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## Providing Personalized Interest-Based Activities to Prevent Delirium: A Multicomponent Quality Improvement Initiative in an Acute Care Setting

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# Providing Personalized Interest-Based Activities to Prevent Delirium: A Multicomponent Quality Improvement Initiative in an Acute Care Setting

## Abstract

*Background:* Hospital-induced delirium is a prevalent condition across inpatient settings, frequently impacting older adults' recovery. A 10-week multi-component quality improvement (QI) project was designed for an existing delirium prevention program in four acute care units, aiming to support patient and caregiver engagement in delirium prevention activities.

*Method:* The participants were hospitalized adults who were 70 years of age and older and met specific inclusion criteria. The project provided personalized interest-based activities, orientation stimulation, and caregiver education. An abbreviated version of the Modified Interest Checklist was used to identify the participants' activity choices. Activity daily logs, satisfaction survey, and delirium and fall incidence were collected to measure project participation and outcomes.

*Results:* Thirty-two older adults participated in the QI project (mean age = 79.63 years). The most frequently selected interest-based activities were cognitive stimulation activities, such as word searches, and reading activities related to instrumental activities of daily living. Among 25 satisfaction surveys completed, 24 (96%) participants reported feeling "very supported" by the project. Only two QI participants developed delirium, and none of them had a fall during the hospital stay.

*Conclusion:* This QI project showed high participant use and satisfaction with promising low rates of delirium incidence and falls indicating further investigation.

## Keywords

delirium, prevention, geriatrics, hospital

## Cover Page Footnote

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## Credentials Display

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Delirium is defined as an acute alteration of mental status that results in the disturbance of attention, awareness, and cognitive functions (European Delirium Association & American Delirium Society, 2014). Hospital-induced delirium is prevalent in health care settings, especially among older adults, yet it is often under-detected (Inouye et al., 2014). Researchers reported 23% of delirium incidences across all clinical settings, and up to 50% of older adult patients in the hospital could be affected by delirium (Gibb et al., 2020; Inouye et al., 2014; Watt et al., 2019). Multiple studies found that delirium is associated with long-term cognitive impairment, increased potential risk for dementia (Vasunilashorn et al., 2018), and reduced occupational performance. Persons with hospital-related delirium are also at a greater risk for extended hospital stays, lower community discharge rates, and readmissions (LaHue et al., 2019; Rosgen et al., 2020). In addition, an increased cost, estimated to be around \$32.9 billion per year, is associated with postoperative delirium (Gou et al., 2021; Hshieh et al., 2018). Given the impact delirium has on patients' future function and health care costs, identifying and mitigating risk factors for hospital-induced delirium is critical.

### **Delirium Prevention**

Hospital-developed delirium is associated with advanced age, past medical history, and hospital stay experience (Inouye et al., 2014; Wilson et al., 2020). Previous literature has shown the effectiveness of multicomponent approaches (i.e., a combination of two or more approaches) in augmenting patients' hospitalization experience and preventing delirium (Burton et al., 2021; Hshieh et al., 2015). Commonly reported strategies in multicomponent approaches are cognitive stimulation training, early mobilization, activities of daily living (ADLs) training, and caregiver and staff education (Cuevas-Lara et al., 2019; Herling et al., 2018; Mitchell et al., 2017). Emerging interventions to prevent delirium include mindfulness, sleep promotion strategies, playing music, and the use of an intensive care unit diary (Gode et al., 2021; Khan et al., 2020; Lisann-Goldman et al., 2019; Sayde et al., 2020). Overall, evidence has suggested greater effectiveness of multicomponent approaches to prevent delirium compared to using a single approach.

In addition to using multicomponent interventions, the personalization of these interventions is another key component in delirium prevention. Person-centered care (PCC), a concept similar to client-centered care, recognizes the individual differences of each patient and emphasizes providing personalized health care services (Kim & Park, 2017). A systematic review by Kim and Park (2017) showed that PCC-guided activities significantly reduced dementia symptoms, including dementia-induced delirium and depression in long-term care and home-care settings. Furthermore, engaging in personalized activities can increase cognitive stimulation through the patients' voluntary participation (Hshieh et al., 2015; Kolanowski, 2016).

Given that occupational therapy (OT) has a long history of advocating for client-centered services for populations across all ages, several occupational-therapist-led studies have reported applying personalized interventions in delirium prevention. These studies employed assessments to understand the individual's values and to elicit personal preferences in activities (Goonan et al., 2019; Pozzi et al., 2020). Specific assessments that have been used include the Modified Interest Checklist, the Canadian Occupational Performance Measure, and an adapted version of the Pleasant Event Schedule (PES). Using the assessment findings, researchers developed interventions in acute, subacute, and long-term care settings to manage delirium (Abizanda et al., 2011; Goonan et al., 2019; Pozzi et al., 2020). Intervention components included cognitive stimulation, ADL training, hobby-based activities, and family education (Abizanda et al., 2011; Goonan et al., 2019; Pozzi et al., 2020). However, there is limited high-level

evidence of OT practice in delirium prevention, which requires further investigation (Cuevas-Lara et al., 2019).

