Evaluating the Impact of an Emotion-Focused Model of Dementia Care on Patient Outcomes in Acute Care Settings

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https://doi.org/10.5770/cgj.29.858

ABSTRACT

Emotion-focused model of care delivery creates a supportive environment for persons with dementia. There is a lack of certainty regarding one such emotion-focused model's effectiveness (Butterfly) in an acute care environment, primarily because prior research has been confined to long-term care (LTC) facilities. Studies have demonstrated reduced neuropsychiatric symptoms (NPS) when person-centred dementia care models are deployed for persons living with dementia (PLWD). A multi-site cross-sectional design assessed NPS in PLWD using the NPI-Q scale in hospitalized patients on a Emotion-focused unit for 7–21 days. We identified 177 PLWD (88 from an acute care for elderly unit, 89 from general medicine units). The two cohorts had 40 female and 48 male patients in the ACE unit and 35 female and 54 male patients in the general medicine unit. The average age between the two groups was 83 and 84 yrs, respectively. NPI-Q symptom severity was lower on the ACE unit in comparison to the general medicine unit. Mean improvement for motor behaviours and sleep were significant. Caregiver distress scores were significantly lower for delusions, agitation, anxiety, irritability, motor behaviour and sleep. Emotion-focused care made a statistically significant change in NPS severity and caregiver distress when compared to care provided in general medicine units.

Key words: dementia, neuropsychiatric inventory, Emotion-focused Model, Butterfly, caregiver, person-centred care, neuropsychiatric symptoms

INTRODUCTION

Perceptions of what constitutes high-quality care for persons living with dementia (PLWD) have shifted over the past decade. While early research and practice were dominated by a biomedical approach characterized by the focus on medical treatments of dementia, the field has moved towards individualized care and the person-centred philosophy.[1,2,3,4,5,6,7,8,9,10,11] Emotion-oriented care is aimed at improving emotional and social functioning—and ultimately the quality of life—of PLWD by supporting them in the process of coping with the cognitive, emotional, and social consequences of the disease, and by linking up with individual functional possibilities and the subjective experience of the person in question.[2] The Butterfly Model of Care is one such emotion-focused model which principles include person-centredness, recognizing individual uniqueness, empathy, social interactions, and inclusion. Facilities that implement this model strive to create a homelike environment with stimulating activities and visual cues to help PLWD situate themselves in their environment, and to prioritize patient–staff relationships over routines and tasks.[12] Similar to other transformative models of care in LTC homes, the Emotion-focused Model focuses on relationships, flexibility for residents and staff, enhancements in the physical environment, and committed leadership. Rather than treating dementia and related behaviours primarily with pharmacological products, this latter approach aims to focus on the person behind the diagnosis, including personal history, needs, and (dis)likes. As such, person-centred care is rooted in authentic social interactions, meeting psychological needs, supporting opportunities for meaningful activities,[13] and fostering a holistic view of the person. Person-centred, emotion-focused care contributes to a reduction in dementia-related behaviours/reactions (e.g., anxiety and depression) and thereby can enhance the day-to-day quality of life of PLWD.[14]

Studies have demonstrated decreased agitation, violence, and use of physical and chemical restraints when person-centred care models are deployed for PLWD.[15] Several facilities across Canada have adopted this model in recent years, with an increasing number of facilities projected to adopt the model in the next three years.[16,17] In February of 2023, Brampton

Civic Hospital achieved a historic milestone by becoming the world's inaugural hospital to grant accreditation to the Butterfly Model of Care within an Acute Care of the Elderly (ACE) unit. There is a lack of certainty regarding the model's effectiveness in an acute care environment, primarily because prior research on the emotion-focused Model has been confined to LTC facilities.

We evaluated the effectiveness of the Emotion-focused Model of care at improving patient-oriented outcomes in the acute care hospital setting. We compared improvement in neuropsychiatric symptoms (NPS) in PLWD who are hospitalized in a unit where the emotion-focused model of care was implemented (ACE unit), compared to a patient population at our sister hospital, Etobicoke General, where this model had not been implemented (general medical inpatient unit).

METHODS

We used a multi-centred cross-sectional design in which NPS symptoms were assessed in PLWD using the NPI-Q scale. This scale was administered to the patients between days 7-21 of their admission to the hospital. This timeframe allowed patients to have adequate exposure to the emotion-focused Model, while also maximizing the number of patients that could be recruited prior to their discharge.

