued for 15 minutes.

Procedures

Observation sessions were carried out by the first 2 authors in the common living areas of the nursing facility. During A phases, researcher 1 (C.M.O'C.) or 2 (R.S.) conducted observations ensuring enough were conducted simultaneously to measure inter-observer agreement. During B phase, researcher 1 (C.M.O'C.) conducted observations while researcher 2 (R.S.) stood alongside the participant to implement the intervention and respond to comments from the participant regarding the content of the recordings. Researchers conducted direct time-sampling observations³² of participants using a 30-second interval. At the completion of each 20-second interval, observers spent 10 seconds recording the incidences of active or passive engagement, nonengagement, and affect. During the B phase, time of initiation and cessation of VSP exposure were also recorded. Similar observation procedures have been successfully used in dementia care settings to measure behavioral outcomes.³³

During A₁ phase, the participant's levels of RTC and participation during basic care tasks (ie, lunch meals, morning and noon medications, or mobility) were observed until stability of performance was reached, and there was little variability in the data.²⁵ Through this process A₁ phase continued for

10 days, yielding 12 data points to ensure adequate duration for valid data analysis.³⁴ The B phase commenced without a washout period. At the start of each observation session during B phase, the participant was exposed to their individualized VSP recordings by the researchers and was then observed during the basic care task. In order to achieve equivalence in phase length, and to reduce the possibility of phase length bias, 12 data points were collected for B phase over a period of 14 days.³⁵ During A₂ phase, baseline conditions were repeated where the participant was again observed during basic care tasks without exposure to VSP and consisted of 12 data points collected over 15 days. This phase was implemented to determine whether participation and RTC levels returned to baseline following withdrawal of the experimental intervention, thus indicating a causal relationship between VSP, reduced RTC, and increased occupational participation.

Data Analysis

Resistance to care was represented by the item titled "Resisting care" in the active engagement domain and was scored when the participant refused or objected to receiving assistance with a care task. Incidence of RTC was calculated as the number of 30-second intervals when RTC was observed divided by the 15-minute duration of the task and represented as a percentage. Each data point represented observation of 1 task on 1 day from the following list of items: "eating/being fed," "drinking," "taking medication," "purposeful physical activity," and "actively receiving care." Participation was measured as a composite of these 5 items from the active engagement domain on the study-specific data collection tool. Participation was recorded as the sum of composite items represented as a percentage of the total possible composite items for that 15-minute observation session.

Resistance to care and participation were analyzed visually and statistically. Visual analysis is a common method for analyzing the clinical significance of continuous data obtained in single-subject research and was used in this study. Resistance to care and participation percentage for each session were plotted on line graphs for each study phase.^{25,36,37} Changes in mean, variability, and trend of data across phases were then used to evaluate the effect of VSP.^{34,37,38} If RTC decreased and participation increased during B phase and these changes reversed during A₂ phase, the treatment effect would be demonstrated as clinically significant. A celeration line was also used to demonstrate data changes between A and B phases. A celeration line is a quasi-statistical method which applies a linear trend in data from one phase to the next to illustrate predicted outcomes if phase conditions were maintained. A difference in the proportion of data points above or below the celeration line in the subsequent phase is indicative of clinically significant change in the data.^{37,39,40}

To ensure consistent data interpretation, serial dependency was evaluated prior to conducting statistical analysis. Autocorrelation was tested and was not significant, therefore analysis using *t* tests was conducted to determine mean differences between phases.^{36,37,41}

