

An Education Intervention to Enhance Staff Self-Efficacy to Provide Dementia Care in an Acute Care Hospital in Canada: A Nonrandomized Controlled Study

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Abstract

Education is needed for enhanced capacity of acute hospitals to provide dementia care. A nonrandomized controlled, repeated-measures design was used to evaluate a dementia education program delivered to an intervention group (IG, $n = 468$), compared to a wait-listed group ($n = 277$), representing separate sites of a multisite hospital. Participants completed self-efficacy for dementia and satisfaction measures and provided written descriptions of dementia care collected at baseline, postintervention (IG only), and at 8-week follow-up. Oral narratives were gathered from IG participants 8 weeks post-intervention. The IG demonstrated significant improvement in self-efficacy scores from baseline to immediately post-intervention ($P < .001$), sustained at 8 weeks. There were no changes from baseline to 8 weeks postintervention evident in the wait-listed group ($P = .21$). Intervention group participants described positive impacts including implementation of person-centered care approaches. Implementation of dementia care education programs throughout hospital settings is promising for the enhancement of dementia care.

Keywords

dementia, acute hospital staff, intervention, education, self-efficacy

Introduction and Background

Preparing clinical personnel in acute hospitals to meet the care needs of an aging population, anticipated to include a growing number of people living with dementia, requires deliberate, careful planning. Dementia is a global public health priority; the total number of people with dementia worldwide was estimated to be 35.6 million in 2010 and is projected to double every 20 years.¹⁻⁴ Older Canadians with dementia admitted to acute care hospitals comprise 20% to 30% of the total inpatient population, and this will continue to increase.⁵⁻⁸ A systematic approach to building capacity within the dementia care workforce has been recommended, not only in Canada but worldwide, in anticipation of the expanding demographic and in response to reports that episodes of acute illness requiring hospitalization in this population are associated with poor outcomes.^{1,4,9} The focus of this article is to describe an evaluation of an education intervention, Gentle Persuasive Approaches (GPA), delivered to care providers employed in a metropolitan, multisite acute care hospital in Ontario, Canada.

Literature Review

Need for Dementia Education

Alzheimer disease and related disorders (ADRDs) ultimately lead to neurocognitive changes that affect working memory, judgment, attention, mood, communication abilities, and

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capacity to complete activities of daily living.^{4,10} The clinical appearance of ADRD often includes symptoms such as repetitive vocalizations, searching for a way home, reaching out, pushing away, and protesting care, often collectively referred to as behavioral and psychological symptoms of dementia (BPSD).^{10,11} Studies report that behaviors associated with dementia, in particular agitation, anxiety, and disinhibition, can result in anger, emotional labor, distress, and burden for point-of-care staff who lack the educational supports necessary for understanding.¹²⁻¹⁴ Acute care hospital personnel are often not provided with the knowledge and skills required to deliver person-centered dementia care to patients. This is a particular concern given that the transition period from home or long-term care facilities to acute care settings is when older adults are most vulnerable.^{9,15-17} Persons with dementia admitted to acute hospitals are at risk for emotional stress that will trigger BPSD due to their increased sensitivity to unfamiliar environmental triggers such as noise, inadequate lighting, inconsistent staffing patterns, and being cared for by personnel unfamiliar with their life history or care preferences. Since older adults with mild dementia have higher rates of emergency department (ED) visits and hospitalizations, they represent an inpatient population more likely to become physically agitated during a transition to acute care.¹⁸ In many instances, BPSD can escalate to a level that results in injury and harm to self or others.^{19,20}

Changing the Discourse of Dementia

A new culture of person-centered dementia care is emerging within the long-term care home sector. There is no single definition of person-centered care (PCC); however, the core principles of PCC include focusing on the individual needs, strengths, and remaining capabilities of the person rather than expediting the tasks associated with care; building relationships based on trust, respect, and human compassion with the person; and honoring the values, choices, and preferences of the person into every care interaction.²¹⁻²⁶ The negative discourse surrounding BPSD contradicts the underpinnings of PCC and contributes to a limited, medicalized understanding of expressions of upset and unmet emotional and personal safety needs of people with dementia. Within the model of PCC, BPSD is understood to be triggered by care providers' own actions and verbal/nonverbal behaviors rather than simply an outcome of neuropathology. In long-term care homes, other terms and frameworks beyond the medical model have been developed that help to uncover the meaning of behavior in the dementia context. For example, person-centered terminology such as responsive behavior²⁷ and self-protective behavior²⁸ are now used to discuss BPSD, and behavior models such as the Need-driven Dementia-compromised Behavior (NDB) model²⁹ and the Unmet Needs model³⁰ have been developed to ensure a holistic approach to behavioral assessment and intervention. In these frameworks, NDB is now understood as normal attempts used by the person with dementia in response to care interactions they perceive to be noxious or threatening.^{21,28-30} For the purposes of this article, the term

NDB has been used, reflecting the values and beliefs of the research team and the intent behind the educational intervention (EI).

Caregivers in acute hospitals report a lack of knowledge, skill, and confidence related to the assessment, interpretation, and implementation of person-centered interventions tailored for inpatients diagnosed with dementia who experience NDB.³¹⁻³⁸ Professional caregivers in acute hospital settings are reported to undervalue and underestimate the skill required to care for older patients with dementia because they believe that dementia-specific care is mundane, requires little evidence-based knowledge, and is ineffective.³⁹ Acute hospital personnel with limited expertise in the psychosocial requirements of person-centered dementia care tend to focus only on tasks related to personal care "body work," completing these as efficiently and quickly as possible without tailoring care to accommodate NDB.^{32,40} Acute hospital caregivers who operate within a pervasive medical model may not yet fully understand the extent to which BPSD is triggered by inappropriate caregiving approaches; they must gain this understanding to ensure best practice.^{32,41} If acute hospital staff fail to recognize NDB as a normal response to frightening procedures, they might incorrectly attribute such behavior to dementia-specific neuropathology that requires treatment with medication and physical restraint, rather than PCC approaches.^{32,34} This lack of preparedness and poor self-efficacy (SE) to respond to NDB contribute to burn out, moral distress, sick calls, and patient avoidance.^{34,40-42}