### **Hospital Elder Life Program**

The Hospital Elder Life Program (HELP) is an evidence-based approach used around the globe to prevent delirium (Hshieh et al., 2018; Inouye et al., 2014). It is a volunteer program that provides daily assistance and cognitive stimulation to prevent delirium. HELP has been shown to decrease delirium incidence, falls, and length of hospital stays in the geriatric population (Hshieh et al., 2018). The HELP intervention protocol addresses the common risk factors for developing delirium among the geriatric population in the hospital using “daily visits, orientation, therapeutic activities, sleep enhancement, early mobilization, vision and hearing adaptation, fluid repletion, and feeding assistance” (Hshieh et al., 2018, p. 1017).

In 2016, HELP implementation began at an acute care hospital in an urban mid-Atlantic city. Specifically, the program was offered in four acute care units that largely comprised patients 70 years of age and older. Two of these units were progressive care and step-down units, one was a post-surgical unit, and the other was a telemetry unit. In these four units, patients’ main diagnoses included major surgeries, infections, strokes, and cardiopulmonary distress, all of which increased their risk for delirium (Inouye et al., 2014; Wilson et al., 2020). Most of the HELP volunteers at the project site were undergraduate pre-medical students with limited experience working with the geriatric population in an acute care setting. These volunteers are trained and then make daily visits to patients to provide another layer of care following the HELP protocol. For example, to stimulate the individual’s mind, the volunteers offer patients activities, such as newspapers and verbal conversation for orientation (e.g., talk about today’s current events). The volunteers also ensure that patients with sensory functional impairments have access to their visual or hearing devices, such as amplifiers and magnifiers, as needed to decrease the risk for delirium (Inouye et al., 2014). While HELP volunteers provide services that may overlap with nursing assistants, they do not provide any medical care or therapy-based treatment. At this site, they do not mobilize patients. Volunteers provide HELP services 7 days a week, and patients are typically visited three times a day.

### **Quality Improvement Project Background**

An OT doctoral student (first author) completed a needs assessment to determine how OT principles could be leveraged to support the work of HELP. Therefore, the role of the OT doctoral student was as a consultant. Through this process, it was determined that one of the key challenges noted by the HELP program director (fourth author) was that the activities provided to the patients may not match the persons’ interests, which influenced patients’ engagement in the program. This is consistent with reported barriers in the literature regarding the HELP intervention (Hshieh et al., 2018). To address this specific challenge, we implemented a quality improvement (QI) project that focused on the use of personalized activities to improve patient participation in the program. We expected the QI project components to be carried over by the volunteers under the supervision of HELP administrators if the project was successful.

### **Method**

#### **QI Project Design**

The QI project aimed to identify commonly selected activities, determine patient participation and satisfaction with the activities, and complete initial measurement in outcome areas of interest. The institutional review board of the hospital reviewed and approved the QI project. It was designed as a process evaluation with post-intervention measurement of patient satisfaction with preliminary tracking

of outcome areas of interest, specifically falls and delirium incidence. After verbal consent, the participants completed intake assessments to determine the personalized activities and were visited daily by the OT doctoral student, Monday through Friday. This visit replaced one of the three daily visits that typically occurred as part of HELP.

### **Participants**

The QI participants were a convenience sample of patients admitted to one of the four HELP units and met the criteria for receiving HELP. The inclusion criteria for the HELP program were 70 years of age and older, admitted to a HELP inpatient unit, able to communicate verbally or in writing in English, and the presence of at least one risk factor for delirium. Risk factors for delirium that were assessed included cognitive impairment, such as mild cognitive decline; any impairment in ADLs documented by nursing staff; and vision or hearing impairments. In addition, the ratio of blood urea nitrogen to creatinine being above 18 (BUN/Cr ratio > 18) was considered a risk factor, as it indicates poor kidney function (Smith-Gabai & Holm, 2017). Exclusion criteria were patients diagnosed with delirium at admission; coma; mechanical ventilation; aphasia; imminently terminal condition; and profound cognitive impairment, such as patients with severe dementia or a patient who was unable to orient to the time or place.

The OT doctoral student and the HELP nursing specialist (third author), a doctoral nursing practitioner, completed daily chart reviews on the HELP units to identify eligible QI participants. The OT doctoral student visited the eligible patients for the first time and described the project. After this, the OT doctoral student asked if they were interested in participating and obtained verbal consent.