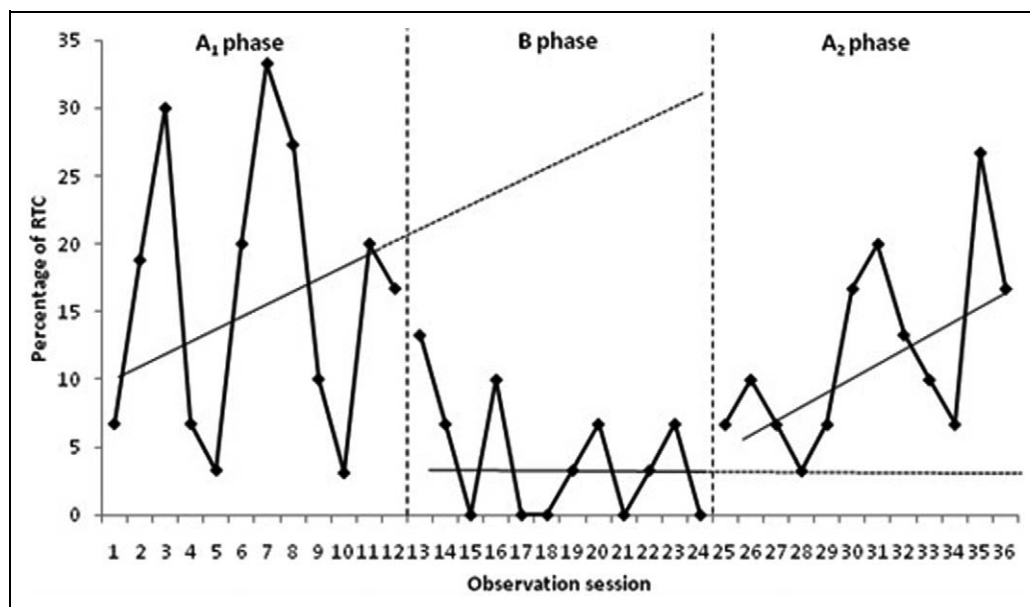


Figure 1. Resistance to care (RTC) percentage score for each data point during A₁, B, and A₂ phases. A₁ celeration line continues into B phase. B phase celeration line continues into A₂ phase. A₂ phase trend line added for visual interpretation.

Observer Agreement

Observer agreement was calculated as the proportion of agreed observations divided by the total number of observations made by the 2 researchers on the 6 items evaluated in total in this study. Observer agreement was calculated on 25% of data collection sessions.

Results

Participant Demographic Information

One participant who met the inclusion criteria consented to the study and was recruited. SS was an 83-year-old caucasian female with a diagnosis of vascular dementia. SS had been a permanent resident of the facility for 3 years. Comorbid medical illnesses included epilepsy, atrial fibrillation, hypercholesterolemia, history of cerebrovascular accident, and urinary tract infections. Concurrent medications included 3 types of anticonvulsants and an analgesic. SS obtained a PAS score of 21/21, indicative of severe cognitive impairment,⁴² a CMAI score of 76, indicative of moderate agitated behaviors, and received a RUG-ADL score of 12/18, indicating some intact functional abilities.

Inter-Observer Agreement

The proportion of observer agreement was 0.93 (95% CI: 0.72-1.0), indicating that observations of the 2 researchers were consistent when using the study-specific data collection tool.

Visual and Statistical Analyses

Figure 1 shows the level of RTC exhibited by SS per session across phases. During A₁ phase, the mean level of RTC was

16.3% with a range from 3.1% to 33.3%. When the intervention was introduced in B phase, the mean RTC decreased to 4.2%, as did variability in participant responses (0%-13.3%), indicating a reduction in RTC and more consistent behavior during B phase. When the intervention was withdrawn in A₂ phase, mean RTC increased to 12.0% with an increase in variability in participant responses (3.3%-26.7%).

The celeration line on Figure 1 is represented as the dotted extension of the trend line and indicates an increasing trend of RTC from A₁ phase. All data points in B phase fall below this celeration line, indicating a strong effect of introducing the VSP intervention, as RTC immediately decreased. The B phase celeration line demonstrates a decreasing trend in RTC, predicting ongoing reduction or minimal levels of RTC with the VSP intervention. A strong effect was also demonstrated following withdrawal of the intervention, as the RTC trend in the A₂ phase shows a gradual increase in RTC. Of the 12 data points in A₂ phase, 11 fell above the B phase celeration line, highlighting the significance of the phase change.

The *t* test results support the visual analysis results. The reduction in RTC between A₁ and B phase was statistically significant ($t = 3.702$; $P = .002$), and the increase in RTC from B to A₂ phase following VSP withdrawal was also statistically significant ($t = -3.275$; $P = .003$). Therapeutic factors contributing to this decrease in RTC will be considered in the discussion.

