

# Exploring Strategies to Reduce Falls and the Role of Simulated Presence for the Elderly Patients with Cognitive Issues in Isolation Rooms

Vivian C. Barrera<sup>1</sup>, Shiela P. Arroyo<sup>2</sup>, Theik Di Oo<sup>3</sup>, Zay Yar Aung<sup>4</sup>, Savithri Sinnatamby<sup>5</sup>, SC Lim<sup>6</sup>

<sup>1,3,4</sup>Resident Physician, Geriatric Medicine, Changi General Hospital

<sup>2</sup>Staff Registrar, Geriatric Medicine, Changi General Hospital

<sup>5</sup>Senior Nurse Manager, Ward 58 PARI, Changi General Hospital

<sup>6</sup>Adjunct Associate Professor, Senior Consultant, Department of Geriatric Medicine, Changi General Hospital, Singapore.

*\*Corresponding Author: Si Ching Lim, Adjunct Associate Professor, Senior Consultant, Department of Geriatric Medicine, Changi General Hospital, Singapore.*

## Abstract

*The COVID pandemic has caused disruptions in people's lives and presents an unprecedented challenge on the health care systems. Isolating elderly with cognitive impairment worsens functional independence, leading to falls, use of restraints, and worsening of behavioural symptoms such as agitation, superimposed delirium, depression, and health condition due to unfamiliar environment and absence of their usual caregivers. Interventions to reduce falls in isolation rooms with negative pressure were possible, despite the restrictions. Various methods to keep the patients cognitively and socially engaged using iPads showed good results with improvement in mood, reduction in agitation and improved engagement among the patients and the staff.*

**Keywords:** *simulated presence therapy, elderly, dementia, acute hospital*

## INTRODUCTION

When the COVID 19 pandemic was first reported in Singapore, Ministry of Health revised the hospitals' visiting guidelines to minimize the risk of infections. No visitors were allowed for patients admitted in the isolation rooms. The Care Team were instructed to minimise contact except for the essential tasks.

The elderly patients with cognitive issues do not fare well in the isolation wards. Social isolation is associated with cognitive decline,<sup>(1)</sup> worsening of functional independence, cognitive symptoms, exacerbation of agitation, apathy, and depression along with deterioration of health status.<sup>(2)</sup>

These isolation rooms are fitted with negative

pressure, and the patients are generally confined to their beds, with no visitors. For the elderly patients >65, especially the elderly with cognitive issues, their stay in the isolation rooms can potentially cause serious harm like new onset of delirium, incontinence, depression and falls albeit for a short 48 hours.<sup>(3)</sup> At the height of the pandemic in 2020, there were 4 falls in the isolation ward, with one resulted in serious head injury, due to the lack of supervision. As a result of these falls, elderly patients with cognitive issues were nursed on body restraints to reduce the risk of them getting up or falling from bed.

Simulated presence therapy (SPT), is an emotion-oriented non-pharmacological intervention for persons with dementia (PWD), based on physical

attachment theories. SPT has been used in nursing homes, by playing a personalized video or audiotape recording of family members to the PWD when the PWD was distressed or agitated. The outcome of SPT had not been consistent in the current published data, due to heterogeneity of the studies and small sample size.<sup>(4)</sup>

The team wanted to try novel methods to minimise falls, reduce the patients' anxiety and reduce the harm due to social isolation while the patients were admitted to the isolation ward, while awaiting their COVID swab results. iPads were provided for simulated presence and they were also used as part of person centred model of care. Simulated presence was provided either in the forms of video calls between the patients and their families or video/ voice recordings of the patients' family members which can be played back for the patients to reduce their loneliness.

### PROJECT AIMS

- Reduce falls among elderly patients with cognitive issues, while in isolation rooms.
- Improve nurses' supervision for the patients.
- Actively engage patients with their families with the use of "Simulated Presence Therapy" during the stay in isolation rooms.
- Improve patients' quality of life, experience, mood and reduce agitation.
- To evaluate if various therapies using iPads could be an option in managing behavioural symptoms among the elderly patients with cognitive issues.

### METHODOLOGY

Using a Plan-Do-Study-Act (PDSA) methodology, a team was set up to look into the factors which predisposed to falls, examined ways to reduce fall risks and look for ways to keep the patients stimulated and engaged in their own company in the isolation rooms. The team composed of a geriatrician and senior nurses trained in Gerontology, attending to patients in isolation room.