Building Dementia Care Capacity in Acute Care Hospitals

A movement toward culture change associated with dementia care is growing across all health-care sectors, involving an emphasis on relational care, person-centered strategies, non-pharmacological interventions, dementia-specific environmental design, and minimization of physical restraints.¹³ Although most of the research on building capacity to manage agitation using nonpharmacological approaches has been conducted in long-term care settings,¹³ it is clear that the same knowledge of dementia care is necessary in acute hospital settings.^{16,43} Barriers to delivery of person-centered dementia care in acute care hospitals include difficulty balancing a high workload, lack of expertise in behavioral management, difficulty understanding the patient's reality, belief that interpersonal interactions cannot be reciprocal, inability to adapt communication strategies to the patient's capacity to use or understand oral language, and false interpretation that NDB are purposefully enacted by patients with dementia with intent to harm.^{31,34,41,44}

The impetus for dementia education fits within the broader pressure for culture shift within acute care hospitals,^{31,32,34} focusing on the enhancement of the "patient experience" and implementing PCC delivery models that emphasize the core values of communication, partnership, and health promotion.^{45,46} However, most research on preparing staff to deliver person-centered, senior-friendly hospital care has primarily focused on implementing educational programs centered on

professionalism, general communication principles, empathy, falls prevention, and interprofessional delirium prevention and management without introducing concepts related to dementia in general or NDB in particular.⁴⁷⁻⁴⁹

Existing Education Programs

The majority of research on dementia-specific education programs has been conducted in long-term care homes. Some of these studies have evaluated the effectiveness of various non-pharmacological interventions such as music, sensory stimulation, recreational activities, and communication strategies as the means to manage NDB.¹³ However, our search of the literature identified very few experimental studies that have investigated the impact of comprehensive dementia education programs implemented in acute hospital sites.^{17,50-52} The studies that have been conducted in the acute sector have methodological limitations or did not provide details on the program content or specific delivery methods. In the single study where delivery methods were well described, content specific to prevention and management of emotional stress experienced by patients with dementia-related NDB was not evident.⁵³

In general, educational and programmatic/system interventions implemented in the acute hospital sector appear to have stronger outcomes if they are delivered using an interdisciplinary approach, include tailored content that is highly relevant to the practice issues found in acute care, include practice development or knowledge translation strategies, and include reinforcement of best practices by an advanced practice nurse.^{17,51,53,54} It is important, therefore, that education for acute hospital personnel goes beyond the neurological and functional changes associated with dementia to include application of dementia communication principles, dementia-specific person-centered strategies, and explanation that NDB arises due to patient stress, unmet needs, and task-focused care delivery.^{13,36} The intervention that is the focus of this study was delivered to fill the identified gap.

Intervention—GPA

The GPA is a dementia-specific, face-to-face, literature-informed, best practice-based, standardized educational program originally developed for implementation in long-term care settings. The GPA is delivered by clinician educators certified as GPA coaches after successful completion of a 2-day facilitator program. The GPA curriculum is grounded in the philosophical underpinnings of humanism and personhood,²⁴ as well as theoretical frameworks that propose environmental, physical, interpersonal, and social factors lead to expressions of unmet needs^{21,28,29,55,56} that need to be identified and accommodated for during health-care interactions. The GPA program is divided into 4 modules with content on the PCC principles (module 1), brain changes common in dementia and delirium (module 2), communication and interpersonal strategies (module 3), and staff-specific self-protective skills and team/patient/family debriefing and reassurance techniques (module 4) that

are effective, safe, and respectful to use when interacting with people with dementia. The GPA program delivery is interactive, including learning exercises, case studies, video vignettes, and small group work. A manual is provided to all participants. Further details of the content are published elsewhere.⁵⁷

The impact of GPA on point-of-care staff SE in dementia care ($n = 250$) was evaluated previously at 7 randomly selected long-term care homes in Ontario, Canada, in 2004.⁵⁸ The findings included a statistically significant increase in self-perceived confidence to deliver 44 best practice competencies associated with dementia care among staff exposed to GPA. High SE in dementia care scores was sustained at 6 to 8 weeks postintervention. Staff reported increased SE relative to baseline measures in such competencies as identifying triggers to emotional stress, communicating effectively, identifying appropriate and respectful responses to NDB, and de-escalating NDB. Since its inception, the GPA program has seen rapid uptake throughout long-term care homes in Ontario, Canada, and it is now disseminated nationally.

An evaluation of the GPA program was subsequently conducted in an inpatient 108-bed geriatric psychiatry program for older adults with dementia attached to a tertiary care center.⁵⁹ Three months posttraining, incidents of aggressive behavior had declined significantly by 50%. Study participants were very satisfied with all aspects of the program and reported that the physical redirection techniques were useful but required practice to maintain appropriate skill level.

The GPA was then identified as a promising intervention that should be the focus of further clinical investigation by the organization in which the current study took place. In 2009, a feasibility study was conducted on an orthopedic inpatient unit with a high percentage of patients with dementia and delirium.⁵⁷ Standardized delivery of the GPA intervention by clinical nurse specialists (CNSs) certified as GPA coaches resulted in increased SE of staff to manage incidents of patient emotional stress, increased confidence with delivery of PCC, fewer reports of incidents involving agitated patients, and a reduction in the use of physical restraints. The results of the feasibility study led the research team to acquire funding through an internal competition for the study described in this article.

Purpose of the Study and Research Question

This study was designed to investigate the impact of the GPA education program on acute care staff's SE related to delivery of person-centered dementia care. The study's main research questions were: Does a standardized dementia education intervention change acute hospital personnel's SE to interact with older persons with dementia as measured by a SE tool? What do hospital personnel report to be their experiences providing dementia care to patients experiencing upset and stress manifested by NDB, as captured through group interviews? It was hypothesized that immediately after being exposed to the EI, multidisciplinary caregiving and support staff working on acute hospital units would have increased SE relative to baseline measures to perform person-centered actions when faced with

NDB. In addition, it was hypothesized that immediate postintervention increased SE in the intervention group would be sustained 8 weeks later and that SE at 8 weeks in this group would be significantly higher than that of a group of wait-listed staff who had no exposure to the intervention.⁶⁰ Finally, it was hypothesized that staff exposed to the intervention would describe more person-centered strategies used during interactions with their patients than the wait-listed staff would.

