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Feasibility and Utility of Online Dementia Care Training for Hospital Staff:

The CARES[®] Dementia-Friendly Hospital[™] Program

Mr. John V. Hobday, MEd [Chief Executive Officer],
HealthCare Interactive, Inc

Dr. Joseph E. Gaugler, PhD [Long-Term Care Professor in Nursing], and
Center on Aging, University of Minnesota, Minneapolis, Minnesota

Dr. Mary S. Mittelman, DrPH [Research Professor]
Department of Psychiatry, NYU School of Medicine, New York, New York

Abstract

The current project tested the feasibility and utility of the CARES[®] Dementia-Friendly Hospital[™] (CDFH) program, a 4-module, online training program for nursing assistants (NAs) and allied hospital workers (AHWs) who provide care to individuals with dementia. A single group pretest/posttest design was used for 25 hospital NAs/AHWs, and quantitative and qualitative data were collected to determine whether NAs'/AHWs' knowledge of hospital-based dementia care significantly increased, and if CDFH was perceived as useful and acceptable. Dementia care knowledge increased significantly ($p < 0.001$). Open- and closed-ended data suggested that the delivery of online training to NAs/AHWs to enhance dementia care is feasible, useful, and efficient. Ongoing gaps in care exist for individuals with dementia in hospitals, and delivering robust training for NAs/AHWs may serve as an effective modality to enhance quality of dementia care in such settings.

Hospitalization often places older adults at risk for many complications (Thornlow, Oddone, & Anderson, 2014), and these challenges are magnified for those with Alzheimer's disease or related dementias. Difficulties associated with providing appropriate care for hospitalized patients with dementia are increasing in prevalence. Medicare beneficiaries with dementia have twice as many hospital stays and 2.5 times greater average per-person hospital costs than those without dementia (Alzheimer's Association, 2016). Family caregivers of individuals with dementia have indicated concerns related to hospital stays for their relatives, including a lack of appropriate nursing care, crisis events, declines in the functional status of their relatives, and a lack of effective communication with hospital staff (herein this article collectively referred to as nursing assistants [NAs] and allied hospital workers [AHWs]) (Simpson, 2016). Existing evidence strongly suggests that the presence of dementia is a complicating factor that triggers hospital stays that are avoidable and results in increasing health care use and costs after admission.

NAs and AHWs voice considerable frustration about caring for individuals with dementia (Hynninen, Saarnio, & Isola, 2015; Marx et al., 2014), and have indicated a need for more information and skills related to actual care situations, behavioral management, safety of individuals with dementia, activities with individuals with cognitive impairment, and coping skills. They have also indicated feeling disrespected by families of individuals with dementia (Marx et al., 2014). A recent meta-synthesis of qualitative research identified over-arching themes related to NAs'/AHWs' challenges when caring for hospitalized individuals with dementia: *Overcoming Uncertainty When Delivering Care, Inequality in the Quality of Care Provided to Individuals With Dementia, Recognizing the Benefits of Person-Centered Care but Not Being Able to Deliver it Due to Constraints of the Environmental and Wider Organizational Context*, and *Need for Training* (Turner, Eccles, Elvish, Simpson, & Keady, 2015). Additional findings emphasize gaps in knowledge among NAs/AHWs pertaining to dementia care, particularly issues related to communication with and responding to behaviors of individuals with dementia (Clissett, Porock, Harwood, & Gladman, 2013; Gaugler & Wocken, 2014; Turner, Eccles, Keady, Simpson, & Elvish, 2016; Turner et al., 2015).