### Plan-Do

The team met, brainstormed and completed a fishbone diagram to outline possible factors leading to falls and solutions for this problem. Figure 1.

The team reviewed the fall cases in the isolation rooms and noticed that all the patients were frail elderly, with multiple comorbidities, on multiple medications, confused and were all assessed to have high fall risks on admission. The team came up with suggestions to be addressed in the PDSA cycles:

1. Correctly identify patients with high fall risks.
2. Identify the events prior to falls.
3. Assess methods to improve visibility for the nurses.
4. Examine methods to improve patient safety while in their isolation rooms.
5. Innovate methods to keep patients meaningfully occupied.

### Study

#### *Identify Patients with High Fall Risk*

In the author's hospital, fall risk identification and stratification involve assessing every patient, at least thrice a day. Care plans are then formulated based on the individual patient's fall risk. Fall risk assessment is mandatory at least once per shift, possibly more frequent if there is a change in patient's condition. The team discovered that some of the nurses, especially the deployed nurses were not consistent in their assessment of their patients' fall risk.

#### *Identify Events Prior to Falls*

In the isolation rooms, the falls mostly occurred while the patients attempted to get out of their beds. The patients did not call for help, either because they couldn't remember or knew how to use the call bells.

#### *Assess Patients' Visibility for the Nurses on Duty*

The nurses were not allowed to sit in the rooms with their patients in order to minimise risk of infection.

## Exploring Strategies to Reduce Falls and the Role of Simulated Presence for the Elderly Patients with Cognitive Issues in Isolation Rooms

---

Prior to starting the project, the team reviewed process of patient supervision and realised the care team relied on CCTV to observe the patients' activities.

The team decided to allocate one headcount just to watch the CCTVs. The CCTV cameras were located at the nurses' station. The headcount is not always a nursing staff. The staff watching the CCTVs were to inform the nurse in charge as soon as they saw a restless patient, even before the patient attempted to move. They were also to reassure the patient via the intercom that help is on the way.

### *Examine Methods to Improve Patient Safety while in Isolation Rooms*

The elderly patients were at risk of accidents like falls, slips and trips, while they were nursed in their isolation rooms. Compared to the elderly in the general geriatric wards, there are several factors which needed to be considered for this special group of patients.

Due to the presence of double doors (figure 2) which are mandatory to maintain the negative pressure in the isolation's rooms, the care team had to wait for the outer door to fully close before the inner door could open. This a mandatory time lag stopped the nurses from attending to the patients immediately. In addition to this hold up, nurses had to don full PPE prior to entering the room, causing further delay. The elderly fallers could fall in a split second, this delay was frustrating to the nurses.

### *Innovate Ways to Keep Patients Meaningfully Occupied*

The length of stay in the isolation room is usually a short 48 hours while they await the results of their COVID swabs. Albeit the short stay, Elderly in social isolation can potentially develop complications.<sup>(1, 2)</sup> However, in order to contain infection risks, family and visitors were not allowed and contact with the care team was kept to the minimum.

### **Act**

The team decided to provide training to ensure competency for fall risk assessment was consistent. Refresher course for fall assessment in the isolation

ward was conducted by the fall champion and all the deployed nurses were promptly trained in a day.

The patients identified as high fall risk has a green card (figure 3) on the wall outside the patient's room. In addition, the patients who were assessed to have cognitive issues, with behavioural symptoms or were unable to consistently follow instructions were all deemed to have high fall risks. For this group of patients, their inability to consistently retain information, hence, follow instructions are put on body restraints for the 48 hours whilst they stayed in the isolation wards, despite the risks associated with restraint use.

