

The Use of iPADS as Part of Person-Centred Care in a Teaching Hospital in Singapore

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ABSTRACT

The elderly patients are currently the main occupants of acute hospital beds, and this trend will likely increase as the world ages. The elderly patients with cognitive issues frequently have behavioural symptoms which may be challenging for the care staff to manage, especially the staff who have not been formally trained in Gerontology. The use of restraints for this group of vulnerable patients should be discouraged as restraints can cause harmful effects. The use of iPads as a non-pharmacological strategy for managing the behavioural symptoms among the elderly in-patients with cognitive issues was effective in reducing agitation, with an improvement in mood and sundown symptoms. The patients were actively and meaningfully engaged with their iPads during therapy. The nursing staff too, benefited from iPads as a novel therapy for their elderly in-patients with cognitive issues in providing cognitive and social stimulations, which they had no time to provide for. While the patients showed improvement in their behavioural symptoms, the nurses' stress levels reduced with an improved self-reported job satisfaction.

Keywords

iPads, Dementia, BPSD, Elderly, Acute Hospital wards.

Introduction

Singapore is rapidly ageing. Currently, the elderly >65 represent 15.2% of the population and this will likely increase in the years to come [1]. The elderly occupy 33.4% of the total hospital beds [2], and this too will likely see an increasing trend, as the elderly are more likely to need hospital admissions, and once admitted stay longer than the younger patients. In the local setting, prevalence of dementia is 10% among the seniors aged >60 [3].

The elderly in-patients with dementia are more likely to develop complications associated with hospitalisations like falls, delirium,

functional decline, longer LOS and incontinence compared to their peers without dementia [4]. The elderly patients with behavioural and psychological symptoms of dementia (BPSD) are particularly challenging for the care team to manage in the acute hospital settings where the patient turnover is high, and the staff generally have a tight schedule to keep [5]. The elderly patients with BPSD are frequently restrained to reduce their risk of falling or endangering themselves and this trend should change in the future since restraints have not been convincingly shown to reduce falls in the hospitals [6].

The recommended approach to management of BPSD is the non-pharmacological measures, since psychotropic medications are known to cause potentially serious side effects [7]. Person Centred Care (PCC) is the current recommended model of care for the persons living with dementia (PWD) [8]. The practice of PCC is well researched in long term care settings with good outcomes. However, it is challenging to implement PCC in acute hospital setting due to rapid patient turnover. The short hospital stay does not provide sufficient time for the care team to get to know the PWD, and hence lacking opportunities to observe and modify management strategies. In the acute hospital setting, PCC is also challenging because the staff are not routinely trained in mental health and there is often a lack of resources [9].

Outbreak of COVID 19 was first reported in Wuhan, China in December 2019. In less than a month, it escalated to a status of “public health emergency of international concern” which then progressed into pandemic status, in the subsequent months as the virus infected people from all corners of the globe. The pandemic has led to unprecedented challenges in many aspects of everybody’s lives. In the acute hospitals in Singapore, visitors were tightly controlled to limit contact as precautionary measures to reduce infections. The elderly in-patients, especially the ones with long length of stay faced social isolation in an unfamiliar environment, with changes to their familiar routines and changes in their caregivers. These changes gave rise to delirium, depression, worsening of cognition and BPSD [10].

In this study, the authors explored novel means of getting the elderly in-patients stimulated cognitively and socially, while they remained in the general wards using iPads.

Study Objectives:

- Examine the role of iPads as part of person-centred care (PCC) for the elderly.
- Examine the types of therapies preferred by this current generation of elderly.
- The in-patients’ response to this novel method of intervention in a hospital ward, examining the patients’ mood, agitation and sundown symptoms pre and post therapy.
- Nurses’ feedback and overall satisfaction with using iPads in the hospital setting

Methodology

The study was quasi-experimental in design. iPads were distributed to 4 acute Geriatric wards over a study period of 3 calendar months. The ward nurses were instructed on maintenance and use of iPads for the patients under their care.