To help improve hospital-based dementia care, several educational programs and approaches (often provided over the course of several days) have attempted to enhance NAs'/AHWs' training (Bray et al., 2015; Elvish et al., 2016; Galvin et al., 2010; Gillies, Coker, Montemuro, & Pizzacalla, 2015; Luxford et al., 2015; Palmer et al., 2014; Surr, Smith, Crossland, & Robins, 2016; Teodorczuk, Mukaetova-Ladinska, Corbett, & Welfare, 2014). However, dissemination of evidence-based training has been limited due to the necessity of costly in-person delivery. Some training approaches are developed for specific staff and not all acute care personnel. Dissemination of training materials in a format that is interesting and engaging to NAs/AHWs, affordable, and geographically portable is also an ongoing challenge. To be effective, such training approaches should be accessible to NAs/AHWs in a fast-paced, technologically advanced acute care setting where invasive, complex procedures are performed.

No evidence-based, online, interactive dementia care training programs targeting NAs'/AHWs in acute care settings exist. To fill this gap, the current project developed and tested the feasibility and utility of the CARES[®] (C = Connect with the person, A = Assess behavior, R = Respond appropriately, E = Evaluate what works, S = Share with others) Dementia-Friendly Hospital[™] (CDFH) Program, a 4-module, online training program that focuses on the individual care provider and is applicable to any NA/AHW. Relying on evidence-based content (Galvin et al., 2010; Mittelman, Epstein, & Pierzchala, 2003; Silverstein & Maslow, 2006), CDFH provides information and care skills for hospitalized patients with dementia. Specifically, Dementia-Friendly Hospital[™] has an evidence base published in the literature (Galvin et al., 2010) and has been in existence for >6 years. This curriculum was augmented by content from the two books noted previously (Mittelman et al., 2003; Silverstein & Maslow, 2006), but in the interactive format and style of CARES[®] training with its compassionate and person-centered approach to care in nursing homes. CDFH has a unique focus on NAs/AHWs and delivers training in a format that was designed to be easily accessible. The content is directed toward the care of a growing and difficult-to-treat hospital population: individuals with dementia. The objectives of the current study were

to (a) determine whether dementia care knowledge significantly increases following completion of CDFH, and (b) examine NAs'/AHWs' perceptions of utility and satisfaction with CDFH.

METHOD

Study Design

The current study received approval from the New York University School of Medicine Institutional Review Board (IRB). A convenience sample of NAs/AHWs was recruited, and a single group pretest/posttest design was used. Participants were recruited by personal contact and study flyer notifications made to hospital administrators and staff education personnel. The strategy for recruiting participants was a two-step process: a hospital site champion was initially identified and disseminated IRB-approved flyers in break rooms or other locations routinely visited by staff members. The flyer gave clear directions on how hospital staff members could engage with the study (e.g., online informed consent, online pretest, access to the prototype online training). Hospital-based contacts of the project team were leveraged to identify those who could promote the study and identify potential participants in their settings. It was in this manner that participants took part in the study from five regionally diverse states: Arizona, California, Illinois, Minnesota, and Wisconsin. Inclusion criteria were employment in a hospital setting at least 50% of the time and employment in the capacity of a NA or AHW. A total of 25 participants completed all project assessments and CDFH training. The 25 NAs/AHWs who completed the study were primarily from rural Midwestern hospitals: 17 were from Minnesota (four rural hospitals and one metropolitan hospital), four were from Wisconsin (two rural hospitals and one metropolitan hospital), and four were from Arizona, California, and Illinois (all metropolitan hospitals). Participants completed a pre- and posttest measure of knowledge related to providing care to hospitalized individuals with dementia; at posttest, an additional open-ended questionnaire about technical issues and reaction to the prototype, as well as nine closed-ended items to determine degree of participant satisfaction with CDFH, were administered.

The CARES Dementia-Friendly Hospital Program

Learning Principles—The development of CDFH was based on interactive design principles (Merkt, Weigand, Heier, & Schwan, 2011; Zhang, Zhou, Briggs, & Nunamaker, 2006). Approaches derived from these principles included content presentation in a variety of educational and interactive media approaches to engage learners throughout the program. Individual content presentation styles included audio-narrated text, graphics, video interview, video scenarios, interactive text-entry, and case study “What would you do?” scenarios asking learners to synthesize knowledge learned in real case scenarios. Audio-narrated text, in particular, is used to address NAs/AHWs at the appropriate literacy level. These novel approaches integrate real, unscripted video footage of interactions between real patients with dementia, their families, and caregivers, as well as video interviews with real staff members and dementia experts. Instructional design, development, and evaluation of the modules followed the ADDIE methodology: Analysis, Design, Development, Implementation, and Evaluation (Forest, 2014).