Methods

Design

A nonrandomized controlled, repeated-measures research design⁶¹ was used to evaluate the impact of implementing a standardized dementia education intervention to staff in 7 clinical areas at one of the sites of a large, metropolitan, academic teaching hospital in Ontario. The quantitative component used a quasi-experimental design with repeated measures (immediate pre- and posteducation intervention [EI] and 8 weeks later). Randomization was not possible in this study, rather, clinical areas at 2 similar sites within the same acute care hospital organization were assigned to 1 of 2 conditions: (1) EI (intervention group at site A) or (2) standard educational supports that consisted of clinical educators providing advice on management of NDB in patients with dementia when requested by staff in specific cases (wait-listed group at site B). Focus groups were used to identify participant-reported impacts of completing the EI, implementation issues and considerations for sustaining the intervention in acute care, and further educational initiatives.

Setting and Sample

The intervention group comprised 468 full-time (FT) and regular part-time (RPT) staff employed on 7 clinical areas at site A, including medicine, surgical oncology, orthopedic surgery, intensive care unit (ICU), cardiac care unit (CCU), and the ED. The wait-listed group that served as a comparison consisted of 277 FT and RPT staff employed across 5 clinical areas at site B: medicine, ICU, CCU, ED, and the burn unit.

Gentle Persuasive Approaches Intervention Implementation

As when the GPA educational program intervention has been delivered to care providers in long-term care homes, the implementation of the GPA curriculum in the acute care sector was planned keeping the same implementation issues in mind. When implementing and evaluating dementia programs, it is important to ensure that such interventions have adequate content delivered over a feasible amount of time, are standardized in terms of preparation of and delivery by trainers, are understood and supported by organizational managers, and are made available so that staff can participate as consistently as possible in the program and apply their newly acquired dementia care knowledge and skills in their practice immediately.⁶²⁻⁶⁴ With this knowledge in mind, the GPA curriculum evaluated in this

study was delivered to staff in interdepartmental groups of 18 to 20 by teams of 3 certified GPA coaches. The GPA coaching teams delivered the education during 7.5-hour single-day sessions. Each coaching team was composed of 1 of 4 CNSs who served as lead coaches and 2 staff coaches (40 in total) who were representatives from each of the clinical areas involved in the study. All of these staff teaching partners supported the implementation and sustainability of GPA in their respective practice units during clinical interactions and were cross-trained to ensure standardization between groups. In addition, departmental managers were invited to participate in information sessions during which an overview of the GPA program was presented, the program's relationship to the organizational vision of care was discussed, and questions were reviewed. The managers were instrumental in scheduling the staff participants into GPA sessions.

Study Measures and Procedures

Intervention and wait-listed group participants were invited to complete questionnaires prior to the intervention period (baseline) and at 8-week follow-up. Those enrolled in the intervention also completed questionnaires immediately post-EI. The primary staff outcome measure was an SE in dementia care tool, the Self-Perceived Behavioural Management Self-Efficacy Profile (SBMSEP).⁵⁸ Study participants were asked to indicate on a 10-item, 7-point Likert-type scale their perceived level of confidence in accomplishing the clinical behaviors and tasks necessary to manage emotional stress expressed by patients with NDB. The SBMSEP measure was subjected to review by clinical experts in the field of behavioral management and aggression associated with dementia to establish content validity, and the 44-item version was previously used in a pilot study of the full GPA program.⁵⁸ More recently, a shorter, 10-item version of the SBMSEP was developed, demonstrating high responsiveness in capturing the changes anticipated with the implementation of the EI (Cronbach α .93). The shorter version of the tool was used for this study. The SBMSEP concludes with 3 sentence completion questions: (1) If I were to describe myself when I respond to patients with dementia who are aggressive, agitated, and upset, I would say ___; (2) If I were to change anything about my ability to respond to patients with dementia who are aggressive, agitated, and upset, I would ___; and (3) The best practice approaches to use when responding to patients with dementia who are aggressive, agitated, and upset are ___. Members of the intervention group were asked 2 additional open-ended questions to determine the most important aspect of GPA strategy learned and put into practice and which strategies were found to be effective.

Six postintervention focus groups were conducted by a graduate student research assistant, 5 with point-of-care staff and 1 with the program facilitators and staff coaches. The focus groups took place at the end of the study period (8 weeks postintervention) and were guided by a set of semi-directed questions about their experiences with applying GPA in the practice setting.

Data Analyses

Four types of analyses were performed on the quantitative data. First, the baseline demographic characteristics were analyzed using descriptive statistics, reported as means (and standard deviations [SDs]) for continuous variables or counts (and percentages) for categorical variables. The χ^2 tests for association were conducted so as to establish whether the intervention and wait-listed groups differed significantly on each of the various demographic variables collected (age, unit, sex, number of years working in health care, number of years working for the same employer, job status, shift, education, and prior exposure to a dementia care course). Second, a 2-way repeated-measures analysis of variance (ANOVA; group [intervention, wait-listed] \times time [preintervention, 6-8 weeks postintervention]) was applied to all complete cases. This analysis determined the effects of the intervention over time on participants' SE in dementia care, after controlling for the effects of the demographic variables. Third, a 1-way repeated-measures ANOVA (also including the above demographic variables as covariates) was used to examine changes in SE across all 3 time points, but only in the intervention group as only this group completed the immediate postintervention measure in addition to the preintervention and 6- to 8-week postintervention ones.

Finally, in order to ensure that attrition did not significantly influence our findings, we conducted further analyses with 5 sets of multiply imputed data in which missing values were substituted with imputed values. The data were imputed using Fully Conditional Specification⁶⁵ (an iterative Markov chain Monte Carlo procedure) with a maximum of 10 iterations. In this procedure, missing values are first replaced with "initial values," which are randomly drawn from a normal distribution with the same mean and SD as the nonmissing values. Following this, a univariate model is fitted for each variable with values missing (with the most recently imputed values for all other variables as predictors), and the missing values are sequentially imputed. After imputation, multiple linear regression was conducted and estimates were pooled across all imputed data sets to assess whether there was a significant effect of the intervention on SE at 6 to 8 weeks postintervention, after controlling for demographic variables and for preintervention SE scores. All analyses were performed using SPSS version 23.0, and the criterion for statistical significance was set at $\alpha = .05$. The residuals to assess model assumptions and goodness of fit were examined.