The patients were offered choices of therapy with the iPads. The programmes selected for the patients were individualized, according to their previous hobbies, interests, occupation, cognitive abilities and culture. Among the choices available were watching shows, music videos, movies, listening to their favourite

music, and simulated presence which consisted of video calls with their family members using Facetime or playing back voice/video recordings of the patients’ families.

Therapy sessions varied between 30 minutes to several hours. The therapy sessions were held for individual patient or in small groups, for the patients listening to music within the same cubicle of 5 beds. The inclusion and exclusion criteria were as listed below. There were 73 completed data sheets for 73 unique encounters. However, this was likely an underestimate of the true study size. There were also patients who benefited from these therapy sessions like those who listened passively to the music played from the iPads, but data were not collected from these patients.

Data collection included patients’ agitation scores, active/ passive engagement and mood before / after the therapy sessions.

Inclusion Criteria:

Elderly patients >65 who were willing to try a new treatment approach.
Patient with cognitive issues, defined as dementia / delirium.
Patients >65 in isolation room, with a diagnosis of delirium/ dementia.
Patients with behavioural symptoms, including agitation.
Patients who were asking/ searching for their loved ones.
Patients expressing boredom, young or old, with or without cognitive symptoms

Exclusion criteria:

Patients who were clinically unstable.
Patients with severe agitation and /or aggression or unable to consistently follow instructions.

Verbal consent from the patients or their families were obtained prior to the therapy sessions and the patients were free to stop or drop out under no duress.

Results

The outcomes of therapies were compared against the patients’ behavioural and mood status before the therapy sessions. Statistical significance was calculated using Pearson’s correlation coefficient and 2-tailed significance tests (with significance level at 0.01)

In most sessions, 55.6% of the patients were actively engaged during therapy, with the patients singing along, laughing, clapping, smiling or responding emotionally to their shows while the remaining 44.6% showed a neutral / passive response while being entertained by the iPads.

The patients’ individualized preferences and choices for their therapy sessions were shown in Figure 1. Singapore is a multiracial and multicultural society. The people converse mainly in English, Mandarin and Malay, while majority of Singaporeans are multilingual.

Patients' preferred therapy (% of patients)

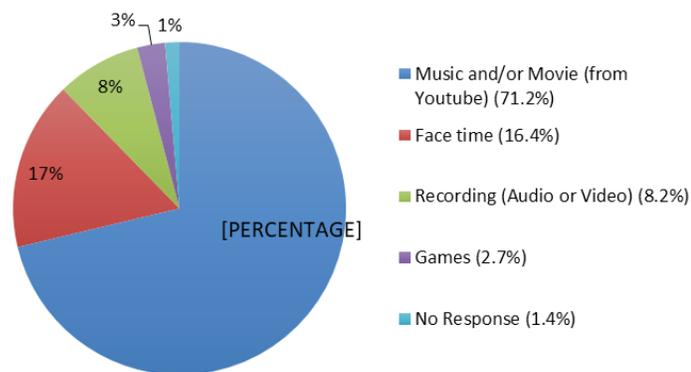


Figure 1: Types of therapy chosen.

Mood before and after Therapy

The patients' mood before and after the therapy sessions, as assessed by the nurses were shown in table 1. Post therapy, there were no patients who remained in an apathetic state, while 42 patients (58%) were documented to be happy ($p=0.001$)

Agitation before and after Therapy

The patients' agitation scores before and after therapy are as shown in Table 2. The use of iPads for patients showed a favourable outcome with 68 (93.2%) patients observed to be calm after the therapy, compared to 26 (36%) with mild-severe agitation, and 44 (60%) who were calm prior to starting therapy.

Presence of Sundown symptoms before and after Therapy

Patients exhibiting sundown symptoms were also included in the study, results shown in Table 3. There were 25 (34%) patients exhibiting sundown symptoms before iPads were given to them for therapy. Post therapy, sundown symptoms were persistent in 10 (14%) of the patients

Secondary Outcome from The Nursing Feedback

The authors decided to examine the nurses' perspectives of using iPads as a new treatment option for their patients. The results of a questionnaire, answered by all the involved ward nurses were analyzed. The nurses were also asked if they would recommend iPads as a mode of therapy/ entertainment for the elderly patients with dementia. The results are shown in figures 2 and 3.