Method—Investigators collaborated with the Alzheimer’s Association and a group of 13 national expert consultants to create, review, and revise content for four prototype online CDFH modules (i.e., Introduction to Dementia-Friendly Care, Communicating With Patients, Dementia-Related Behavior, and Wandering and Falls). Consultants also provided realistic scenarios for inclusion in the modules and reviewed the content in storyboard form. After programming was completed, the team reviewed the online training and submitted written feedback. This feedback also informed decisions about revising the CDFH prototype. Development of each module was also informed by the evidence-based content (Galvin et al., 2010; Mittelman et al., 2003; Silverstein & Maslow, 2006).

All content was developed at a 6th- to 8th-grade reading level. Research-based characteristics of effective adult learning mechanisms and principles (Davis et al., 2009; Wingfield & Black, 2005) were also incorporated throughout the modules, including multiple examples to explain key points; material relevant to NAs’/AHWs’ work-related responsibilities; asking NAs/AHWs to engage with and actively use the information presented; and additional practice opportunities with note-taking devices, worksheets, and opportunities for reflective response. Table A (available in the online version of this article) details the module content and length, and Figure A (available in the online version of this article) depicts the various modules. CDFH was completed on NAs’/AHWs’ own computers, tablets, or smartphones and at their own pace. CDFH is delivered via an online website.

Data Collection

Demographic/Background Data—Table 1 provides sample demographic and professional background characteristics.

Dementia Care Knowledge—A 19-item, multiple-choice and true/false measure was developed to test participants’ knowledge of dementia and appropriate dementia care in the hospital prior to and following completion of the CDFH modules. The content validity of the measure was established based on suggestions by the 13-member CDFH expert consultant team and was refined following multiple iterations to result in a knowledge measure that reflected appropriate clinical care and knowledge of dementia in acute care settings. Each item has a correct answer, and the number of correct responses was summed at pretest and posttest (Table B, available in the online version of this article).

In a prior evaluation of CARES modules, a well-established measure of Alzheimer’s knowledge was used: the Alzheimer’s Disease Knowledge Scale (ADKS; Carpenter, Balsis, Otilingam, Hanson, & Gatz, 2009). Analysis of pretest scores on the ADKS for direct care workers who participated in the online CARES training module implied a ceiling effect given the extremely high scores on the measure. The ADKS and other measures of Alzheimer’s disease knowledge include more general content (e.g., “What is the most common form of dementia?” Answer: Alzheimer’s disease). In addition, validated dementia knowledge measures, such as the ADKS, are not specific to dementia-care issues pertinent to hospital settings, which is core to CDFH. For these reasons, a specific CDFH knowledge measure was created for the purposes of the current study.

Satisfaction Items—Nine Likert scale items were administered at posttest that examined various aspects of participants' satisfaction with the CDFH modules. Item responses ranged from *strongly agree* to *strongly disagree* and were used to describe participants' perceptions of the quality, potential benefits, and challenges of using the CDFH modules. The items and their posttest results are included in Table 2.

Open-Ended Items—At posttest, three open-ended items were administered that examined the positive and negative aspects of the CDFH modules: “What did you like best about the training program?”; “What did you like least about the training program?”; and “If you were recommending the CDFH program to someone else, what would you tell them about it?”

Analysis

A paired *t* test was used to determine if the summed correct score on the knowledge measure at posttest was significantly different from pretest (i.e., $p < 0.05$). Item frequencies of satisfaction items were also analyzed to determine what aspects of the CDFH modules users deemed most beneficial at posttest. Written responses on the three open-ended items were reviewed to identify challenges and strengths of the online CDFH training program.

