Published in final edited form as:
J Appl Gerontol. 2013 December ; 32(8): 936–951. doi:10.1177/0733464812446021.

Use of a Dementia Training Designed for Nurse Aides to Train Other Staff

A. Blair Irvine[1], **Jeff A. Beaty**[2], **John R. Seeley**[3], and **Michelle Bourgeois**[4]

[1]ORCAS, Eugene, OR, USA

[2]Signature Research Institute, Louisville, KY, USA

[3]Oregon Research Institute, Eugene, OR, USA

[4]Ohio State University, Columbus, OH, USA

Abstract

Problematic resident behaviors may escalate in long-term care facilities (LTCs). If nurse aides (NAs) are not nearby, the nearest staff to intervene may be non-direct care workers (NDCWs), who have little or no dementia training. This pilot research tested Internet dementia-training program, designed for NAs, on NDCWs in a LTC setting. Sixty-eight NDCWs participated, filling out two baseline surveys at 1-month intervals and a posttest survey after training. The surveys included video-situation testing, items addressing psychosocial constructs associated with behavior change, and measures training-acceptance. Paired *t* tests showed significant positive effects on measures of knowledge, attitudes, self-efficacy, and behavioral intentions, with small-moderate effect sizes. Nursing staff as well as non–health care workers showed improved scores, and the web-site training program was well received by all participants. These results suggest that Internet training may allow staff development coordinators to conserve limited resources by cross-training of different job categories with the same program.

Keywords

non–direct care workers; Internet; long-term care; training; dementia

Introduction

Residents with dementia in long-term care facilities (LTCs) may present behavioral challenges (Gates, Fitzwater, & Succop, 2003; Molinari et al., 2008). Inadequate training of NAs, who provide daily direct care for residents, has been linked to substandard care (Institute of Medicine, 2008; Maas, Specht, Buckwalter, Gittler, & Bechen, 2008; MacDonald, Stodel, & Casimiro, 2006; Molinari et al., 2008) and negative staff outcomes

Corresponding Author: A. Blair Irvine, ORCAS, 260 E. 11th Ave, Eugene, OR 97401, USA, birvine@orcasinc.com.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

including injuries, stress, and job dissatisfaction (Gates et al., 2003; Squillace et al., 2009; Yeatts, Cready, Swan, & Shen, 2010).

Training for all LTC staff and not just NAs is recommended (Beatty & Havens, 2011; Mace, Coons, & Weaverdyck, 2005; Molinari et al., 2008). NDCWs, who may interact only occasionally with residents, include licensed health staff and all other employees. While a smile and a friendly word in passing might add to the quality of life of a resident, some NDCWs might be hesitant to do so because they lack experience in interacting with residents who may be confused. NDCWs also may be the first line of care in some instances. For example, case studies by Beatty and Havens (2011) describe a maintenance worker redirecting an agitated resident attempting to escape through a fire exit and a housekeeper de-escalating a potentially violent confrontation between two confused residents. Among NDCWs, nursing staff are reported to have inadequate training to work with geriatric residents (Glaister & Blair, 2008; Institute of Medicine, 2008; Molinari et al., 2008), but we found no research on training for other NDCWs to interact with residents with dementia symptoms.

Research suggests that an Internet mental illness training designed for NAs can have positive effects on both NAs and nursing personnel (Irvine, Billow, Bourgeois, & Seeley, 2012). A dementia-skills Internet training program designed for NAs was available to us, and it offered an intriguing opportunity to determine if a dementia-only training would benefit nursing staff and if other NDCWs also might show positive effects.

The goal of this research was to provide NDCWs with skills training to interact with residents with dementia. Conducted in an LTC, it was real-world effectiveness research (Flay & Sobel, 1983), rather than a laboratory-controlled efficacy study. The research questions were as follows: (a) Would NDCWs show positive training effects? (b) Does the nursing staff show training-gains, thus supporting research reports that they are underprepared to work with geriatric residents? and (c) Would the training be accepted by the users?