Discussion

The COVID 19 pandemic had caused significant disruptions to all aspects of everyone's life, especially for the persons living with dementia and their caregivers. In the local setting, the Ministry of Health put strict restrictions on the number of visitors allowed for the in-patients to minimise risk of cross infections, especially the vulnerable elderly in-patients. Social isolation is associated with cognitive decline [11], worsening of functional independence, exacerbation of agitation, apathy, and depression along with deterioration of health status [12].

In the ward setting, the nurses have to cope with more agitated and restless patients who might be asking for their usual caregivers or family members. Unique to this pandemic, the care teams were strictly ordered to wear face masks, plus PPE if they worked in the isolation wards. Wearing masks may also cause confusion among the elderly PWD as they may not be familiar with this unusual protective gear. For the elderly with sensory impairment, they may have difficulties recognising the faces or voices behind the masks [13].

Managing the elderly patients with cognitive symptoms can be quite challenging for the hospital care team, as each has their own tight schedule to keep. Therefore, the elderly exhibiting challenging behaviour are often nursed on physical and or chemical restraints [5,14]. The use of anti-psychotic medications in managing behavioural symptoms among the patients with delirium/dementia is associated with longer hospital stay compared to non-pharmacological multicomponent intervention [15]. Therefore, pharmacological interventions of behavioural symptoms are best

	Apathy/ Neutral	Refusing care/ sad/ restless	Happy	Not observed	
Before Therapy	54 (74%)	10 (14%)	7 (9%)	2 (3%)	
After Therapy	27 (37%)	1 (1%)	42 (58%)	3 (4%)	P=0.000

Table 1: Patients' mood before and after therapy with iPad.

	Calm	Mildly agitated	Moderate-severely agitated	Not Observed	
Before Therapy	44 (60%)	24 (33%)	2 (3%)	3 (4%)	
After Therapy	68 (93%)	2 (3%)	0	3 (4%)	P=0.000

Table 2: Patients' agitation scores before and after therapy with iPad.

	No sundown symptoms	Sundown symptoms	Not observed	
Before Therapy	38 (52%)	25 (34%)	10 (14%)	
After Therapy	47 (64%)	10 (14%)	16 (22%)	P= 0.000

Table 3: Patients exhibiting sundown symptoms before and after therapy with iPad.