### **QI Project Components**

Following a 2-week needs assessment and team discussions, we developed a multicomponent QI project that used (a) an abbreviated Modified Interest Checklist, (b) personalized interest-based activities, (c) orientation stimulation cards, and (d) delirium prevention education.

#### ***Abbreviated Modified Interest Checklist***

The Interest Checklist was developed based on the Model of Human Occupation and had good construct validity among the retired elderly population (Klyczek et al., 1997). In an OT-led feasibility study, the researchers incorporated the Modified Interest Checklist into delirium management for patients with dementia (Pozzi et al., 2020). The use of the assessment helped identify patients' interests and develop a structured OT intervention protocol in a nursing home (Pozzi et al., 2020). We selected The Modified Interest Checklist-UK, which was developed based on the original Interest Checklist. This version takes less time to administer and provides a variety of interest options with comic pictures, which is ideal for the elderly in acute care (University of Illinois, 2021). The respondents select either "Like," "OK," "Don't like," or "Want to try" to identify their choices. We shortened the assessment to three pages and only presented activities appropriate for the acute care setting, such as board games, readings, journaling, and mindfulness activities. Activities that were removed included social and outdoor activities, such as eating out and hiking, and athletic activities, such as running. The checklist was used to initiate communication with the QI participants and inform us of their interests to determine which activity materials should be selected. Permission to use this assessment tool in this project was granted by the copyright owner.

#### ***Personalized Interest-Based Activities***

We developed personalized interest-based activities (see Table 1) based on the activity categories of the Modified Interest Checklist and purchased material. The personalized interest-based activities

provided incentives for the participants to engage in cognition stimulation, thus, to enhance delirium prevention outcomes (Hshieh et al., 2015; Kolanowski, 2016).

**Table 1**

*Personalized Interest-based Activities*

<b>Interest-based activity categories</b>	<b>Activities</b>
Cognitive stimulation tasks	Crosswords, word searches, Sudoku
Reminiscence reading	Large print photobooks of 40s', 50s', 60s'
Sports-related	Sports stories readings, news update
Fashion and home-related productive activities	Magazines of home decoration, cooking, gardening, fashion, or food recipes
Spiritual-related	Bible, spiritual related book, or assistance of connecting to priest
Reading	Different genres of books
Daily news updates	Newspaper
Mindfulness	Gratitude journaling, mindfulness/self-awareness activities

**Orientation Stimulation Cards**

Three different orientation stimulation cards were available for the QI participants to select. These cards included an identity card, sleep routine card, or sports reminder card. See Appendix A for the card samples.

**Identity Card.** The identity card provided fill-in-the-blank sentences to guide the participant to discuss their identities, life roles, and interests. In Goonan et al. (2019), researchers created cards that included participants' names and enjoyed occupations as part of the intervention to reduce dementia-related challenging behaviors. Our identity card is modeled after this study to facilitate orientation for delirium prevention.

**Sleep Routine Card.** The sleep routine card indicated the participants' preferred sleep routines and needs for sleep improvement kits (e.g., eye masks). Gode et al. (2021) reported how they created a hospital-structured sleep promotion program using a "patient sleep menu" for sleep promotion strategies among the nursing team to prevent delirium (p. 150). Similarly, our sleep routine card facilitated communication between the participants and health care team for sleep quality enhancement as one of the delirium prevention strategies (Gode et al., 2021).

**Sports Reminder Card.** The sports reminder card provided sports event information on the participants' preferred sports teams and TV channels available to watch the game. This facilitates orientation and leisure activity engagement for cognition stimulation (Cuevas-Lara et al., 2019).

**Delirium Prevention Education**

This component was designed as a brief in-person education session on delirium risk factors that was intended to be delivered to the caregivers of all QI participants. The education was on delirium prevention strategies, including ensuring that the patient had their glasses and/or hearing aids, as well as cognitive stimulation activities such as bringing the participants family photos and engaging the patient in conversations about current family news. Verbal education with written information was identified as a common caregiver education approach for delirium prevention and management in a systematic review conducted by Carbone and Gugliucci (2015). Furthermore, previous work by Mitchell and colleagues (2017) reported that caregivers found implementing these types of strategies acceptable. In addition, we created a 1-page flyer with bullet points about delirium prevention strategies. The format of using print material was reported in the Paulson et al. (2016) study, in which the researchers developed an educational brochure for caregivers on delirium symptoms and prevention strategies for hospitalized patients.