Method

An institutional review board declared this research to be exempt from further review. Beyond their usual wages, participants were not compensated for involvement in the training. At the conclusion of the research, only summarized group assessment results were provided to the LTC management.

Protocol

A for-profit, 138-bed LTC in the Southeastern United States purchased two standard desktop computers, which were connected to the Internet by their cable TV provider. Logistic expenses (i.e., computers, assessments, analysis) were paid by the LTC. The LTC conducted no dementia-related training during the period of the study but otherwise maintained usual operations.

The nursing supervisor (NS) scheduled all NDCWs to attend staff meetings to fill out assessments and developed schedules for individual use of the training computers. The NS reported that three of the staff, two housekeepers and one dietary staff, were illiterate and had to be individually assisted to complete the assessments.

The computer training was conducted as part of the worksite routine. The NS helped users log in, and he taught mouse-use to four to six staff that were inexperienced with computers. The NS reported that about one third of users needed initial help (e.g., where to click to change screens after a video finished). The NS then moved away to maintain user privacy, but he remained available if problems arose for those using the computers.

Internet Dementia-Training Program Content

A video-based Internet training program was developed with a 2001 grant from the National Institute on Aging (R44-AG014940). It was designed by researchers and expert LTC consultants to provide NAs with behavioral and communication skills to work with residents with dementia symptoms (e.g., confusion, agitation). A prototype showed significant training effects on NAs in a randomized evaluation (Irvine, Ary, & Bourgeois, 2003). The fully developed version of the training, which was designed for NAs, was tested in this research without modification for NDCWs, and no continuing education credits were available for users.

Program modules accessible through the home page included Speaking Skills, Reacting Skills, Redirection, Communication Cards, and When Bad Things Happen. The training included video-modeling vignettes, right-way and wrong-way exemplars, testimonials, and narration. On-screen text included short titles and bulleted lists written at a sixth-grade reading level. No keyboarding was required after login. Users used mouse clicks on navigation arrows and buttons to move through program materials. It was a browsable website, and thus users could view content in any sequence, and they could leave or return at will to any section. The training was designed to require about 2 hr of seat time to complete all modules, but use-time could vary depending on user interests (e.g., not viewing or repeating content) or pace of use. Users were not held accountable for completing specific parts of the program, and continuing education credits were not available for program use, but users could print out a certificate listing content viewed.

Speaking Skills covered appropriate ways to greet and talk to a resident with dementia (e.g., say the resident's name, and say your name; speak slowly; be patient).

Reacting Skills taught users to control their emotions if confronted by a resident (e.g., stay calm, acknowledge the resident's emotions, don't argue about reality, be patient).

Redirection Skills modeled ways to redirect residents to alternative activities (e.g., how to shift the topic based on what the resident said or what the caregiver knows about the resident).

Communication Cards showed how to print short personalized messages on note cards and how to present them to a resident for reassurance or redirection.

When Bad Things Happen provided interactive education on how to deal with grief (i.e., due to death of a resident), stress, and verbal confrontations by a resident (i.e., racial, sexual, general harassment).

Research Design

A within-subjects pretest-posttest design was used to address the research questions. Two months prior to training, 68 NDCWs met to complete a pretest (*T*1) assessment battery, which included demographic items. To verify baseline values, the pretest battery was administered again approximately 30 days later (*T*2), just prior to use of the Internet program. The *T*2 assessment also assessed self-efficacy and knowledge based on four video situation tests (VSTs) developed by Irvine, Billow, Bourgeois, et al. (2012).

The assessment battery, including the VSTs, was administered again 1 month later (*T*3), approximately 14 days after 2 hr of Internet training. The *T*3 assessment also included items to measure program acceptance by the user.