RESULTS

Pretest/Posttest Knowledge of Effective CDFH Response

The average duration from pretest to posttest was 7.96 days ($SD = 9.94$ days). Among the 25 participants who completed the pretest and posttest knowledge measure, 80% ($n = 20$) indicated a gain in dementia knowledge, 8% ($n = 2$) showed no change, and 12% ($n = 3$) demonstrated a decrease in knowledge. Participants, on average, answered 82.2% ($SD = 10.71\%$) of the knowledge items correctly at pretest and 91.6% ($SD = 6.08\%$) correctly at posttest. The results of the paired *t* test demonstrated that this increase in knowledge was statistically significant ($t = 11.5$, $df = 24$, $p < 0.001$).

Satisfaction Items

Table 2 shows descriptive data for the CDFH satisfaction measure items. All participants *agreed* or *strongly agreed* with multiple items related to satisfaction with the CDFH online modules, including more confidence in dementia care skills, gaining new ideas on how to care for individuals with dementia, and a better understanding of the changes in cognition that occur in individuals with dementia. Approximately all participants (96.2%) *agreed* or *strongly agreed* that the online modules “provided the right amount of information,” the “directions were clear,” and the program “held my interest.” In addition, all participants (100%) indicated that they felt more confident and comfortable communicating with individuals with dementia.

Open-Ended Item Analysis

Three open-ended items provided additional information from participants' perspectives as to why CDFH appeared to enhance knowledge of dementia and could potentially benefit other aspects of hospital-based care for patients with dementia. When offering responses to

what they liked best, participants commented on three general categories: (a) CDFH's realistic, engaging, interactive video scenarios and personal interviews (9 comments); (b) CDFH's ease of use, clarity, and convenient format (12 comments); and (c) how CDFH increased their knowledge of dementia and coping skills (12 comments). For example, in the first category, one participant was impressed with "videos of different scenarios and how to use what we learned." In the second category, one participant commented that the program was "easy to understand, intelligent, and accessible." For the third category, one participant mentioned that CDFH offered "hints on not scaring a patient, and showing understanding and patience."

When asked about negative aspects of CDFH, one half of participants replied with some variant of "there was nothing I did not like about the program." Five participants noted that the patient stories and hospital and personal experiences presented were "good but there is more content than needed." Three participants indicated that the material in CDFH tended to be repetitive.

When asked what they would tell others about the course, one participant commented, "It was easy to follow. You learn ways to work with those that have dementia. I think it will help...to be more patient and understanding." Another participant added, "[The program is] informative on examples to do with patients with dementia/Alzheimer's [sic], how to redirect them, keep routines, etc." A third participant noted, "I did recommend participation...because...[the program is] informative, comprehensive, concise, and in many ways validating to what/how we are caring for this patient demographic."

DISCUSSION

In general, acute care settings do not emphasize dementia care in training protocols or clinical care delivery, and these gaps have led to particularly poor outcomes for older adults with dementia during and following hospital stays (Silverstein & Maslow, 2006). One possible solution to this complex problem is to ensure more effective and appropriate training of NAs/AHWs. The current results suggest that the use of a portable, asynchronous, interactive online training module for NAs/AHWs can help improve their knowledge as well as their perceived skills, compassion, and adoption of a holistic approach when caring for individuals with dementia. The routine care interactions NAs/AHWs have with individuals with dementia are likely key to patients' well-being during hospitalization. An essential step to forging more positive care relationships is dementia care training that is delivered flexibly to meet the needs of NAs/AHWs and care organizations.

The closed-ended satisfaction items suggested several reasons why the CDFH modules resulted in a demonstrable increase in knowledge. Participants indicated greater confidence in the care they provide to individuals with dementia, and the modules seemed to offer new ideas that they were keen to implement in their daily care routines. The online training materials also provided users with a greater awareness of the cognitive challenges of individuals with dementia, as well as the effects of interactions with staff or their hospital environments. Comments also suggested that the overall design, clarity, and formatting of CDFH reinforced the content.