## Data Collection Tools

We used three tools to collect data on both the process and initial outcomes of the project. Process measurement was focused on which activities were selected by patients, reported engagement with those activities, patient satisfaction, and number of caregivers that received in-person delirium prevention education. Outcome measurement was focused on delirium and fall prevention. To gather process data, we used a demographics intake form and a satisfaction survey. The demographics intake form captured demographic information (e.g., sex, race), admission diagnosis, and activity choices. The form was also used to log the activities selected daily and the number of intervention components used during a patient's stay. The second process measure was a brief self-developed satisfaction survey that was completed by the participants. The satisfaction survey (see Appendix B) included questions about the patients' frequency of participation and Likert scale satisfaction questions on the activities provided. The satisfaction scores were collected using a 5-point Likert scale with 1 = *I don't like it at all* to 5 = *I love it*. The survey was created by the OT doctoral student and second author, who is an OT faculty, and was reviewed and revised by the third and fourth authors, the nurse practitioner and director from HELP. The OT doctoral student recorded the number of caregivers who received in-person delirium prevention education. To provide a preliminary look at outcomes, The OT doctoral student recorded the number of delirium incidents and number of falls experienced by the QI participants by accessing electronic medical records and reviewing nursing documentation.

## QI Implementation

The QI team consisted of an OT doctoral student, a local university OT faculty member, the HELP director, and a HELP nurse specialist. The first author, an OT doctoral student at the time, led the day-to-day operation of the QI project with intermittent assistance from the rest of the team. The project was implemented for 10 weeks in 2021, during which time the unit operation, staffing, and visiting policies had been impacted by the COVID-19 pandemic.

After identifying potential participants and obtaining verbal consent as described above, the OT doctoral student introduced the QI project components. The participants then chose to participate in personalized interest-based activities, an orientation stimulation, or both. If the participants selected personalized interest-based activities, the OT doctoral student presented the abbreviated Modified Interest Checklist and worked with the participants to identify their interests and routines. When a participant did not wish to complete the abbreviated Modified Interest Checklist, the OT doctoral student used informal interviewing to determine the participant's interests or discuss other QI project components. For the participants who selected personalized activities, the OT doctoral student delivered the activity material to their rooms and encouraged the participants to engage in the activity in their free time during their hospital stay. When a participant selected orientation stimulation cards, the OT doctoral student reviewed the selected card with the patient and guided the participant to fill out the card independently or with assistance from a caregiver. The participants could select more than one card to complete. The completed orientation card was placed in the participant's room in a visible location. Lastly, the OT doctoral student delivered in-person delirium prevention education with caregivers who were present during visits. Encouragement was also provided to bring the participants' family photos and cards to their rooms, if possible. The in-person education session ranged from 8 to 15 min. The length of the initial visit, including introducing the participant to and participating in QI project components, was equivalent to the length of other HELP visits, which usually last no more than 30 min. If caregivers were not in the participants' room during the visit, the OT doctoral student would leave a brief educational flyer highlighting the QI

project content and delirium prevention strategies. The OT doctoral student would follow up with the caregiver during future visits about the flyer's content when possible.

Once the QI participants began engaging in any QI components described above, the OT doctoral student checked in with the participants once a day, Monday through Friday, and used conversations that focused on their activity engagement in selected project components and reminiscence questions for cognitive stimulation. The reminiscence questions typically were open questions that focused on the participants' hobbies, daily routines, and families, which connected directly to their selected QI components. Similarly, the daily check-in sessions usually lasted no more than 30 min, considering the participants' schedules for medical needs.

### Statistical Analysis

Descriptive analysis was used to describe demographic characteristics of the participants using the Statistical Package for the Social Sciences (SPSS), version 27.0. The frequencies and percentage of activity engagement were also calculated using SPSS.

## Results

### Demographics

Over 10 weeks, 32 patients from the HELP units participated in the QI intervention. One participant continued to receive the QI intervention after week 10 because of their extended hospital stay. The average age was 79.63 years (standard deviation [*SD*] = 5.82 years). The most common diagnoses included genitourinary disease (*n* = 8), digestive disease (*n* = 6), cardiopulmonary disease (*n* = 5), and neoplasm (e.g., cancer; *n* = 5). Among the 32 participants, nine patients received an operation during their hospital stay; two participants had pre-existing cognitive impairments, including Parkinson's disease and early-stage dementia; four had a mental illness, including anxiety and depression; and 25 used visual and/or hearing devices, such as glasses and hearing aids. See Table 2 for detailed demographic characteristics. The average length of stay of the participants was 6.97 days (*SD* = 6.281).