Measures

Dementia training and computer experience were postulated as potential influences on the impact of Internet training on users and on how they might accept this type of learning experience. Consequently, multiple-choice items on the *T*1 assessment asked “How much Dementia training have you had?” (0 hr, 1–4 hr, 5–10 hr, 11+ hr; only on-the-job training), and “How many hours per week do you usually use a computer?” (0 hr, 1–4 hr, 5–10 hr, 11+ hr).

Assessment items, adapted from the research instrument of Irvine, Billow, Bourgeois, et al. (2012), were designed to measure training effects that would improve participants’ skills to interact with residents who appeared confused or anxious. The assessment included situational self-efficacy and knowledge of how to react to confused resident behavior. Additional items assessed constructs of program-specific attitude, self-efficacy, and behavioral intentions which might influence skill implementation. Program acceptance was assessed at *T*3 only.

VSTs assessed participant reactions to short video vignettes of confused resident behaviors. This approach has been used extensively to measure effects of Internet training programs for professional caregivers (Irvine et al., 2003; Irvine, Billow, Bourgeois, et al., 2012; Irvine et al., 2012a, 2012b; Irvine, Bourgeois, Billow, & Seeley, 2007; Irvine, Billow, Eberhage, et al., 2012; Irvine, Billow, McMahon, et al., 2012). VSTs approximate real-life behavior when in vitro observations are not practical.

Previously, the 4 VSTs used in this research showed significant effects with NAs and licensed health staff for improved self-efficacy and knowledge gain (Irvine, Billow, Bourgeois, et al., 2012). Two items per VST vignette were used to assess a participant’s level of confidence in their ability to know what to do and ability to successfully alter the residents’ behaviors as depicted in the vignette. Response options were recorded on a 7-point rating scale (1 = *not at all confident*, 7 = *extremely confident*). Multiple-choice items measured the participants’ knowledge of appropriate actions (i.e., “In a situation similar to

what was just shown, what is the first thing the caregiver should do first?" "In this situation, what's the first thing a caregiver should say to the resident, Mrs. Smith?"). The VSTs were presented only at *T*2 and *T*3 to minimize potential reactive effects caused by viewing at *T*1.

Additional program-specific psychosocial items assessed changes in attitudes, self-efficacy, and behavioral intentions, which are constructs associated with behavior change by social cognitive theory (Bandura, 1969, 1977) and the expanded theory of reasoned action (Fishbein & Ajzen, 1975). Improvements in attitudes, self-efficacy, and behavioral intentions were hypothesized to be positive training effects from exposure to the dementia-training program. Attitudes were measured with 18 program-specific items presented as agree–disagree statements with responses on a 7-point scale (1 = *completely agree* to 7 = *completely disagree*; α = .84). Twenty self-efficacy items (7-point scale; 1 = *not at all confident* to 7 = *extremely confident*; α = .97) addressed the participant's self-confidence to respond as recommended to program-specific items (e.g., use redirection, stay calm with anxious residents; control own stress and prepare mentally to deal with potential harassment). Nineteen behavioral intention items asked about the participant's intention to perform-specific behaviors in the next week to deal with program-specific situations related to a resident (7-point scale; 1 = *not at all likely* to 7 = *extremely likely*; α = .93).

Program acceptance was assessed only at *T*3 using items adapted from Irvine, Billow, Bourgeois, et al. (2012). Users rated program features with six disagree–agree items (6-point scale; 1 = *strongly disagree* to 6 = *strongly agree*) adapted from Website acceptability measures (Chambers, Connor, Diver, & McGonigle, 2002; Vandelanotte, de Bourdeaudhuij, Sallis, Spittaels, & Brug, 2005). The items included the following: (a) was of interest, (b) was quick to learn to use, (c) liked being guided, (d) video was believable, (e) video added value, and (f) was attractive and appealing. Participants were also asked to rate their reactions to the training program with five disagree–agree items (7-point scale; 1 = *not at all* to 7 = *extremely*): (a) satisfaction, (b) useful information, (c) enjoy-ability, (d) ease of use, and (e) recommend-ability.