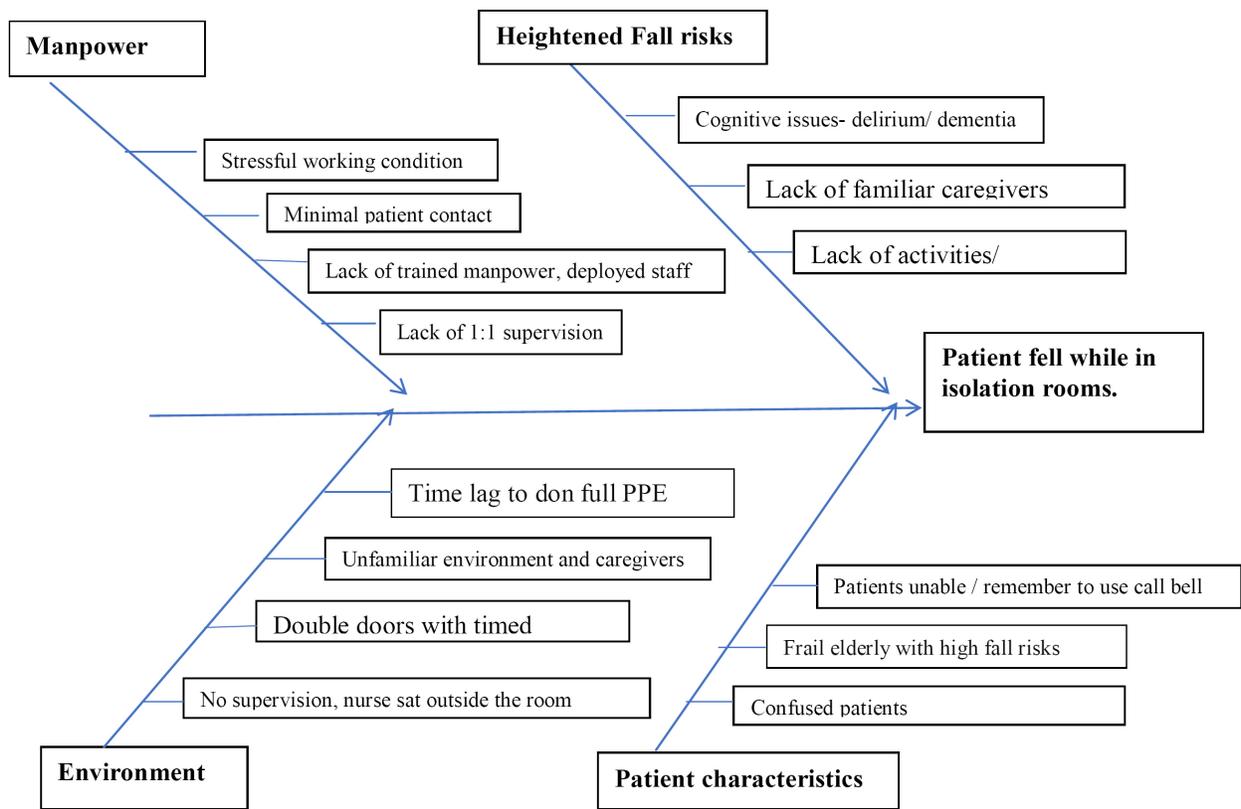
Physical restraints have not been convincingly shown to reduce falls and are known to cause physical deconditioning, depression, delirium and functional decline. These factors were seriously considered and since the therapists were not allowed to attend to patients for infection control reasons, the risk of physical deconditioning was considered to be low, since the length of stay was only 2 days.

For the patients identified as high fall risk, the nurse-in-charge sit outside the isolation room to keep a constant watch. To ensure the nurse had a full view of the patients' beds, the beds had to be positioned behind the yellow line, marked on the floor for each of the room. (figure 4)

iPads were used for patients for simulated presence with their families and also used as part of PCC with fun activities like watching videos, listening to music and playing games online. Simulated presence was either video calls for the patients with their families, or video/ voice recordings of the patients' family members so the patients can play back to listen to their loved ones' messages. Verbal consent was obtained from the patients' next of kin prior to starting therapy and video/ voice recordings were destroyed prior to patients leaving the isolation ward.

The authors also made music videos, using the ever green songs which were familiar to the patients, with background pictures of the local scenery and local food items, to keep the patients entertained. These videos were played on the TV sets in the isolation rooms.

**Exploring Strategies to Reduce Falls and the Role of Simulated Presence for the Elderly Patients with Cognitive Issues in Isolation Rooms**



**Figure1.** Fishbone chart examining factors causing falls.



**Figure2.** Double doors to maintain negative pressure

## Exploring Strategies to Reduce Falls and the Role of Simulated Presence for the Elderly Patients with Cognitive Issues in Isolation Rooms



**Figure3.** Nurse in charge sitting outside and Green card (Arrow) indicating high fall risk



**Figure4.** Yellow line drawn on the floor for bed's location

### RESULTS

There were no reported falls after the above measures were implemented. The elderly patients were well supervised in their isolation rooms. The nurses reported a reduction in their stress level while working in the isolation ward, since they managed to get a good view of their patients while seated outside.