**Table 2**  
*Demographic and Clinical Characteristics*

		Total Sample (N = 33)
<b>Age, mean (<i>SD</i>)</b>		79.63 (5.82)
<b>Gender, n (%)</b>	Female	20 (62.4)
	Male	12 (37.5)
<b>Race, n (%)</b>	Caucasian	32 (100)
<b>Admission Diagnosis, n (%)</b>	Genitourinary disease	8 (25)
	Digestive disease	6 (18.8)
	Cardiopulmonary disease	5 (15.6)
	Neoplasm (e.g., cancer)	5 (15.6)
	Infections	4 (12.5)
	Musculoskeletal disease	2 (6.3)
	Blood forming disease	1 (3.1)
	Leukemia	1 (3.1)
<b>Received Surgery during Hospitalization, n (%)</b>	No	23 (71.9)
	Yes	9 (28.1)
<b>Mental Illness History, n (%)</b>	No mental illness history	28 (87.5)
	Anxiety or depression or both	4 (12.5)
<b>Cognitive Impairments, n (%)</b>	No	30 (93.8)
	Yes	2 (6.3)
<b>Visual and Hearing Aid, n (%)</b>	Hearing aid and/or visual aid	25 (78.1)
	No hearing or visual aid	7 (21.9)
<b>Received Rehab during Hospitalization, n (%)</b>	N	15 (46.9%)
	Y	17 (53.1%)

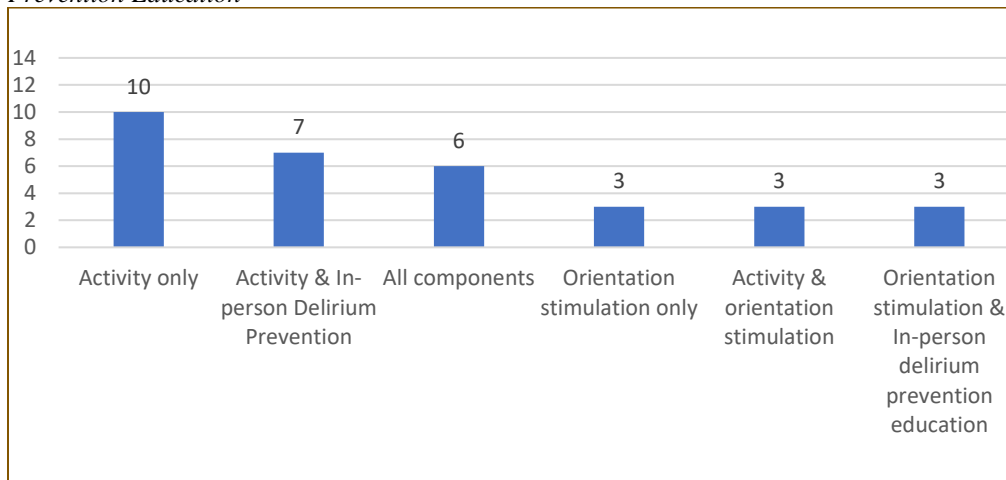


### QI Intervention Implementation

Among the 32 participants, 19 patients received at least two components of the QI intervention. Twenty-six participants engaged in personalized interest-based activities, and 15 participants received orientation stimulation, including cards and family photos in the room. In addition, 16 caregivers received in-person delirium prevention education. See Figure 1 for details. The most selected activities were cognitive stimulation material (n = 12) and reading activities related to instrumental activities of daily living (n = 6). See Table 3 for the personalized interest-based activity choices.

**Figure 1**

*Frequency of Implementation Using Personalized Interest-Based Activities, Orientation Stimulation, and In-Person Delirium Prevention Education*



**Table 3**

*Personalized Interest-Based Activity Participation Frequencies*

	Frequencies, n
Cognitive stimulation tasks	12
Home IADL <sup>1</sup> -related reading	6
Reading books	3
Sports related reading	2
Reminiscence activities	2
News updates	2
Spiritual related activities	1
Others (sports car picture book)	1

*Note:* Several participants engaged in more than one personalized interest-based activity. <sup>1</sup>IADL = Instrumental activities of daily living.