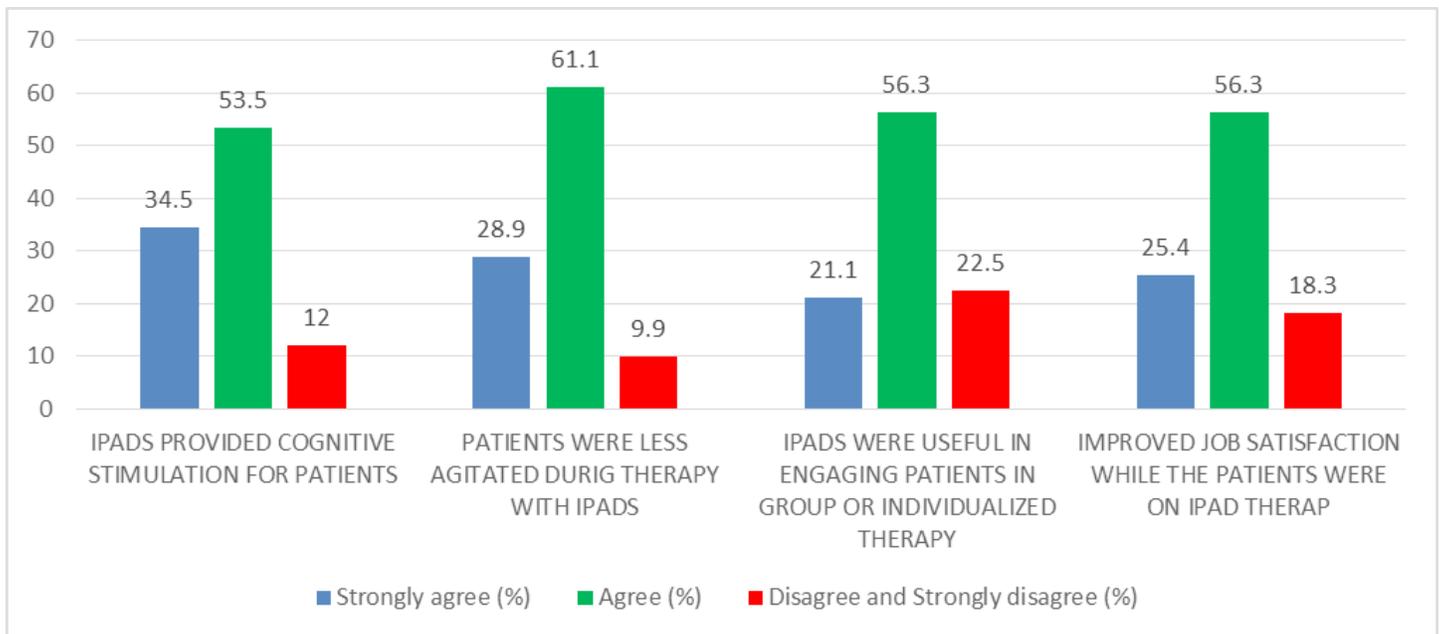


Figure 2: Perception of the Nurses regarding the Use of iPads.

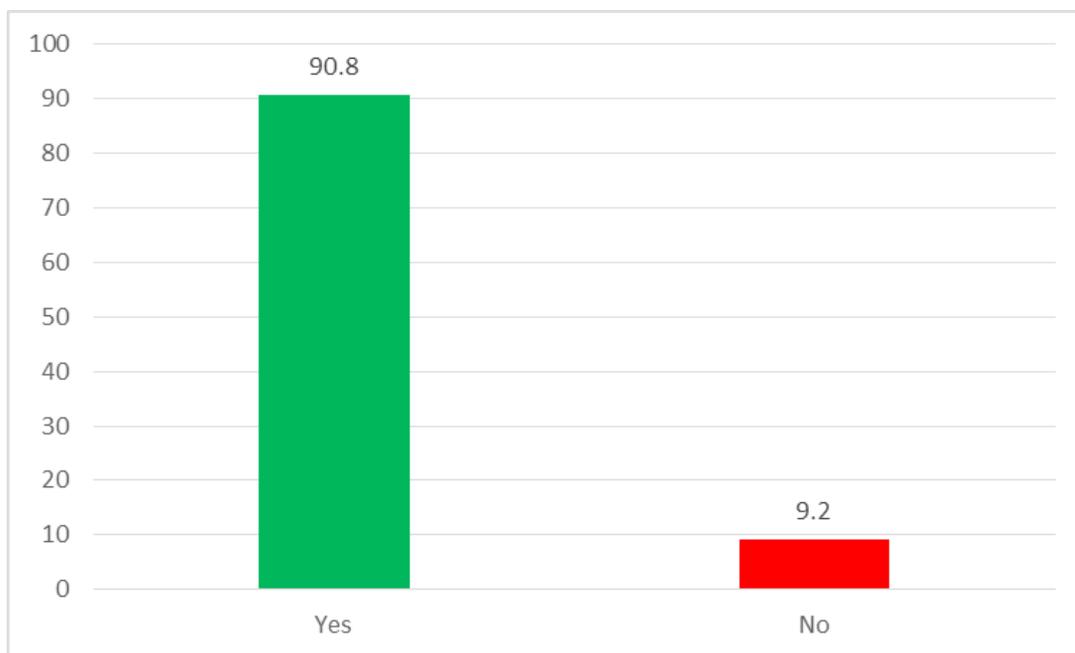


Figure 3: Percentage of nurses who would recommend use of iPads in general wards as part of PCC or entertainment.