Scale

The Neuropsychiatric Inventory (NPI)[18] is a frequently used clinical instrument in scientific studies of behavioural and psychological symptoms in dementia. Twelve symptom domains are assessed, based on interviews with patients' primary caregivers. The Neuropsychiatric Inventory–Questionnaire (NPI-Q) was developed and cross-validated with the standard NPI to provide a brief assessment of neuropsychiatric symptomatology in routine clinical practice settings.[19] Another recent modification of the original NPI-Q is the addition of a Caregiver Distress Scale for evaluating the psychological impact of neuropsychiatric symptoms reported to be present.[20] NPS are prevalent in every individual experiencing dementia; thus, evaluating NPS reveals critical information for dementia research.[18]

Method of Screening and Enrolment

Convenience sampling was used to enroll family and professional caregivers (i.e., staff nurses working on the floors) for PLWD who meet the eligibility criteria. Given most patients were incapable due to their advanced dementia, the NPS assessment was based on the observations of their family and professional caregivers.

Statistical Analysis

We compared the characteristics of enrolled patients across two groups (ACE and General Medical units) across age, gender, and length of stay. In addition, mean domain NPI-Q scores and total scores were calculated for both NPI-Q symptom severity and caregiver stress scores. Independent *t*-test scores were computed to compare the mean scores of the two independent groups across all 12 NPI-Q domains to determine statistical significance. Statistical analyses were conducted using SPSS Version 25.0 (SPSS IBM SPSS Statistics, Armonk, NY). The study was approved by William Osler Health System Research Ethics Board.

RESULTS

To achieve a power of 80% (0.05 significance threshold), we recruited a total of 177 participants across both independent groups (ACE and General Medicine Unit) with a diagnosis of dementia (NINCDS–ADRDA and the DSM-IV-TR criteria for Alzheimer's disease [AD]). Eighty-eight (48 male and 40 female) patients in the ACE cohort were compared to 89 (54 male and 34 female) in the General Medicine Unit. The mean age of the participants was 83 years in ACE and 84 years in the General Medicine Unit. The average length of stay was comparable (ACE 13 days, General Medicine Unit 14 days).

Mean NPI-Q Symptom Severity scores were significantly lower on the ACE unit for motor behaviour and sleep on computing comparative means using an independent *t*-test (mean 0.36 vs. 0.99 and 0.33 vs. 0.69, $p<.01$) and clinically lower for all NPI-Q domains, other than apathy. Compared with the General Medicine Unit, caregivers on the ACE unit were significantly less distressed by patients' delusions ($p<.05$), agitation, anxiety, irritability, motor behaviours, and sleep disturbances ($p<.01$) as reflected by their mean NPI-Q Caregiver Stress Scores (Table 1, Figure 1).