The qualitative data collected from the open-ended questions embedded in the SBMSEP for both intervention and wait-listed groups, as well as data collected from focus groups conducted with intervention participants, were transcribed and subjected to thematic content analysis. These data were analyzed using a step-by-step inductive approach⁶⁶⁻⁶⁸ to arrive at the final thematic categories. The process involved 2 members of the team independently reading transcripts line by line, then developing a preliminary coding framework through consensus discussion prior to rereading and recoding all transcripts. Finally, peer checking was conducted in a team meeting

involving all project members during which emergent thematic categories were discussed and refined to further aid the analysis process and to ensure that final categories were supported by the data, thereby enhancing overall trustworthiness. The SE measure (SBMSEP) included open-ended questions described under "Study Measures and Procedures" that invited written responses from the participants in both the intervention and wait-listed groups at baseline and 8 weeks post-EI. Additional written qualitative data were collected from the intervention group only, immediately after the EI (same day). All these data were subjected to thematic review and were analyzed using a step-by-step inductive approach⁶⁶⁻⁶⁸ to arrive at the final thematic categories.

Results

Baseline Characteristics

The intervention and wait-listed groups were similar at baseline in most respects. The majority of participants in both groups were female (90.5% and 92.4%, respectively), and the largest age-group was 40 to 49 years (28% and 31.9%). Both groups included similar percentages of staff from ED/ER and diagnostic imaging, and staff in both groups had worked in health care and for the same employer for a similar number of years. A comparable number of participants in each group had taken a prior course in dementia, and the majority of participants from both groups were registered nurses (RNs) or registered practical nurses (RPNs) and worked full time. There were some significant group differences in unit assignment, including that intervention group participants were predominantly assigned to general medicine units (53.8%), whereas the wait-listed group participants were predominantly assigned to ICU or CCU (42.7%), and in organizational role, with the wait-listed group having significantly more nursing staff (RNs, RPNs) and the intervention group having significantly more health-care aides/personal support workers (PSWs) than would be expected based on frequencies in the whole sample. The wait-listed group also had a significantly higher than expected count of participants with an undergraduate degree and who worked a FT day shift, whereas the intervention group had lower than expected counts of these characteristics. Baseline characteristics and group comparisons are summarized in Table 1.

Self-Efficacy

The wait-listed group had a slightly higher baseline total SE score (mean [M] = 46.96/70, SD = 10.07) compared to the intervention group (M = 43.06/70, SD = 9.99), and an initial independent samples *t* test for all preintervention complete cases showed that this difference was significant, $t(742) = 5.13, P < .001$. We expected that this effect was due to between-group participant demographic differences and therefore included the demographic variables as covariates in all subsequent analyses. Following this, the repeated-measures ANOVA (group [intervention, wait-listed] \times time

Table 1. Baseline Demographic Characteristics.

Variable	Wait-Listed Group (n = 277)	Intervention Group (n = 468)	χ^2 (df)	P
Age (years): frequency (%)			12.22 (6)	.06
<20	0 (0.0%)	1 (0.2%)		
20-29	72 (26.1%)	116 (24.9%)		
30-39	69 (25.0%)	104 (22.3%)		
40-49	78 (28.3%)	132 (28.3%)		
50-59	55 (19.9%)	87 (18.7%)		
60-64^a	2 (0.7%)	25 (5.4%)		
65+	0 (0.0%)	1 (0.2%)		
Gender (female): frequency (%)	256 (92.4%)	422 (90.4%)	0.91 (1)	.34
Unit: frequency (%)^a			117.67 (9)	<.001
Other: consult/pain management^a	0 (0.0%)	7 (1.5%)		
General medicine^a	103 (37.6%)	250 (53.8%)		
ICU/CCU/PACU/NEURO/RT^a	117 (42.7%)	78 (16.8%)		
ED/ER	24 (8.8%)	61 (13.1%)		
DI/MRI	5 (1.8%)	12 (2.6%)		
Burn (BTU)^a	18 (6.6%)	0 (0.0%)		
FLOAT/RELIEF/PHARMACY^a	5 (1.8%)	41 (8.8%)		
Security^a	0 (0.0%)	8 (1.7%)		
Admitting^a	0 (0.0%)	8 (1.7%)		
Research	2 (0.7%)	0 (0.0%)		
Total SE (10-70): mean (SD)^a	46.96 (10.1)	43.01 (10)	t(742) = 5.13	<.001
Dementia course (yes): frequency (%)	34 (12.4%)	64 (13.8%)	0.29 (1)	.59
Years worked in health care: frequency (%)			3.34 (5)	.64
1-2	40 (14.4%)	65 (14.4%)		
2-5	43 (15.5%)	94 (20.8%)		
5-8	39 (14.1%)	58 (12.9%)		
8-10	25 (9.0%)	36 (8.0%)		
10-20	56 (20.2%)	83 (18.4%)		
20+	74 (26.7%)	115 (25.5%)		
Years with the same employer: frequency (%)			3.16 (4)	.53
1-2	39 (14.2%)	71 (15.4%)		
2-5	49 (17.8%)	103 (22.4%)		
5-8	38 (13.8%)	64 (13.9%)		
8-10	23 (8.4%)	36 (7.8%)		
10+	126 (45.8%)	186 (40.4%)		
Job: frequency (%)^a			19.47 (2)	<.001
Health care aide^a	4 (1.4%)	34 (7.3%)		
Nursing staff (RN, RPN)^a	199 (71.8%)	295 (63.4%)		
Occupational/physiotherapist	21 (7.6%)	20 (4.3%)		
Job status: frequency (%)^a			10.4 (2)	.006
Full time^a	207 (75.5%)	299 (64.7%)		
Part time	50 (18.2%)	110 (23.8%)		
Casual^a	17 (6.2%)	53 (11.5%)		
Shift: frequency (%)^a			84.0 (4)	<.001
8-hour day shift^a	60 (32.4%)	101 (22.3%)		
8-hour evening shift	0 (0.0%)	8 (1.8%)		
8-hour night shift	0 (0.0%)	3 (0.7%)		
12-hour day shift^a	114 (61.6%)	163 (36.0%)		
12-hour night shift^a	11 (5.9%)	62 (13.7%)		
Highest education: frequency (%)			10.56 (4)	.06
Elementary school	0 (0.0%)	2 (0.4%)		
High school	4 (1.5%)	16 (3.6%)		
Undergraduate degree^a	105 (39.9%)	142 (31.7%)		
College diploma	116 (44.1%)	228 (50.9%)		
Professional certificate	10 (3.8%)	24 (5.4%)		