Figure 2 shows the level of SS's participation per session across phases. During A₁ phase, a mean of 10.0% participation with a range of 5.3% to 20% was observed. Participation increased to a mean of 13.6% when the VSP intervention was introduced. More variability was observed in SS's participation during B phase (2%-26%). When the intervention was withdrawn during A₂ phase, the mean participation marginally

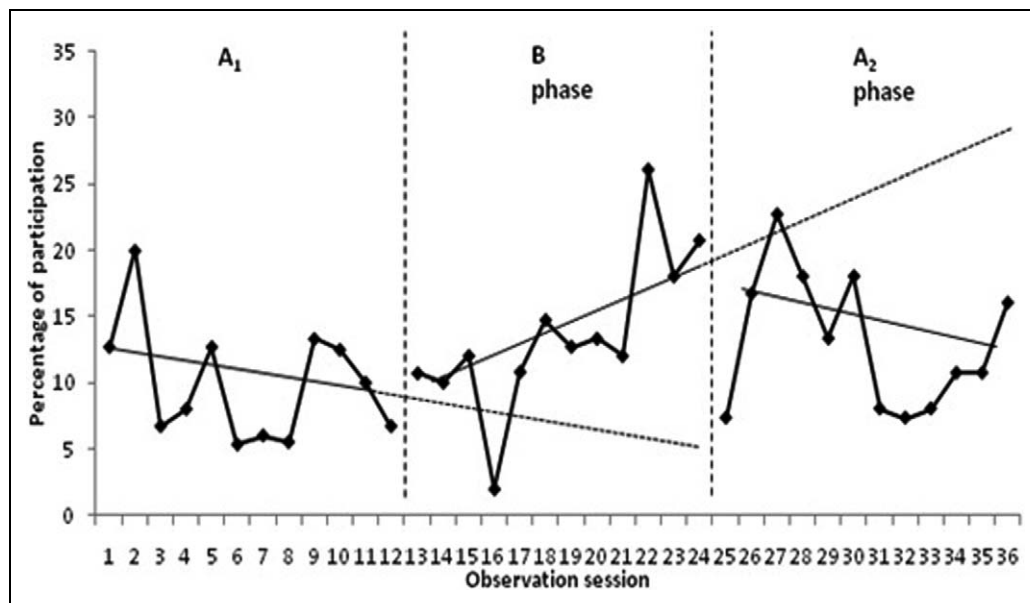


Figure 2. Participation percentage score for each data point during A₁, B, and A₂ phases. A₁ celeration line continues into B phase. B phase celeration line continues into A₂ phase. A₂ phase trend line added for visual interpretation.

decreased to 13.1%. Despite the relatively small change in mean percentage of participation from B and A₂ phase, a relatively large drop in participation level (−13.4%) demonstrates the immediate effect of withdrawing the VSP intervention.

The celeration line represented as a dotted extension from the trend line on Figure 2 indicates a decreasing trend in participation during A₁ phase. All but one of the data points in B phase lie above this celeration line, indicating a clear effect of introducing the VSP intervention as participation increased. The celeration line from B phase on Figure 2 demonstrates an increasing participation trend during the intervention phase. A clear effect was demonstrated when the VSP intervention was withdrawn by a change in trend direction (from increasing to decreasing participation) during A₂ phase. Of the 12 data points in A₂ phase, 11 fell below the B phase celeration line, highlighting the clinical significance of the intervention withdrawal.

The *t* tests indicated that the increase in participation across A₁ and B phases did not reach statistical significance ($t = -1.686$; $P = .106$), nor did the reduction in participation from B to A₂ phases ($t = 0.226$; $P = .823$).

Discussion

The results of this single-system ABA withdrawal design ($n = 1$) provide initial evidence for improving basic care of people with dementia using VSP. Benefits were observed relative to both study aims by decreasing RTC and promoting participation in ADLs.

This study is among the first to examine the effects of a video format of simulated presence to reduce RTC in adults with dementia. The primary therapeutic factor investigated in the study was the VSP intervention. However, secondary therapeutic factors may have included the impact of the person-centered approach of the researcher, creating a calm setting and modeling

positive person-centered interactions for staff. Contribution of these factors for the reduction in RTC could be investigated in future research. These findings add to existing research that has been conducted in the area of simulated presence for improving behavioral outcomes.^{16-20,23} Resistance to care is commonly observed in adults with dementia, leading to decreased quality of life for both the individual with dementia and their caregivers.^{9,43,44} An informal observation that was made throughout the study was that escalation of RTC during the A phases often resulted in a changeover between staff members where a second staff member would attempt to reengage the participant in a task. This is reflective of other studies which have found that RTC increases the burden of care for caregivers and staff through generating stress and placing increased demands on time and resources, often leading caregivers to provide a lower quality of care.⁴⁵⁻⁴⁷ Throughout the VSP intervention phase, there was no longer a need for staff changeover for successful task completion, thus supporting clinical utility of the intervention through reducing burden of care and demands on resources.