DISCUSSION

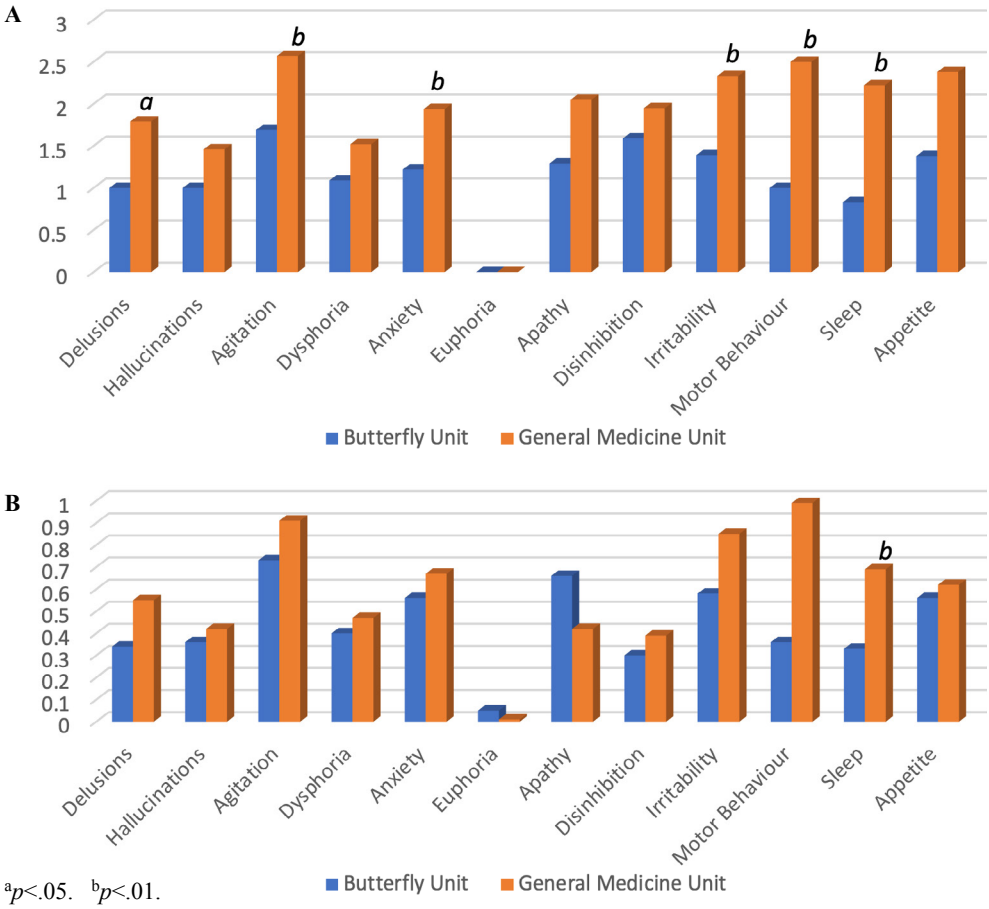
With several models of emotion-focused care being implemented worldwide in LTC homes, our findings demonstrate the effectiveness of the Emotion-focused Model of care in acute care settings, a domain historically focused on pharmacological interventions. These findings align with prior studies indicating that emotion-focused care models reduce NPS for PLWD.[14] This is the first study finding statistically significant differences in NPS with the Emotion-focused Model in an acute care setting, filling the gap in clinical research evidence on the Emotion-focused Model of care.

This prospective study builds on the findings of a retrospective review our team conducted on the ACE unit at Brampton Civic Hospital which found a decrease in falls, anti-psychotic use, and behavioural symptoms on the unit after the implementation of the Butterfly Model.[21] We have presented our findings to leadership within Brampton Civic Hospital which has been used to inform the development of new motion-focused units in our partner hospitals. Emotion-focused approaches like the Butterfly Model achieve these outcomes by addressing psychological needs through focusing on interpersonal relationships and conducive physical environments.[1,22] This is particularly important in acute care settings, where PLWD often experience heightened stress and behavioural disturbances due to unfamiliar environments and routines.[23]

TABLE 1.
NPI-Q symptom severity scores (A) and caregiver stress scores (B) for ACE and general medicine units

TABLE 1A		*Levene's Test for Equality of Variances*		*t-test for Equality of Means*		
		F	*Sig.*	*t*	*df*	*Sig. (2-tailed)*
Delusions	Equal variances assumed	5.809	0.017	-1.672	175	0.096
	Equal variances not assumed			-1.673	173.265	0.096
Hallucinations	Equal variances assumed	5.660	0.018	-1.427	175	0.155
	Equal variances not assumed			-1.428	172.412	0.155
Agitation	Equal variances assumed	0.548	0.460	-1.159	175	0.248
	Equal variances not assumed			-1.159	174.478	0.248
Dysphoria	Equal variances assumed	4.396	0.037	-0.642	175	0.521
	Equal variances not assumed			-0.644	160.141	0.521
Anxiety	Equal variances assumed	2.841	0.094	-0.798	175	0.426
	Equal variances not assumed			-0.799	173.210	0.425
Euphoria	Equal variances assumed	5.475	0.020	1.154	175	0.250
	Equal variances not assumed			1.149	115.165	0.253
Apathy	Equal variances assumed	6.021	0.015	1.801	175	0.073
	Equal variances not assumed			1.799	169.888	0.074
Disinhibition	Equal variances assumed	3.227	0.074	-0.880	175	0.380
	Equal variances not assumed			-0.881	169.429	0.379
Irritability	Equal variances assumed	12.425	0.001	-1.894	175	0.060
	Equal variances not assumed			-1.897	162.524	0.060
Motor Behaviour	Equal variances assumed	25.375	0.000	-4.202	175	0.000
	Equal variances not assumed			-4.210	160.299	0.000
Sleep	Equal variances assumed	23.151	0.000	-2.727	174	0.007
	Equal variances not assumed			-2.727	150.900	0.007
Appetite	Equal variances assumed	0.281	0.597	-0.416	173	0.678
	Equal variances not assumed			-0.417	172.963	0.677