Simulated presence therapy using Facetime (66.7 %) and audio recording (33.3%) were conducted for the elderly patients with cognitive impairment during the 48-hour isolation. The sessions were able to engage the patients for at least 15 minutes and 22 % of patients were engaged for 91-120 minutes. During these sessions, the nurses observed that 56% of the patients were actively engaging.

Staff felt that SPT sessions were beneficial to the patient (77.8%), with improvement in mood (33.3%), active engagement where the patients were able to have meaningful conversations with their families and staff (22.2%) after the therapy sessions. Few patients were noted to be less agitated and restless and sundowning symptoms improved after the sessions. Overall, the staff felt SPT provided an opportunity for an enriched and meaningful communication between the staff, patients and their families (33.3%). Simulated presence therapy relieved some of the staffs' time to do other urgent /important nursing work by 100%.

The use of iPads for person centred care continued after SPT. This mode of therapy was associated with good outcome in terms of improvement in mood, reduction in agitation and the staff were appreciative of the intervention since it reduces their stress level and care burden while they were on duty. Restraint use and duration of restraint use have been reduced with introduction of iPad and music videos.

### DISCUSSION

Inpatient falls are often unpredicted and unwitnessed by healthcare professionals and often occur unwitnessed. Inpatient falls carries with it devastating effects on the patients, their relatives and our staff. Staffs are often stressed by guilt, potential litigation and reflect badly on the organisation's overall

risk performance on patient safety. The patients' relatives and caregivers have a tendency to blame the organization for "something could have been done" in a place of safety and "someone must be to blame" being the commonest reason for complaints.<sup>(5)</sup>

The COVID 19 pandemic had caused significant disruption to all aspects of life, especially for the persons living with dementia and their caregivers. In the hospital setting, care teams for the elderly with cognitive issues frequently have to weigh the balance between the risk of infections against the harm of social isolation. The authors faced the challenges of reducing falls where the patients are left on their own, staff's exposure and risks of contracting this potentially fatal infection, risk of causing further harm by nursing their patients on physical restraints and finding innovative ways to keep their elderly patients cognitively and socially engaged. The fall which occurred in the isolation rooms had challenging and unique environmental factors such as the double door set up, having to don full PPE prior to entering the room, CCTV cameras instead of 1:1 supervision and having to provide nursing care from outside the room with minimal contact.

Fall prevention in a hospital setting is a challenging task, where the conventional fall prevention strategies for community fallers are of uncertain value since the patients who fell in hospitals have a different profile compared to the community fallers, and patients often do not stay long enough to reap the benefit. The risk factors identified for hospital fall included unstable gait, incontinence, agitated confusion, fall history and prescription of culprit drugs.<sup>(6)</sup> Delirium is a risk factor for hospital falls, and was present in over 90% of the falls among the inpatient fall incidents. The hospitalised elderly often have undiagnosed delirium precipitated by newly prescribed medications, medical or surgical issues. A confident diagnosis of delirium is difficult especially among the older adults who have background dementia and behavioural symptoms.<sup>(7)</sup> Diagnosing an elderly in isolation with delirium is even more challenging as the staff did not have opportunities to observe and converse with the patients as frequently as the patients in a general

ward. The confused PWD often exhibit behavioural symptoms like wandering, restlessness and agitation which are challenging for the untrained staff. For the patients in isolation rooms, management of challenging behavioural symptoms is probably easiest by restraining the patients since person centred care approach involves frequent physical and social contact with the patients. <sup>(8)</sup>

Isolation has a negative impact on patients with dementia. A study conducted on quarantined elderly with dementia showed a rapid worsening of behavioural symptoms in approximately 60% of the PWD. Most frequently reported was worsening of irritability, apathy, agitation, and anxiety as well as the development of sleep disorders. A previous study conducted with elderly patients with cognitive impairment isolated in their rooms were observed to be feeling lonely, sad, and depressed, even for a short stay of 48 h. <sup>(9,10)</sup> To maintain good cognitive function in older adults, as well as emotional and physical well-being, regular social interaction and physical activities are recommended.