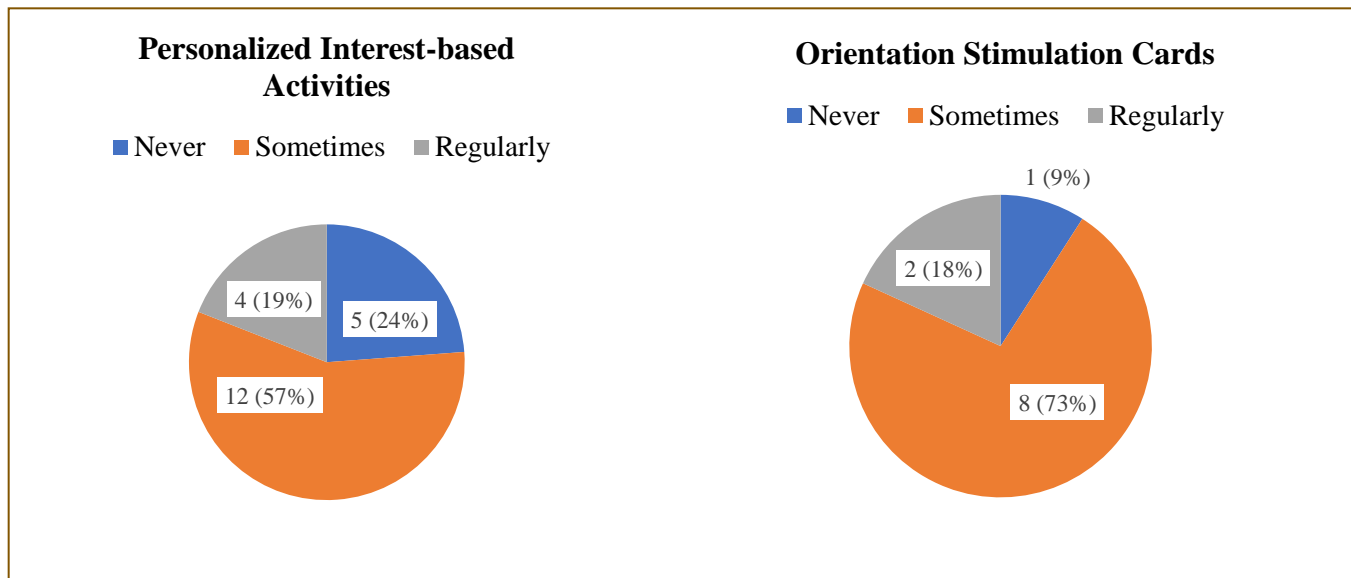
### Post-Implementation Participant Satisfaction Survey

**Satisfaction.** Seventy-eight percent of the participants (n = 25) completed the satisfaction survey. Ninety-six percent of the surveyed participants (n = 24) reported feeling “very supported” by the QI implementation of HELP. When asked to rate their satisfaction with daily in-person check-ins, 68.0% of the surveyed participants (n = 17) gave a 5 out of 5 rating, and 20.0% of the surveyed participants (n = 5) gave scores of 4. The two components of the intervention most enjoyed by the participants were the daily in-person check-ins (n = 18) and the personalized interest-based activities (n = 5).

**Self-reported QI Component Frequency of Use.** The participants who completed the survey about the personalized interest-based activities (n = 21) reported 76.2% (n = 16) using the activities sometimes or regularly, and 23.8% (n = 5) “never” using them. Similarly, of the 11 participants who

completed the survey and had selected orientation stimulation cards, 90.9% (n = 10) reported either regularly or sometimes using the cards. See Figure 2 for reported frequency of use.

**Figure 2**  
*Self-Reported QI Project Components Frequency of Use*



**Satisfaction with QI Project Components.** Among 21 surveyed participants who rated the personalized interest-based activities on a 5-point Likert scale, 81.0% (n = 17) rated a 5 or 4 regarding the personalized interest-based activities received. Eleven participants who had cards placed in their rooms completed the survey: 91% (n = 10) rated 5-point or 4-point for the orientation stimulation cards. See Table 4 for details.

**Table 4**  
*Patient Satisfaction with QI Program Components*

Component	1	2	3	4	5
	Don't like				Love it
	n (%)	n (%)	n (%)	n (%)	n (%)
Personalized Interest-based activities n = 21	0 (0)	1 (4.7)	3 (14.3)	3 (14.3)	14 (66.7)
Daily check-ins* n = 25	0 (0)	1 (4.0)	2 (8.0)	5 (20.0)	17 (68.0)
Orientation stimulation cards n = 11	0 (0)	0 (0)	1 (9.0)	5 (45.5)	5 (45.5)

\*This component was also provided in the standard HELP protocol, but content was now focused toward personalized interest-based activities.

### **Delirium Incidents and Falls**

None of the patients who received the QI intervention had a documented fall during their hospitalization. Two of the 32 patients (6.25%) who received the QI intervention developed delirium. Neither participant required 24/7 supervision, physical, or medicinal restraints while experiencing delirium.

### **Sustainability and Adoption**

Throughout project development, we considered the sustainability of the components being implemented, as the role of the OT doctoral student in this project was as a consultant. For example, tools

and activities were selected intentionally to allow HELP volunteers to implement the components if the project found them to be feasible. An example of this is our selection of the abbreviated Modified Interest Checklist, which can be administered by someone who is not an occupational therapist (Y. Alve, personal communication, Dec 13, 2022). While considerations were made throughout the QI project development, it was recognized after the implementation that additional efforts were needed to ensure the project's sustainability. To address varying knowledge of the volunteers and to ensure consistency in delivery, additional education on delirium management and project components, like the abbreviated Modified Interest Checklist and selection of personalized activities, was necessary. In the Hshieh et al. (2018) systematic review of HELP's effectiveness, training volunteers is an essential part of promoting adherence and sustainability of the fundamental HELP intervention. Therefore, the QI team completed the following to support sustainability: (a) an educational session on delirium and common characteristics seen in caring for the geriatric population; (b) an activity resource book with detailed directions, reminiscence exemplary questions for cognitive stimulation conversation, and resource links; and (c) opportunities for several volunteers to shadow the first author during patient communication sessions. Since the completion of the QI project, this site is working on integrating the personalized interest-based activities and orientation stimulation components into standard HELP volunteer training. The delirium prevention education for caregivers has not been adopted because of limited staffing to follow through with this component.