Statistical Analysis

Paired *t* tests and corresponding significant values ($p < .05$) from the *T*1 to the *T*2 assessments were examined to establish stability of the outcome measures and assess the plausibility of maturation and regression effects (Shadish, Cook, & Campbell, 2002). Paired *t* tests, significance values, and effect size measures were used to evaluate the pretest changes (*T*1–*T*2) and pre-post intervention changes (*T*2–*T*3) in the outcome measures. Effect size computations complement inferential statistics (i.e., *p* values) by estimating the strength of the relationship of variables in a statistical population. Reporting effect sizes facilitates an understanding of the substantive, as opposed to the statistical, results of a research study. The partial point-biserial correlation is reported as an estimate of the effect size (i.e., .14 = small; .36 = medium; .51 = large; Rosnow & Rosenthal, 2008, p. 391).

Results

Participants

The entire staff of 68 NDCWs (Table 1) participated in the training during working hours. They were primarily White females (89.7%) who worked full-time (93.8%). Wages and educational level were considerably higher for nursing staff compared to NDCWs. Twenty-five NDCWs (61%) had a high school degree or less, while all nursing staff had at least some college education. Nursing staff ($n = 25$) had more computer experience, with 5 (21.7%) not using a computer weekly, but 12 (52.2%) reporting 11 or more hours per week of computer use. A total of 10 (43.5%) nursing staff reported only on-the-job dementia training, 1 (4.3%) reported no training, 5 (17.4%) reported 1 to 10 hr of dementia training, and 8 (34.8%) reported 11+ hr of training. Of the 43 NDCWs, 13 (31.7%) did not use a computer weekly and 14 (34.1%) reported 11 hr or more of computer use. Sixteen NDCWs (42.1%) reported only on-the-job dementia training, 5 (13.2%) had no training, 9 (23.7%) had 1 to 10 hr of dementia training, and 8 (21.1%) had 11+ hr of training.

Attrition and Missing Data Analyses

The attrition rate from $T1$ to $T3$ was 16%. Participants who completed all three assessments ($n = 57$) were compared to those who did not ($n = 11$) on study demographic characteristics (Table 1) and baseline outcome measures. No statistically significant ($p < .05$) differences were found.

Outcome Analysis

Based on nonsignificant differences and small effects sizes, stability of $T1–T2$ scores was established for attitudes, self-efficacy, and intentions. As shown in Table 2, the change from $T2$ to $T3$ showed positive training effects in the hypothesized direction. As a group, the NDCWs showed significant effects for VST self-efficacy ($p = .001$; medium effect size) and VST knowledge ($p = .001$; medium effect size) as well as attitudes ($p = .005$; medium effect size), self-efficacy ($p = .05$; small effect size), and intentions ($p = .008$; small effect size). For nursing staff, changes were significant at $T3$ for attitudes ($p = .005$; large effect size), and VST knowledge ($p = .018$; medium effect size). Intentions ($p = .055$; medium effect size) and VST-self efficacy ($p = .094$; small effect size) showed positive trends. Nonlicensed NDCWS (e.g., food service, janitorial, maintenance, and administrative staff) showed significant increases for VST self-efficacy ($p = .006$; medium effect size) and VST knowledge ($p = .002$; medium effect size) and for program-specific self-efficacy ($p = .031$; small effect size). Intentions ($p = .054$; small effect size) and attitudes ($p = .118$; small effect size) showed positive trends.

User Acceptance

Table 3 shows user ratings of the training program features and user satisfaction for the total sample, for nurses/LPNs, and for nonlicensed caregivers. Overall, the program was rated highly by users. Ratings of program features (e.g., ease of learning to use it, value of video) averaged 5.0 ($SD = 0.9$) on a 6-point scale. Reactions to the program (e.g., satisfaction,

usefulness) averaged 5.1 (*SD* = 1.4) on a 6-point scale. When compared, scores of nursing staff and nonlicensed staff did not significantly differ (at $p > .05$).