There were several struggles for both patients and staff nurses in isolation rooms. The authors showed that nurses working in the isolation ward were more stressed compared to their usual work environment. The nurses worried about their own and their families' health risks, and they also felt the elderly patients under their care received suboptimal care due to the need to minimise contact to reduce infection risk. The risk of exhaustion and burn out was also high among the staff working in isolation ward. <sup>(11)</sup>

The intervention using iPads were encouraging, even though the sample size was small. It was encouraging to note that simulated presence and online entertainment were helpful in reducing agitation and improved patients' mood. When the patients' agitation and mood were better, the staff reciprocated similar state of calm and better job satisfaction while they worked.

### CONCLUSION

The current pandemic posed unprecedented challenges to healthcare workers, especially among

those working with the elderly adults with cognitive symptoms. The elderly were at risks of developing new Geriatric syndrome(s) during their confinement in the isolation rooms. Due to measures to curb the spread of infections, the team explored novel interventions using technology for better and safer patient care.

### Acknowledgement

The authors wish to thank the participation of geriatric nurses assigned in isolation rooms, Changi General Hospital and our statisticians Tan Pei Ting and Marites F. Flores for continuous support.

### REFERENCES

- [1] Robert S Wilson et al. Loneliness and risk of Alzheimer disease, *Arch Gen Psychiatry*, 2007 Feb;64(2):234-40.
- [2] Aida Suárez-González et al. Detrimental effects of confinement and isolation on the cognitive and psychological health of people living with dementia during COVID-19: emerging evidence. Dementia Research Centre, UCL Institute of Neurology at Queen Square, University College London, Last updated 1st July 2020, available at website [ltccovid.org](http://ltccovid.org)
- [3] Emma L. Reynish, et al. Epidemiology and outcomes of people with dementia, delirium, and unspecified cognitive impairment in the general hospital: prospective cohort study of 10,014 admissions, *BMC Med.* 2017; 15: 140., Published online 2017 Jul 27. doi: 10.1186/s12916-017-0899-0.
- [4] Abraha I et al. Simulated Presence Therapy for dementia. *Cochrane Database of Systematic Reviews* 2020. Issue 4. Art No: CD011882. DOI: 10.1002/14651858.CD011882.pub3.
- [5] NPSA. Slips, trips and falls in hospital. 2007 London, NPSA. <http://www.npsa.nhs.uk/health/resources/pso>.
- [6] David Oliver et al. Risk factors and risk assessment tools for hospital in-patients: a systematic review. *Age and Ageing* 2004;33:122-130.

## Exploring Strategies to Reduce Falls and the Role of Simulated Presence for the Elderly Patients with Cognitive Issues in Isolation Rooms

---

- [7] Barbara E Lakatos et al. Falls in the general hospital: Association with delirium, advanced age and specific surgical procedures. *Psychosomatics*. Vol 50 (3), may-June 2009. Pages 218-226.
- [8] SC Lim Managing the elderly with dementia and frequent falls. *Gen Med Open*, 2017 Vol 2(1):2-4. doi:10.15761/GMO.1000120.
- [9] Community Medical Center, COVID-19 has a particularly negative impact on those with dementia, study says, March,11, 2021
- [10] Brent Crane et al. For Dementia Patients And Their Families, Isolation During The Pandemic Is A Heavy Burden, *National Geographic*, Published June 10, 2020
- [11] Barrera Vivian, Sigaya Kenneth Villan, Espeleta Wrenzie Del Valle, Tanya Quicho, Si Ching Lim. Examining Nurses' Wellbeing While Caring for the Elderly in Pneumonia-Acute Respiratory Infection (PARI) Ward, *Annals of Clinical Medicine and Research*, December 11, 2020

**Citation:** Vivian C. Barrera, Shiela P. Arroyo, SC Lim, et al. *Exploring Strategies to Reduce Falls and the Role of Simulated Presence for the Elderly Patients with Cognitive Issues in Isolation Rooms*. *Open Journal of Geriatrics*. 2021; 4(1): 40-47. DOI: <https://doi.org/10.22259/2639-359X.0401004>

**Copyright:** © 2021 Vivian C. Barrera, Shiela P. Arroyo, SC Lim, et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.