Abbreviations: BTU, burn trauma unit; CCU, cardiac care unit; DI, diffusion-weighted imaging; ED, emergency department; ER, emergency room; ICU, intensive care unit; MRI, magnetic resonance imaging; NEURO, neurology; PACU, post-anesthesia care unit; RN, registered nurse; RPN, registered practical nurse; RT, radiation therapy; SD, standard deviation; SE, self-efficacy; χ^2 , Pearson chi-square.

^aBold indicates significant group difference in expected frequencies with Bonferroni-corrected pairwise comparisons.

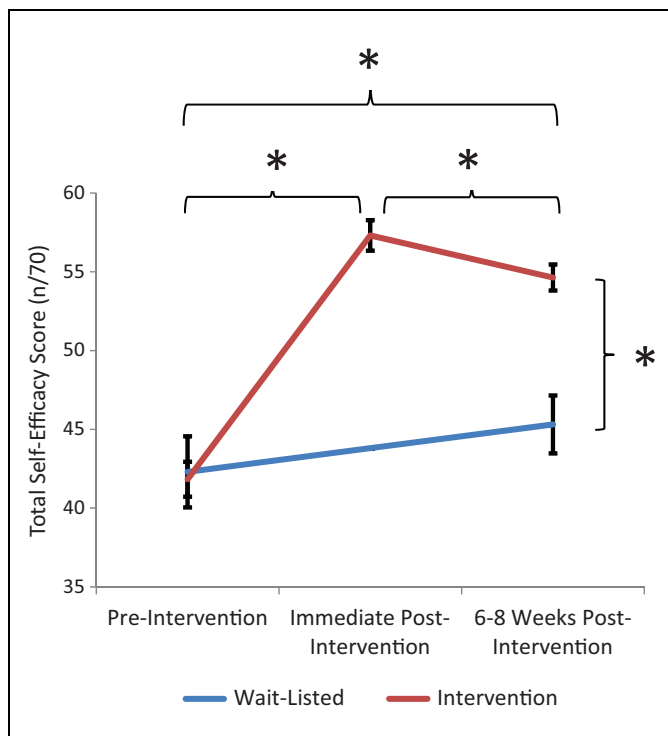


Figure 1. Line graph depicting the changes in participant self-efficacy immediately prior to the intervention, immediately after the intervention (for the intervention group only), and at 6 to 8 weeks following the intervention for complete cases. Means are shown with error bars depicting standard error of the mean.

[preintervention, 6-8 weeks postintervention]) with demographic covariates (excluding job status as it violated the assumption of homogeneity of regression slopes) was conducted, and Levene test showed that the error variance of SE was equal across groups (preintervention $F(1, 81) = 0.412, P = .523$; postintervention $F(1, 81) = 0.730, P = .395$). The ANOVA revealed a significant main effect of group, $F(1, 72) = 5.15, P = .026$, but not time, $F(1, 72) = 2.69, P = .11$. However, a significant group by time interaction, $F(1, 72) = 12.92, P = .001$, indicates that these main effects should be interpreted with caution. Bonferroni-corrected pairwise comparisons clarified that while the complete case wait-listed ($M = 42.83, SD = 9.40$) and intervention ($M = 41.68, SD = 8.57$) groups did not differ significantly in SE at time 1 when controlling for demographic variables ($P = .86$), the intervention group had significantly higher SE ($M = 54.68, SD = 6.46$) than the wait-listed group did ($M = 45.17, SD = 8.56$) at 6 to 8 weeks postintervention ($P < .001$, see Figure 1). Moreover, while the intervention group showed a significant increase in SE between pre- and 6 to 8 weeks postintervention ($P < .001$), the wait-listed group showed no significant differences in SE between the 2 time points ($P = .21$).

In the 1-way repeated-measures ANOVA for the intervention group only (excluding the covariates of job and unit as they violated the assumption of homogeneity of regression slopes), mean SE scores differed significantly across the 3 time points, $F(2, 114) = 3.55, P = .032$. Mauchly's test confirmed the

hypothesis of sphericity, $W(2) = 0.98, P = .60$, and Bonferroni-corrected pairwise comparisons showed that the intervention group had a significant increase in SE from baseline to immediately postintervention ($M = 57.31, SD = 7.74; P < .001$) and then a small but significant decrease in SE between immediately postintervention and 6 to 8 weeks postintervention ($M = 54.68, SD = 6.46; P = .05$). See Figure 1 for a graphical depiction of the changes in each group's SE scores over time.

Finally, the results of the multiple linear regression conducted on the multiply imputed data suggest that the significant effect of the intervention on SE measured 6 to 8 weeks later was not influenced by data missing due to attrition. Pooled estimates of the β coefficients showed that even after imputing missing values and including all demographic variables and baseline SE in the model, the intervention significantly predicted SE at time 3. Table 2 displays β values and significance tests for this model.

Qualitative Findings

The qualitative analysis of the findings of this study will be discussed according to the emergent similarities and differences between the responses to the open-ended questions for (1) both intervention and wait-listed groups at baseline, (2) the intervention group during the immediate post-GPA, and then (3) both intervention and wait-listed groups at the 8-week post-GPA time period. Finally, the themes emergent from the content analysis of the focus groups of a subsample of the intervention group will be discussed.