The level of RTC demonstrated by this participant was consistently low during the intervention phase and comparatively variable during the baseline phases. This indicates the potential for VSP to reduce RTC and provide a greater level of consistency in response to staff assistance during basic care tasks. There was a possible carryover effect from B phase to A₂ phase, as RTC was lower in A₂ phase compared to A₁ phase. While potentially obfuscating the experimental results of the study, this carryover effect suggests the clinical advantage of the intervention.³⁹ The VSP also generated a positive response in terms of promoting participation, where levels of participation increased during the VSP intervention phase. Throughout the intervention phase the participant demonstrated recognition of her family member and engagement with the VSP intervention. This person-centered approach to care, using

family-generated VSP recordings, may be a contributing factor to the study efficacy. This finding is broadly in agreement with past research which has found that family involvement in the NH setting can improve psychosocial well-being and relieves behaviors related to frustration and agitation in residents with dementia,¹³⁻¹⁵ and that family involvement can significantly increase NH resident activity participation.⁴⁸

The occupational tasks of taking medications and eating were primarily observed with this participant, as these activities were most frequently associated with RTC. Previous studies have identified the benefit of providing a person-centered approach during mealtimes in conjunction with consistency in routine and caregivers decreasing environmental distractions, and ensuring sufficient time for eating so the resident is not rushed.^{9,49,50} Despite potentially confounding factors such as noise or activity in the room,⁵¹ the efficacy of VSP was clearly demonstrated by statistically and clinically significant reversal of RTC upon introduction and then withdrawal of the VSP intervention.³⁷

A range of staff members were involved in providing ADL assistance to the participant. Observations throughout the study illustrated the positive effect that interactions with person-centered staff had on reducing the incidence of RTC in comparison to interactions with more task-oriented staff which potentially served as an antecedent to RTC. These findings further support the concept of applying a person-centered approach to care⁶ and fit with the concept that calm and patient staff behavior can have a major positive impact on the incidence and management of RTC.⁹ The approach of the staff member engaging the participant in care tasks may also have an impact on activity participation levels. This concept is broadly in agreement with an explorative study involving 25 participants, finding that staff who implemented appropriate communication techniques and were attentive to the needs of individual residents had a positive influence on resident participation.⁵⁰

In the case of RTC, staff can act to prevent escalation of this behavior by recognizing antecedent behaviors, through implementing appropriate person-centered techniques, such as reminiscent conversation prompted by the VSP of a family member. Implementing a short interval of reminiscent conversation allows the resident to forget they were opposed to participating in the task, permitting a reattempt.^{8,47} This may be one explanation for the positive outcome of the VSP intervention in this study, whereby conversation with the researcher while the VSP was played may have been a distraction to the participant while the nursing staff continued with normal operating procedures of giving medications or feeding lunch. Future studies should implement a more controlled methodology to limit potential confounding variables and enhance the attribution of study outcomes to the VSP intervention.

Results from this study indicating the benefit of VSP for reducing RTC are reflective of the study by Cohen-Mansfield and Werner¹⁸ which found family-generated videotapes to significantly reduce verbally disruptive behaviors by 46%. Throughout the intervention phase of the present study, the intervention effect appeared to be short-lived, as the participant

“forgot” she had seen the video. This finding is consistent with that of Cohen-Mansfield and Werner¹⁸ who found verbally disruptive behaviors to return to preintervention levels after cessation of the video. In contrast to Cohen-Mansfield and Werner,¹⁸ this study used an iPad to implement VSP rather than a stationary video cassette recorder. The iPad facilitated intervention implementation in situ and allowed for ease of playing repeated VSP recordings throughout the tasks of extended duration, compensating for the effects of short-term memory loss.

The study-specific data collection tool designed for this study allowed for a clear analysis of occupational participation as a composite of 5 items. However, RTC was measured with 1 item on the data collection tool. At times of high RTC, staff-participant interactions were often brief, lasting only for a number of minutes as the staff tended to cease attempting and move on to aid another resident. Therefore, it should be noted that RTC was measured in terms of frequency not severity during the 15-minute observation interval. As RTC was a primary outcome variable of this study, it is possible that the use of a tool specifically designed to measure RTC such as the Resistiveness to Care scale for individuals with dementia of the Alzheimer's type (RTC-DAT) developed by Mahoney et al¹⁰ would have been more sensitive than the single RTC item used in this study.