### **Discussion**

An evidence-based, multicomponent, delirium prevention QI project designed by an OT doctoral student consultant was implemented with 32 patients and 16 caregivers who received in-person delirium prevention education across 10 weeks. Based on the patient satisfaction survey results, most of the participants used the QI components, the abbreviated Modified Interest Checklist, personalized interest-based activities, and orientation stimulation during their stay and reported them as a positive part of their hospital experience. Sustainability efforts were implemented in the selection of QI components as well as the creation of training and resource materials. As a result, two of the key QI project components, personalized interest-based activities and orientation stimulation cards, were adopted into the HELP intervention protocol at the site. In addition, the occurrence of falls and delirium episodes during the QI project's implementation was low.

There have been several studies on HELP, HELP QI projects, or modified HELP applications across varied clinical settings in the last two decades (Hshieh et al., 2018). These studies have typically focused on investigating the program's effects on clinical outcomes (re-admission rate, infection rate, etc.) or reporting project implementation in different clinical settings or cultural contexts (Hshieh et al., 2018). To the best of the authors' knowledge, this was the first report that integrated personalized interest-based activities into this well-established delirium prevention approach. It was also the first project to explore HELP participants' self-reported participation.

The findings of this QI project confirmed the value of personalized interest-based activities in delirium prevention, as seen in previous work (Goonan et al., 2019; Pozzi et al., 2020). Our project extends this work by using two QI project components, personalized interest-based assessment and activities, in the acute care setting and as a means to prevent delirium rather than to manage a patient who was already experiencing delirium. In addition, our QI project expanded the populations of delivery beyond persons with dementia to older adults with a variety of diagnoses. These findings also reflect a cornerstone of OT in the use of client-centered practice to support healing through engagement in meaningful activities (American Occupational Therapy Association, 2020). By integrating the abbreviated Modified Interest

Checklist or intentional conversation to identify and describe patients' interests and routines, client-centered practice was infused into HELP in a way that was accessible to volunteers.

In addition to the identification and use of personalized interest-based activities, orientation stimulation was the second part of our multicomponent strategy. Similar to the findings of Burton and colleagues (2021), a systematic review and meta-analysis regarding re-orientation and cognitive stimulation as a successful way to prevent delirium, our project included cards to provide orientation information that was valued by the patient. Visual external aids for memory are noted as a strategy that has been found to be more commonly used by older adults, which we applied in our orientation stimulation (Pizzonia & Suhr, 2022). The patients reported overall satisfaction, and use of the cards suggests there is value to external cues provided in the room to support orientation and productive sleep habits and routines; however, more evidence to determine the effectiveness of this specific method of orientation stimulation is needed.

The final component of our QI project was delirium prevention education for caregivers. While this component was designed to be delivered in person, only half of the QI participants had caregivers available to complete the training during the HELP QI visits. This reflects similar challenges to those seen in Mitchell and colleagues' (2017) delirium prevention program that was designed to be delivered by caregivers but found that caregiver visits were infrequent, leading to difficulties in recruiting and implementing the delirium prevention protocol. It is also of note that this component was not adopted because of limited staffing available to complete in-person delirium prevention education by HELP volunteers. Given the challenges around providing in-person delirium prevention education to caregivers, further research to determine the most effective training mode and frequency of delirium prevention education is needed.

### **Limitations**

Despite the novelty of the integration of these components into HELP, there are limitations to consider. The QI project was implemented over a short duration of only 10 weeks; we did not include or examine the impact of external demographic, environmental, or situational factors when surveying the participants' satisfaction and participation. The demographic information accessed through the electronic health record, such as age, gender, and diagnoses, was limited. This decreases our assessment of the impacts of personal factors on participation, such as individuals' disease acuity and literacy level. Other limitations include a small sample of participants ( $N = 32$ ) and a single site. These factors may reduce generalizability to other settings. Finally, because of the lack of access to data at the HELP program level, we were unable to make statistical comparisons between the HELP participants who did not receive the QI project and those who did. Although our QI project showed a relatively low number of delirium incidents ( $n = 2$ ) and no reported falls, further study with a comparison group is needed.