Baseline Open-Ended Questions—Intervention and Wait-Listed Groups

Prior to the implementation of the GPA program, participants in both the intervention and wait-listed groups reported they were subjected to hitting, spitting, punching, swearing, and cursing. They also described instances of having to interact with patients who were exit seeking, as well as those who were fretful and engaging in repetitive vocalizations. For the most part, the behavioral displays that were a cause of concern to participants included what both intervention and wait-listed staff perceived to be "outright refusal to cooperate," as well as describing patient behaviors using negative language such as grabbing, pushing, pinching, biting, spitting, and hitting during interpersonal interactions, assessments, and treatment provision. These care attempts included delivery of personal care and medications, suctioning, performing intravenous starts and tube feeding, or settling patients to sleep for the night. There were no differences between the 2 groups in the types of incidents or the reported upset staff experienced when these occurred.

Immediate Postintervention Open-Ended Questions—Intervention Group

Staff who participated in the GPA program reported that the workshop content and manual were relevant for patient care

Table 2. Model Coefficients and Statistics for Multiple Linear Regression of Total Self-Efficacy Scores at 8 Weeks Postintervention, With Estimates Pooled Across 5 Sets of Multiply Imputed Data.

Variable	β	Standard Error	P
Constant	52.14	1.5	<.001
Age (years)			
<29	Reference		
30-39	0.31	0.62	.62
40-49	-0.28	0.64	.67
50+	0.39	0.72	.59
Unit			
General medicine	Reference		
ICU/CCU/PACU/NEURO/RT	-0.63	0.44	.16
Other	-0.25	0.41	.54
Total baseline self-efficacy	0.032	0.02	.08
Dementia course			
Yes	Reference		
No	0.06	0.55	.91
Years worked in health care			
1-5	Reference		
5-10	-0.29	0.63	.65
10-20	-0.18	0.64	.78
20+	-0.33	0.78	.67
Job			
Health care aide/PSW or nursing staff (RN, RPN)	-0.18	0.43	.68
Occupational/physiotherapist or other	Reference		
Job status			
Full time	0.07	0.37	.85
Part time or casual	Reference		
Education			
Elementary school or high school	Reference		
Undergraduate degree	-0.67	1.30	.61
College diploma	-0.86	1.23	.49
Professional certificate or other	-1.51	1.31	.26
Group			
Wait-listed	Reference		
Intervention^a	0.80	0.37	.035

Abbreviations: CCU, cardiac care unit; ICU, intensive care unit; NEURO, neurology; PACU, post-anesthesia care unit; RN, registered nurse; RPN, registered practical nurse; RT, radiation therapy; β , unstandardized beta coefficient.

^aBold indicates significant predictor of total self-efficacy.

and that they could identify specific best practices that they would take back to the bedside, in particular, communication strategies and behavioral interpretation principles that they had not learned before. Participants reported that the curriculum was engaging and interesting and that they would recommend it to their colleagues.

Eight-Week Postintervention Open-Ended Questions—Intervention Group

Of the 468 GPA program participants who completed questionnaires at 8 weeks postintervention, 67 included written feedback identifying the most critical learning points that they

found useful in day-to-day practice. Their feedback demonstrated their understanding of the core principles of GPA, including the need for PCC. For example, one participant wrote,

The most important thing I learned is to realize what a person may have gone through during their lifetime that could make them aggressive and to ensure that I don't do things to remind them of a difficult time in their past.

Participants indicated that communication strategies learned in the workshop were very helpful and were useful in the practice environment. For example, a participant reported:

It is helpful to rephrase [a] request to help [the] patient understand and to repeat sentences they have said so they see that you understand what they have requested.

Participants reported a greater understanding of the use of personal space and the specific impacts of dementia on patients' functional/cognitive capacity.

I have a better understanding of the brain-associated dementia behaviors and common triggers. I have learned to back off if [the patient becomes] aggressive and [to] talk calmly and try to distract [the] patient.

Staff respondents also acknowledged they had acquired a new understanding of the importance of teamwork. After the GPA workshop, the participants' responses to behavioral escalation in patients included asking for help from peers. As 1 participant wrote, "Had a very agitated patient. After approach, backed off, tried again with help from another coworker."

Eight-Week Follow-Up Open-Ended Questions—Wait-Listed Group

The wait-listed group's written comments about their experiences, skill, and comfort with managing episodes of NDB ($n = 75$ of 277) indicated a degree of clinical uncertainty and anxiety. Their responses included language that was directive and had a clear focus on staff safety, rather than evidence of an understanding of PCC. Staff expressed their frustration about not being certain how to interact with these patients.

I think I manage them very well, but sometimes [they] are very challenging—many safety issues, and [this] causes increased stress for nurses, and I act/speak calmly, but I feel frustrated.

Respondents from the wait-listed group offered example strategies used to manage NDB, such as speaking to the patient emphatically or with clear expectations believing that this would "stop" the behavior. In addition, there were reports of using physical and chemical restraint to manage NDB, with the genuine intention of reducing potential harm or risk. Their descriptions of incidents revealed little or no understanding

of possible triggers that might explain the etiology of patient behaviors. The focus of the strategies used was to ensure that the care task was completed and that the patient and staff were protected from potential injury. These strategies could further depersonalize or objectify the patient and escalate conflict.

Every time/daily when I attempt to mobilize a patient, he initially refuses/becomes angry, makes a fist. Have learned for this particular patient to remain firm in my demands that he needs to move—he knows what is expected.

Eight-Week Postintervention Focus Groups— Intervention Group

Twenty point-of-care staff participants from the intervention group volunteered to be involved in 1 of 6 focus groups that took place across a 4-week time period. A single overarching theme, *shifting the culture of care*, and 7 related subthemes were identified from data analysis. The definition of the overarching theme was a shift toward PCC from a focus on task completion and rumination on care burden. The subthemes were reframing behavior, changing practice, changing attitudes, entering the patient's reality, building team, organizational supports, and barriers to sustainability.

Reframing behavior. The emergent definition of reframing behavior was staff interpreting what they previously would have seen as “difficult” through a responsive lens. This shift in attitude involved the point-of-care staff recognizing the need to assess the patient exhibiting responsive behavior for etiology and triggers, recognizing symptoms, and making a behavioral diagnosis based on a considered, clinical lens without a negative value judgment.