The open-ended items offered additional insights as to why CDFH was viewed as useful and beneficial by participants. Videos that featured real NAs/AHWs and patients with dementia were perceived as engaging and useful. Having the training available in an asynchronous format increased convenience and the resulting ease of completion. Participants also indicated that CDFH training provided strategies and approaches that enhanced the coping skills they used when helping individuals with dementia in the acute care setting. Participants were almost unanimous in saying they would recommend CDFH to others. The only negative comment received was related to the repetition of some modules, as indicated by three participants.

Prior research has described the inadequate care received by individuals with dementia in acute care settings. Even if dementia is recognized by NAs/AHWs (which is not always the case), the care provided often does not meet standards of person-centered, best practice approaches that can alleviate the consequences of the behavioral, psychiatric, and emotional symptoms related to cognitive impairment in acute care settings (Clissett et al., 2013; Gaugler & Wocken, 2014). Such gaps in care suggest the need for increased and enhanced training for NAs/AHWs to improve skills, knowledge, and confidence, with the aim of enhancing quality of care overall for individuals with dementia (Bray et al., 2015; Elvish et al., 2016; Gillies et al., 2015; Luxford et al., 2015; Palmer et al., 2014; Smythe et al., 2014; Surr et al., 2016; Teodorczuk et al., 2014). The current study contributes to this area by presenting a more portable, potentially cost-efficient approach to training NAs/AHWs in hospitals via the CDFH. Although the findings are admittedly preliminary and limited to knowledge and open-ended perceptions of utility and feasibility in a small sample of NAs/AHWs, the study offers an intriguing alternative to current staff training approaches to improve dementia care quality in hospitals and, if its efficacy is further established, has high potential for translation and implementation.

It is important to note that the accumulation of and improvement in knowledge is likely insufficient to change behavior. For example, a meta-analysis of continuing medical education found that, overall, participation in medical education was not associated with physician performance or health care outcomes, although interactive approaches (e.g., workshops, small groups, individualized training) appeared to have positive effects on performance and health care outcomes (Davis et al., 1999). Other systematic reviews have found that more passive approaches (e.g., didactic education approaches) were not successful in changing health provider behavior, particularly when compared to more multidimensional outreach approaches that target multiple barriers to behavior change among providers (as CDFH does) (Grimshaw et al., 2001). Research in psychology emphasizes that changes in attitudes (Kraus, 1995) and intention to behave a certain way (Webb & Sheeran, 2006) have moderate to large empirical effects on subsequent behavior; similar effects are apparent in reviews of the literature examining associations between self-reported intentions and subsequent behaviors (Eccles et al., 2006). This accumulated research across psychology and clinical disciplines emphasizes that multi-faceted, online training programs for NAs/AHWs require a more expansive consideration of outcomes rooted in health behavior change models (e.g., attitudes, intentions, self-efficacy) (Glanz, Rimer, & Viswanath, 2008).

LIMITATIONS

There were several study limitations. Not all participants may have had regular care contact with patients in the hospital; of 12 participants who were not NAs and identified as technicians, six did not clearly indicate their role (the remaining six were either physical therapists/assistants, occupational therapists/assistants, or respiratory therapists). The knowledge measure was specific to this pretest/posttest evaluation, but was not developed via formal psychometric testing. Specifically, appropriate psychometric testing was not possible on the CDFH knowledge measure (e.g., conduct of factor analysis to examine dimensionality of the measure). It is also important to note that increases in knowledge, although highly and statistically significant, were not universal in the sample (three participants indicated a decrease in knowledge related to dementia care). Follow-up interviews or queries of these individuals to ascertain why these decreases occurred would have provided more information to refine CDFH prior to more comprehensive evaluation. The open-ended posttest survey satisfaction questions included language that may have limited negative feedback. This was a preliminary study of utility and feasibility of the first set of modules in a larger planned training, which will be evaluated in a randomized controlled trial. For these reasons, the small sample and lack of a control group do not permit definitive conclusions about their potential to improve the delivery of quality care in hospital settings for individuals with dementia, although open-ended responses suggest the potential for CDFH to do so. Thirteen participants did not complete the full pretest/posttest evaluation, which may have introduced selective bias into the results.