TABLE 1B		*Levene's Test for Equality of Variances*		*t-test for Equality of Means*		
		F	*Sig.*	*t*	*df*	*Sig. (2-tailed)*
Delusions	Equal variances assumed	0.425	0.518	-2.017	49	0.049
	Equal variances not assumed			-1.997	43.545	0.052
Hallucinations	Equal variances assumed	0.229	0.635	-1.069	41	0.291
	Equal variances not assumed			-1.041	34.017	0.305
Agitation	Equal variances assumed	4.880	0.030	-2.740	81	0.008
	Equal variances not assumed			-2.702	72.144	0.009
Dysphoria	Equal variances assumed	2.151	0.148	-1.205	56	0.233
	Equal variances not assumed			-1.157	42.624	0.254
Anxiety	Equal variances assumed	0.823	0.368	-2.220	66	0.030
	Equal variances not assumed			-2.221	65.235	0.030
Euphoria	Equal variances assumed				8	
	Equal variances not assumed					
Apathy	Equal variances assumed	5.032	0.029	-1.922	55	0.060
	Equal variances not assumed			-1.786	34.717	0.083
Disinhibition	Equal variances assumed	0.522	0.474	-0.744	42	0.461
	Equal variances not assumed			-0.744	41.760	0.461
Irritability	Equal variances assumed	0.072	0.790	-3.157	76	0.002
	Equal variances not assumed			-3.180	75.719	0.002
Motor Behaviour	Equal variances assumed	0.303	0.584	-4.178	64	0.000
	Equal variances not assumed			-4.068	39.279	0.000
Sleep	Equal variances assumed	1.261	0.266	-3.695	53	0.001
	Equal variances not assumed			-3.835	52.372	0.000
Appetite	Equal variances assumed	0.212	0.647	-1.442	60	0.155
	Equal variances not assumed			-1.436	58.032	0.156



[a]$p<.05$. [b]$p<.01$.

FIGURE 1.Mean NPI-Q symptom severity (Image A) and caregiver stress (Image B) scores

Our findings suggest that the benefits of an emotion-focused approach are not only limited to patients, but also decrease the distress their families and professional caregivers experience. This may reduce caregiver burnout and improve staff retention. This is a promising finding, given that some studies report concerns over difficulty with staff adapting to the culture change and increased workload with the implementation of the Emotion-focused Model.[22] The decrease in behavioural symptoms in patients could lead to a reduction in moral distress for the care team, which is a key factor in staff retention.[24] Similarly, nurses working in emotion-focused LTC homes have reported better work satisfaction, flexibility, and ability to meet the individual needs of residents.[25,26] However, these interventions should be coupled with increased staffing levels to prevent an increased workload. This finding aligns with one of the core principles of the Emotion-focused Model, which emphasizes that person-centredness and flexibility extend beyond patients to include both personal and professional caregivers.

Limitations and Future Directions

Despite efforts to match patients across groups based on length of stay and age and given the cross-sectional nature of the study, variables such as severity of patients' dementia and comorbidities may confound the differences in NPS scores among the groups. Further cohort and quasi-experimental designs are warranted in acute care settings to better isolate the impacts of emotion-focused care models on patients' NPS. Research should also assess the economic implications of implementing the Emotion-focused Model, including potential reductions in health-care utilization and costs associated with managing NPS. Finally, exploring the integration of such models into other areas of acute care, such as post-operative and palliative units, could further elucidate their broader applicability and benefits. A review of emotion-based models in LTC homes[22] emphasizes the importance of individualizing each model to the needs of the patient population. Future studies can compare the efficacy of different adaptations of emotion-based models in acute care settings based on local needs.

ACKNOWLEDGEMENTS

Not applicable.

CONFLICT OF INTEREST DISCLOSURES

We have read and understood the *Canadian Geriatrics Journal*'s policy on conflicts of interest disclosure and we have none to declare.

FUNDING

Funding was received from the William Osler Hospital Foundation.

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