Before taking GPA, I would have thought . . . [the patient will] come out of it or he needs to get maybe something to help him sleep at night. So GPA really hammers home what you can do without giving him meds or putting [him] in a private room so he wouldn't be so disruptive to the other patients . . . All we did was keep the bathroom light on, got rid of the flashlights, and he slept through the night and settled and never needed anything after that.

Changing practice. Participants reported that their strategies for managing responsive behaviors changed from a focus on applying restraint.

Previously any Code White [alert for violent situation] was go in, restrain at all costs, and protect yourself at the same time and protect the patient . . . Whereas now you're going in and you have a different . . . You're calmer and you're [acting] with confidence and conviction, I guess . . . You're going in to this person saying, 'Okay, I'm here to help you.'

Changing attitudes. As a result of participating in the GPA program, intervention group participants became open to the possibility that there is value to working with patients diagnosed

with dementia and came to realize that investigation of the etiology of behavioral change is a clinical responsibility.

They also look at people differently and say, 'Well they're not really doing it to me, it's that they don't understand.' So they have—whether they realize it or not—a better understanding that this is something that's going on with this person—their ability [is affected], from the brain perspective.

Entering the patient's reality. Focus group participants said they were making attempts now to interpret the behavioral episode from the perspective of the patient, rather than trying to convince the patient that their viewpoint was incorrect.

A patient was calling out. So I just wheeled my chair over and asked her what she needed, 'How can I help you?' [I] sat and chatted with her for a little bit, you know, touching her arm, and just kind of chatting, and she calmed right down because I answered the question she was asking. And actually, I went back to the nurses' station and one of the staff even said, 'How did you do that?'

Building team. After completing the GPA program, point-of-care staff who ordinarily would not respond as a team reported working together.

Today I observed some interaction where all the disciplines were involved, even the housekeeping staff . . . They did kind of an intervention right at the time at that spot and I saw everybody getting up as opposed to, 'It's white noise and let's just ignore it'. Everyone responded.

Organizational supports. The increasing availability of GPA training and its presentation to a variety of team members was interpreted by focus group participants as a reflection of administrative decision makers' concern about staff well-being and safety. Participants expressed appreciation for the organizational support and opportunity to learn the skills necessary to deliver quality care to older persons admitted to hospital.

I was really pleased that this has become more of an interest to the corporation—that they want to look at this to reduce the number of Code White calls, reduce the number of restraints used in a more proactive way as opposed to just telling us that we shouldn't be using [restraints].

Barriers to sustainability. Participants also identified various factors that interfered with their capacity to use the GPA principles in the workplace. These included a busy environment with competing demands, heavy workloads, and consulting with on-call physicians who had not had GPA training.

I think workload is definitely [a factor]. If you're on an acute surgical floor and you've got somebody that's having a little bit of confusion or has pre-existing dementia, as well as [a] patient admitted with some kind of traumatic surgery, and the staff are dealing with acute issues, the patients with dementia are not their priority. That to me is a barrier.

Discussion

The purpose of this study was to evaluate the impact of a standardized education intervention (GPA program) on acute hospital staff caring for patients with dementia. In particular, the effects of the EI on participants' SE were examined. Staff members' opinions, beliefs, and practices regarding dementia care were also explored. The main findings were a statistically significant improvement in reported SE levels in the intervention group who were exposed to the GPA program as compared to the wait-listed group whose SE scores did not change and a significant difference in SE scores between the intervention and wait-listed groups at 6 to 8 weeks postintervention. Greater confidence, as reported by the intervention group, may decrease staff feelings of vulnerability by allowing them to attend to the unmet physical and psychological needs of patients with dementia, rather than focusing on their own uncertainties or ignoring patient stress-related NDB altogether.^{20,32,33} The strategies for managing NDB reported by staff in the intervention group prior to receiving the GPA intervention included application of physical restraint and administration of psychotropic medication. These types of strategies are in contrast to the PCC they reported implementing 8 weeks post-EI. The wait-listed group continued to report use of medication and physical restraint as a first-line treatment for emotional and physical stress reactions that can lead to NDB.

It is important to note that intervention group participants recognized the uncontrollable environmental factors common to the experience of acute care admission, for example, high noise levels, space constriction, lack of privacy, and overall treatment demands on patients, that can exceed patients' cognitive-functional capacity to cope. Despite these constraints, the post-GPA intervention group described applying a more person-centered process that reflected the dementia-specific communication strategies aligned with best practice competencies published in the literature—strategies that, until now, have been reported almost exclusively in studies conducted in long-term care homes.^{20,56,69,70} The findings of this study further support earlier studies that GPA is a promising intervention that provides dementia-specific knowledge and practice skills that will help enhance other "PCC" initiatives such as Hospital Elder Life Programs in the acute care sector.^{57,59,71} It is important to note here that although many of the staff involved in the intervention concomitantly held knowledge and skill with respect to delirium assessment and prevention, they did not have high reports of SE for dementia-specific knowledge and skill prior to the intervention.

The qualitative findings of the current investigation were similar to those of other studies with staff who have participated in a formal or systematized dementia care education program. Participants provided many examples that revealed increased competence and effectiveness in their practice. On the other hand, staff who had not yet received such training, regardless of the health care sector within which they deliver care, expressed concerns because they were uncertain how to proceed when they witnessed NDB, did not understand that

NDB could be interpreted as a reaction to environmental, physical, or emotional stressors, were not confident in their ability to treat or prevent NDB, and were worried and unclear about what constitutes best practice behavioral interventions.^{38,40,53} Data from the wait-listed group confirmed that they felt underprepared to interact with older patients with dementia-related NDB and that it was important that they receive such education in the future.