CONCLUSION

The findings of the current preliminary study hold several implications for gerontological nursing research and practice. Current research in gerontological nursing has tended to focus on delirium in the hospital setting (Bull, Avery, Boaz, & Oswald, 2015; Kolanowski et al., 2011), but there has been less scientific attention paid to individuals with irreversible dementia, such as that caused by Alzheimer's disease. The current study partially addresses this gap by evaluating the utility and feasibility of online dementia care training for NAs/AHWs in hospital settings, with the long-term aim of improving outcomes for individuals with cognitive impairment, their family caregivers, and NAs/AHWs who often provide the majority of care to these individuals. The overall quality of nursing care delivered to hospitalized individuals with dementia may be improved by enhancing the skills, compassion, and well-being of NAs/AHWs who provide direct care, and the promising initial results of the CDFH suggest that this online educational/training modality is an efficient, portable means to do so. For example, NAs/AHWs who are trained via CDFH could elicit more cooperation with care, helping patients feel safe and reduce their distress, thus avoiding medical restraints, extended hospital stays, injuries, unexpected wandering, and re-hospitalization. NAs/AHWs who achieve a level of dementia care competence facilitated by CDFH may also experience increased job satisfaction and better personal health, and remain in their jobs longer. Future controlled evaluations of CDFH among NAs/AHWs who provide care to individuals with dementia in hospital settings could integrate this novel, efficient training approach with additional system-level approaches to make these environments "dementia-capable" (Borson & Chodosh, 2014, p. 395) to determine the

effects on the various aforementioned outcomes. In addition, examining the influence of CDFH on key outcomes by comparing a CDFH-only, a CDFH-mentoring/systems-change pair, and control group could further ascertain the efficacy of this promising training strategy.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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TABLE 1Descriptive Sample Information ($N = 25$)

Variable	Mean (<i>SD</i>)
Age (years)	41.36 (13.29)
Time working for current employer (years)	9.73 (7.91)
Time working as a nursing assistant/allied health worker (years)	13.17 (11.62)
	<i>n</i> (%)
Gender (female)	24 (96)
Race	
White	21 (84)
Black or African American	3 (12)
Two or more races	1 (4)
Ethnicity: non-Hispanic/Latino	25 (100)
Marital status	
Married	16 (64)
Never married	5 (20)
Separated	3 (12)
Divorced	1 (4)
High school education or higher	25 (100)
Certified nurse assistant	13 (52)
Have used a computer before	25 (100)
Own a computer	25 (100)
Have taken an online training class	24 (96)
Own a tablet or have regular access to one	19 (76)
Have regular access to a smartphone	23 (92)
Have regular access to high-speed internet	24 (96)

TABLE 2Percentage of Hospital Care Staff Who *Strongly Agreed* or *Agreed* on CDFH Satisfaction Items

Item	% <i>Strongly Agreed/Agreed</i>
1. I am more confident about my skills in dementia care after completing this training program.	100
2. The program gave me new ideas on how to care for a patient with memory loss or dementia.	100
3. I enjoyed learning with this internet-based training program as opposed to attending a live class.	80
4. I have a better understanding of the changes in thinking that are associated with dementia after completing the training program.	100
5. I am more confident and comfortable in communicating with someone with dementia since completing this training program.	100
6. I feel more confident and comfortable caring for a patient with dementia than I did before I completed this training program.	88.8
7. The CDFH program contained the right amount of information for me.	96
8. The directions for using the program were clear.	96
9. The program held my interest.	96

Note. CDFH = CARES[®] Dementia-Friendly Hospital[™].