reserved for patients when non-pharmacological strategies failed. In the hospital settings, use of iPads as non-pharmacological mode of behavioural interventions has not been studied before. The patients participated actively during therapy and generally showed an improvement in their mood and behavioural symptoms after the therapy sessions. The authors were surprised that >55% of the patients actually engaged actively with the iPads where they were happily humming/ singing along with the music, emotionally showing response to the shows they watched and were able to communicate what they watched to the nurses after the therapy sessions.

The person-centred model of care (PCC) for the persons with dementia has been shown to improve the behavioural symptoms, reduce subsequent use of antipsychotics, caregiver satisfaction and improved patient outcome [16]. PCC focuses more on attending to the PWDs' psychosocial needs, rather than medical/ nursing needs [17]. One of the management strategies for PCC is getting the PWD engaged in fun and meaningful activities. The activities have to be individualised as every person is unique in their preferences. The chosen activities must also take into considerations the PWD's cognitive abilities, previous hobbies, likes or dislikes,

and occupations in order for the activities to be sustainable [18]. iPads have been used as a mode of therapies in Day Care Centres and long-term care setting as part of PCC [19] with good results. However, neither PCC nor iPads have not been widely used in the hospital setting for managing the behavioural symptoms among the in-patients living with dementia. This paper did not observe the direct effects of using iPads as part of PCC, since the nurses' workload were different in the different wards.

Among the spectrum of behavioural and psychological symptoms of dementia (BPSD), agitation and aggression cause significant caregiver stress. The nurses in the general wards are generally not trained in mental health, nor strategies for managing the difficult BPSD. In a survey conducted by the NHS, the result showed only 2% of the nurses in the acute hospitals were confident in managing patients with dementia [20]. Hence in the local hospital setting, most of the patients end up on physical restraints if there is a risk of falls since PCC is challenging to practise in a hospital setting [21,22].

iPads have also been used as platforms for personal thriving, such as physical and psychosocial improvement or as learning tool for cognitive stimulation in the elderly [19]. However, the studies were conducted mainly in long-term care settings. The results from this trial showed iPads were effective in reducing the patients' agitation, where >90% of the patients were able to remain calm after the therapy sessions. The patients also showed marked improvement in mood. There was also reduction in the frequency of patients exhibiting sundown symptoms after therapy. The changes in patients in all the measured domains, pre and post therapy were statistically significant. Secondary outcome showed that the nurses greatly appreciated use of iPads among the patients, which provided the patients with cognitive stimulation and socially engagement amidst a dull hospital stay. The nurses felt that their work schedule would not allow them the luxury to provide PCC in terms of social interactions nor cognitive stimulation which the patients needed and benefited from. Coupled with the patients' improved mood and agitation scores, the nurses felt they were less stressed while they were on duty and therefore, they were able to focus better on their jobs. Their job satisfaction was much improved while the trial was on going.

Limitation of the Study

The study size was an under recording of the actual sample size. The patients who benefitted from the iPads while passively listening to music or conversations were not included in the study. The nurses did report, retrospectively, that the remaining patients in the cubicle were calmer while the music from the iPads were playing. The authors missed the opportunity to examine prescription of antipsychotics among the patients in the study during the study period.

Conclusion

The non-pharmacological strategies for managing behavioural symptoms of dementia are time consuming and labour intensive

and is therefore challenging to implement in an acute hospital setting. Non-pharmacological strategies have been shown to be as effective as the pharmacological interventions, with absence of medication side effects and enhanced caregiver satisfaction, and hence should be the preferred option. The various non-pharmacological methods included utilising iPads as tools have been tried in the long term care or day care settings, but not in the acute hospital ward setting. The results from this study are highly encouraging to promote PCC as the model of care in an acute hospital setting, utilising iPads as an attractive option which benefitted both the patients as well as the staff.

Disclosure

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