Discussion

This pilot research suggests that a behaviorally based dementia-skills Internet training designed for NAs may have positive effects on NDCWs in an LTC. Trainee scores improved significantly on VST and psychosocial measures, with small-medium effect sizes. While comparisons across studies must be viewed cautiously, similar assessment batteries with VSTs and psychosocial instruments have shown positive results with NAs (Irvine et al., 2003; Irvine, Billow, Bourgeois, et al., 2012; Irvine et al., 2012a, 2012b; Irvine et al., 2007) and nursing staff (Irvine, Billow, Bourgeois, et al., 2012; Irvine, Billow, Eberhage, et al., 2012) and, in one study, was associated with a decrease in assaults by residents (Irvine et al., 2012a).

Parsing out the participants, this study supports literature reports that LTC nursing staff may benefit from additional dementia-skills training (Glaister & Blair, 2008; Molinari et al., 2008). Despite working with a geriatric population known for high levels of dementia and comorbid mental disorders (Seitz, Purandare, & Conn, 2010), a total of 48% of the nursing staff had no formal dementia training (Table 1). The training produced significant positive changes on assessment scores (Table 2), and they gave it high user-acceptance scores (Table 3). Nursing staff had high program-specific self-efficacy scores relative to the other NDCWs, which did not improve, suggesting that they continued to feel confident about their grasp of the training program content. The VST self-efficacy scores showed a positive trend at *T*3, but knowledge scores increased significantly with a medium effect size, suggesting that at pretest nursing staff may have felt confident but lacked knowledge of what to do in situations depicted in the vignettes. In another study, a randomized population of nurses showed significant gains on a similar assessment measure and roughly similar acceptance scores after viewing an Internet mental illness training program designed for NAs (Irvine, Billow, Eberhage, et al., 2012).

Nonlicensed NDCWs showed greater improvement with medium effect sizes on VST self-efficacy and knowledge scales compared to program-specific measures of attitude, self-efficacy, and intention which had small effect sizes, and their program acceptance scores were comparable to those of the nursing staff. Whether these results might have been influenced by their education or experience filling our surveys, or lack of dementia training, and relative lack of computer experience awaits further research.

We believe these results to be a first look at reactions of NDCWs to dementia training. The significant results coupled with positive user acceptance are noteworthy, especially given the fact that users responded after viewing a program designed for NAs, which had a relatively outdated (i.e., 7-year-old) user interface and dated “look” compared to more recent web interfaces. Despite these potential barriers, program acceptance data suggest that the audience was receptive to the training.

This research is of practical interest because it describes an Internet training approach in an LTC. With the purchase of two desktop computers (<US$700 each) and an Internet connection via cable TV provider, all NDCWs completed the 2-hr training in a few weeks. We subsequently replicated this logistical approach to test an Internet mental illness training program for NAs in three LTCs (Irvine, Billow, McMahon, et al., 2012).

Internet training might allow staff development coordinators to conserve limited resources by cross-training of different job categories with the same program. Furthermore, an Internet training approach would be compatible with the culture-change movement to improve residential care (Rahman & Schnelle, 2008) by diffusion of best practices to existing staff, and as part of new employee orientation to establish normative behaviors for the LTC (Hobday, Smith, & Gaugler, 2010; Irvine et al., 2012a). Culture change is reported to offer organizational benefits as well as competitive advantages in the market place (Crandall, White, Schuldheis, & Talerico, 2007; Doty, Koren, & Sturla, 2008), and we believe that improvements in care are well received by families of the residents.

Once computers are purchased and connected to the Internet, the training costs would depend on the number of courses purchased, the number of users and training time period, and hosting responsibilities to provide access and record keeping. Modifications of developed programs for different audiences would be possible but probably would be expensive if they entail new media development and programming.