Limitations

Some limitations must be considered with respect to this study design and implementation. It was not possible to randomize study participants into intervention and wait-listed groups as would be ideal in a randomized controlled trial. As a consequence of the nonrandomized design, and as mentioned in the description of the data analysis, the intervention and wait-listed groups differed significantly on several demographic variables. We controlled for these differences by including demographic variables as covariates in the group comparisons, but it is of course possible that there were additional confounding variables that we did not measure. The study was funded by a large internal grant, and there was an expectation that the intervention be disseminated as broadly as possible throughout clinical areas in the organization. To provide meaningful data, it was decided to proceed using a quasi-experimental design, with a sister site serving as the comparison, the staff of which was wait-listed to receive the intervention at a later date. During the intervention period, a priority strategic plan was initiated that involved relocation of all adult patients from a third hospital site (site C) to site A (intervention site). Subsequent to the relocation, some staff members were reassigned and thus lost to follow-up. In addition, because the bulk of study funding was directed to backfill expenses for a large number of staff to achieve extensive dissemination of the GPA program, the available budget restricted quantitative data collection to the SE measure and to staff outcomes and limited the sustainability period to 8 weeks postintervention. An upscaled study should include measurement and analysis of staff knowledge, emotional burden, and work safety variables as well as include direct patient outcomes such as length of stay (LOS), behavioral incidents, chemical and physical restraint application, and patient/family experience. Site-wide data specific to LOS, behavioral incidents, and application of physical restraints were available for the time frame of this study and demonstrated an overall trend toward reduction in each of these variables postintervention, but the team did not interpret these findings to be attributable to the GPA intervention alone. Thus, future evaluation in this area should include budgetary alignments that would allow the assurance of research quality data. The follow-up period to determine sustainability should include measures taken at 6 months and 1 year postintervention. The findings of this study cannot be generalized to other acute care settings, for example, acute care hospitals operating in rural and remote settings or nonteaching hospitals. Future

research should include upscaling the GPA intervention to other acute care sites.

Implications for Practice

Although the implementation of GPA is important for building staff capacity to deliver person-centered dementia care in acute care settings, sustainability initiatives that will reinforce best practice over time should also be considered. Sustainability was addressed by the organization through the implementation of 4 key strategies: (1) delivering the GPA program or an information session about GPA to all clinical managers, (2) broader dissemination of the GPA intervention across both acute care sites, sites A and B, (3) inclusion of GPA in the new employee orientation program at both sites, and (4) inclusion of a 2-hour GPA refresher in the mandatory annual skills review for professional staff who had previously completed the 1 day GPA workshop at the main geriatric care site of the organization, a complex care facility not involved in this study.⁷¹

Implications for Policy

Awareness is growing within the long-term care home sector that formal education about dementia care is necessary for both professional and nonprofessional caregiving staff.^{20,63,69,70} Regional and national governments in several countries have supported good quality research to increase the understanding about the best ways to prepare the workforce to care for older adults with dementia living in the long-term care home sector.⁴² This same awareness, and funding support, is required within the acute care sector. Although “senior-friendly hospital” models are now being implemented and evaluated in acute care settings, and addressing dementia and NDB are identified as important components, these initiatives have focused on the diagnosis and treatment of delirium, prevention of functional decline, and suitability of the environment.^{47,48} Some acute care hospitals in Canada have taken up the call to build organizations that enhance the patient experience.⁴⁶ This particular quality improvement initiative, although very important, does not include specific educational initiatives to enhance delivery of person-centered dementia care. It is imperative that acute care hospitals appeal to local and national governments to influence policy so that infrastructure, including both financial and human workforce educational resources, are in place to meet the increasing demand for care of older people with dementia that take into account interventions to prevent and treat NDB. In Canada, this would mean collaborative program planning initiatives that include dementia education such as GPA across all provinces and territories.

Implications for Further Research

This study was funded by an internal grant awarded through a competition requesting projects designed to translate knowledge into practice to improve care and enhance the patient experience. The majority of funding was allocated to backfill

staff who were released from regular duties to complete the GPA program on paid time. To conduct research for spread/broad dissemination and to include evaluation of patient outcomes, the issue of costs associated with staff replacement will need to be addressed. Future research will explore the impact of transferring the GPA program to an online or hybrid platform that potentially could reduce staff replacement costs. The main outcome measure for this study was SE; although previous studies have shown that high SE has a moderating effect on dementia caregivers' distress related to NDB,⁶⁰ it is important to understand this complex phenomenon through multiple lenses. Given reports in the literature that dementia care entails significant emotional labor, moral distress, and burden, inclusion of such measures in future research would be fruitful. It is also recommended that future research projects evaluating the impact of GPA in acute care settings include standardized, research quality measures designed to capture impact on occurrence of NDB and administration of physical and chemical restraints. The qualitative components of this study were based on data collected from open-ended questions and focus groups. In future, an ethnographic study that includes observational data on daily practice would be helpful to determine more thoroughly the impact of GPA implementation on relational, PCC delivery.

Conclusion

Care providers who are employed in acute hospital settings are facing a growing number of older patients with dementia who are admitted for diagnosis and treatment of serious illnesses. These care providers are often unprepared to work with this population of patients and thus are at risk for work-related stress and burden. A dementia-specific EI, GPA, was successful in introducing specialized training for multidisciplinary staff employed in an acute care hospital in Ontario, Canada. This study determined that GPA addressed the concerns expressed by staff and provided the needed knowledge and skills to manage NDB with more dignity and compassion and in a person-centered fashion that supports the organization's obligation to provide an excellent patient experience for the community they serve.

Authors' Note

This project was reviewed by 2 ethics review boards who granted ethics certificates as follows: Hamilton Integrated Research Ethics Board #10-307; Ryerson University Research Ethics Board #2011-069. LSM is a research and evaluation coordinator for this study including design, measures, data entry and analysis, writing sections of the funding proposal, supervision of graduate student conducting focus groups and thematic content analysis, facilitator of qualitative data team consensus discussions, conceptualization, and lead writer of the manuscript. LG is a lead coordinator for the research project, organizational administrative lead for intervention implementation plan, data analysis, review, and additions to the manuscript. EC is a collaborative lead for the full funding proposal, interventionist, data analysis, conceptualization, and writing of the manuscript. AP is a contributor to the funding proposal, lead interventionist, supervisor

and mentor for all interventionists and staff coaches, quantitative data collection, data analysis, conceptualization, review, and additions to the manuscript. MM is an interventionist, collaborative lead for quality assurance and standardization of intervention, data analysis, conceptualization, review, and additions to the manuscript. GS contributes to data collection, qualitative data analysis, review, and additions to the manuscript. VM contributes to quantitative data analysis, review, and revisions to the manuscript.

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