### **Occupational Therapy Implications and Future Research**

There is an emerging discussion that advocates for the inclusion of occupational therapists on delirium prevention teams in critical care and acute care settings (Lee et al., 2020; Tobar et al., 2017). Specifically, occupational therapists can play a valuable role in delirium prevention through consultation, education, and direct daily intervention. Our QI project demonstrates how, through consultation, an indirect service (AOTA, 2020), an OT cornerstone of client-centered practice combined with evidence-based strategies, can foster the use of delirium prevention strategies and patient satisfaction. In addition, the sustainability resources and training demonstrate how occupational therapists can develop and advocate for the inclusion of evidence-based practices into the broader plan of care. Occupational

therapists can also consider how to integrate delirium prevention into their direct service. Several of the QI components could be readily integrated into the delivery of individual OT services if a client is at risk for delirium. For example, the use of a tool like the Modified Interest Checklist can provide occupational therapists a means to identify activities that would be supportive of engagement outside of therapy that could prevent delirium, as well as foster client-centered intervention. There are other tools that occupational therapists could consider including in their practice to gain this information. For example, the Activity Card Sort (Baum & Edwards, 2011) or the AOTA-developed occupational profile template (AOTA, 2020). Selection of the best tool to identify activities of interest will depend on multiple factors, including setting and population of use (Kramer & Grampurohit, 2020). The integration of delirium prevention strategies by occupational therapists can be especially useful if a delirium prevention program like HELP is not available.

While this QI project demonstrated that the personalized interest-based activities and orientation stimulation cards were reported as used by most of the participants with high satisfaction, further research to determine the impact of these practices on delirium incidence and falls is needed to determine the efficacy of these changes in comparison to the standard HELP delivery. Furthermore, to promote OT's expanding practice, future research could focus on studying how occupational therapists are currently integrating the prevention of delirium into their acute care practice. This type of descriptive work will enrich the discussion around how to support occupational therapists interested in leading and implementing QI initiatives or providing consultation for delirium prevention and management.

## Conclusion

The QI project components that were adopted by HELP in this acute care hospital were used by most of the patients and received high satisfaction ratings. This QI project demonstrated how acute care units can consult with occupational therapists for the development of their delirium prevention efforts, especially around the use of client-centered methods. In addition, personalized interest-based activities determined that assessment, orientation stimulation via cards, and delirium prevention education for caregivers should be considered for integration in individual occupational therapy intervention in the acute care setting. Further research into the effectiveness of the QI components on delirium rate and falls over a longer time is warranted.

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**Appendix A**  
**Sample Cards**

**Identity Card**

Hi, My name is \_\_\_\_\_, I preferred to be called \_\_\_\_\_. I am a wife, a friend, a \_\_\_\_\_. I like reading, \_\_\_\_\_

**Sleep: I sleep at home from \_\_\_\_\_ to \_\_\_\_\_**

- Ear plug
- Eye mask
- Relax imagery
- I would like the light to be turn off from \_\_\_\_\_ to \_\_\_\_\_
- I would like my door close from \_\_\_\_\_ to \_\_\_\_\_

**Game Update**

Date:

VS

Location for the game:

TV channel

**Appendix B**  
**Sample Satisfaction Survey**

**How would you describe the overall HELP service in supporting your hospital stay? (CIRCLE ONE)**

- I felt very supported
- I felt somewhat supported
- I didn't feel supported

**On a scale of 1–5, how much did you like the interest-based activities provided by HELP, such as the mindfulness activities, photobooks, game updates?**

1	2	3	4	5
I don't like it at all	I neither like or dislike it			I love it

**How often did you use the interest-based activities provided by HELP during your hospitalization, such as the mindfulness activities, photobooks, journals? (CIRCLE ONE)**

Never (I did not notice/I have not used it)

Sometimes (I used it a few times during my hospital stay)

Regularly (I used it every day)

**On a scale of 1–5, how much did you like the daily check-in provided by HELP, including phone calls from the HELP office and face-to-face conversation?**

1	2	3	4	5
I don't like it at all	I neither like or dislike it			I love it

**On a scale of 1–5, how much did you like the signs or cards placed in your room by HELP staff, such as sleep schedule, identity card, game updates, and family photos?**

1	2	3	4	5
I don't like it at all	I neither like or dislike it			I love it

**How often did you look at those signs/cards in your room? (CIRCLE ONE)**

Never (I did not notice/I have not looked at it)

Sometimes (I look at it a few times during my hospital stay)

Regularly (I look at it every day)

**What did you enjoy MOST from HELP? (CIRCLE ONE)**

Daily in-person check-in

Phone conversation with HELP volunteers

Interest-based activities (scrapbooks, mindfulness activities, news updates, etc.)

Sleep schedules

Identity card

Game updates

Family photos and cards

Hearing or vision assistance (amplifier or magnifier)

Assistance of moving around

Other: \_\_\_\_\_

**Do you have any suggestions or concerns about HELP?**