Changes in activity participation between phases were not as dramatic as for RTC. Visual analysis including celeration lines and changes in trend across phases indicated a clinically significant increase in ADL participation during the VSP intervention phase. A small decrease in mean participation from B to A₂ phase occurred following the withdrawal of the intervention, with a clear change in trend direction between these phases suggesting the benefit of VSP for increasing occupational participation. These results imply that improvement in occupational participation from VSP intervention may be gradual and future research should investigate the effect of VSP with an extended intervention period.

A strength of this study was data analysis using visual and statistical methods to facilitate consistent data interpretation.^{36,52} Autocorrelation existing in single-system data can lead to bias in visual and statistical analyses.³⁶ Autocorrelation within the data in this study was not significant, which facilitated a clearer interpretation of visual analysis and allowed for the completion of *t* tests to analyze differences between phases.

Staff interactions with the participant varied; some staff members were more cooperative and had a more person-centered approach than others, which may have introduced bias and thus impacted the observed results. Use of video-analytical techniques may have provided a useful method for recording these threats to validity, and future studies should consider measuring the effect of a person-centered approach from staff toward individuals with dementia. This potential confounding influence may have been controlled by the involvement of a single staff member throughout the study.

Another limitation of an ABA design is that it finishes during an A phase, reflecting an absence of intervention for the participant.^{36,37} This limitation could have been overcome by including a second B phase to create an ABAB design. Despite the positive effects highlighted in this study for reducing RTC

and the portable nature of the iPad with the VSP recordings, the use of this intervention with other residents within the NH is largely dependent on the willingness of staff to implement VSP within their practice. However, with a positive approach from staff in conjunction with initial training and continual professional development it would be feasible for an NH to adopt this intervention on a broader scale.

The use of 2 observers may have introduced bias into the study,³⁹ however observer training was implemented to minimize bias and a sound level of inter-observer agreement was achieved. Unobtrusive observations were conducted to minimize reactivity,¹⁰ however the use of video-analytical techniques may have been useful for achieving a greater level of objectivity during observations.

Because responses often vary from individual to individual, a common limitation of ABA designs is the inability to generalize findings to larger populations and settings.^{36,37} In the current study, difficulties with recruitment of suitable participants who fit the inclusion criteria with families willing to make VSP

recordings resulted in the purposive sample of n = 1; which contributes to the limited generalizability of results.⁵² Rigor of the study could have been enhanced by replication across multiple participants and multiple settings with random selection of participants.⁵² External validity and generalizability of results were limited due to the small sample size (n = 1),⁵² however this design does permit investigation into optimum treatments for individual clients.³⁷ Future studies should investigate the benefit of VSP across multiple participants in a variety of settings.

The current study highlights the potential for VSP to improve basic care of adults with dementia specifically by reducing RTC and increasing participation. This study adds unique findings in the area of VSP to broaden the existing literature based on the application of simulated presence to reduce the incidence of negative behaviors expressed by people with dementia.^{16-21,23} Due to the small sample size, the results of this study are confined to informing future research in this area, which should focus on investigating VSP outcomes in larger sample sizes to confirm these initial positive findings.

Appendix A.

Study-specific data collection tool with 19 items across 4 domains including active engagement (AE), passive engagement (PE), nonengagement (NE), and affect (A).

Observer ID:																															
Resident ID:		Location:																													
Date:		Time:							Trial (BL VSP):																						
Activity:		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
AE	Speaking/vocalisation to self (/) / to person (X)																														
	Walking/pacing																														
	Eating (/) / being fed (x)																														
	Drinking																														
	Taking medication																														
	Purposeful physical activity																														
	Watching TV(/) /VSP (X)																														
	Resisting Care																														
	Actively receiving care																														
PE	Passively receiving care																														
	Watchfulness																														
	Eye-contact and/or listening																														
NE	Sleeping (X)/ dozing (/)																														
	Staring blankly																														
A	Happy																														
	Sad																														
	Angry																														
	Anxious																														
	Neutral																														
	Researcher in/out (X) VSP on/off (*)																														
	OBSERVER NOTES																														

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Declaration of Conflicting Interests

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