While the up-front costs are not insignificant, Internet training can offer tested and replicable individualized staff training to all shifts with automated record keeping. It is recommended for orientation of new employees to establish normative staff behavior for the institution (Hobday et al., 2010; Irvine et al., 2012a; Irvine, Billow, Eberhage, et al., 2012). Online training for continuing education credits is readily available for nursing staff and might be appropriate for the training tested here if supplemental content (e.g., reading materials) were added to increase the intellectual rigor. We believe Internet training for NDCWs should become increasingly prevalent in the future. Having said that, this research, as well as that of Irvine, Billow, McMahon, et al. (2012) with NAs, demonstrates that a lack of computer experience may present barriers to use for some NDCWs, and they will need at least initial assistance to use an Internet training. Additional supervisory hours to help inexperienced users thus should be considered when planning to implement an Internet training strategy in an LTC.

Limitations of this research include the quasi-experimental design, small sample size, and the lack of longer-term data collection, all of which raise questions about the generalizability of the results in a real-world context. Rigorous randomized research with a larger and more diverse racial sample would provide better insights into training effects, especially if behavioral observations are included. Future research is needed to parse out training effects on different job categories and might further investigate how nursing staff self-efficacy is affected by dementia training. Also needed is research into the relative incidence and context of encounters between residents and NDCWs and the consequences of those encounters on both parties. The relatively obsolete Internet program design might also have been a limitation. Given the positive results, however, the impact on the “look” of the

Internet program interface on this training appears minimal, though nothing is known about whether a more current interface might have improved results.

Despite the limitations, this research supports previous research demonstrating the need for and efficacy of Internet training for LTC nursing staff, who would benefit from more dementia training. Training could also benefit NDCWs, who by their communications and behavioral reactions may enhance the quality of life of a confused resident.

Acknowledgments

We are indebted to the staff of The Bridge at Monteagle, and particularly to Manager Denny Gilliam, for assistance with this research. Dennis Ary, Joe Barima, Natasha Beauchamp, Donna Gates, David Kahn, and an anonymous reviewer made helpful comments on earlier versions of the manuscript.

Funding

This study was funded by Signature HealthCARE Inc. Research time for Dr. Irvine and Dr. Seeley was supported by National Institute on Aging grant R44AG024675.

References

Bandura, A. Principles of behavior modification. New York, NY: Holt, Rinehart and Winston; 1969.

Bandura, A. Social learning theory. Englewood Cliffs, NJ: Prentice Hall; 1977.

Beatty JA, Havens E. Improving the quality of life of nursing home residents with dementia through the training of the caregiver. Long Term Care Institute, LTCI Review. 2011; 1(1):38–47.

Chambers M, Connor S, Diver M, McGonigle M. Usability of multi-media technology to help caregivers prepare for a crisis. Telemedicine Journal and e-Health. 2002; 8:343–347. [PubMed: 12419028]

Crandall LG, White DL, Schuldheis S, Talerico KA. nitiating person-centered care practices in long-term care facilities. Journal of Gerontological Nursing. 2007; 33(11):47–56. Retrieved from http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=18019118. [PubMed: 18019118]

Doty, M.; Koren, M.; Sturla, E. Culture change in nursing homes: How far have we come?. Findings from the Commonwealth Fund 2007 National Survey of Nursing Homes. 2008. Retrieved from http://www.commonwealthfund.org/Publications/Fund-Reports/2008/May/Culture-Change-in-Nursing-Homes--How-Far-Have-We-Come--Findings-From-The-Commonwealth-Fund-2007-Nati.aspx

Fishbein, M.; Ajzen, I. Belief, attitude, intention, and behavior: An introduction to theory and research. Reading, MA: Addison-Wesley; 1975.

Flay, BR.; Sobel, J. The role of mass media in preventing adolescent substance abuse [Research Monograph 47]. In: Glynn, T.; Leukefeld, C.; Ludford, J., editors. Preventing adolescent drug abuse: Intervention strategies. Washington, DC: National Institute on Drug Abuse; 1983. p. 5-35.

Gates D, Fitzwater E, Succop P. Relationships of stressors, strain, and anger to caregiver assaults. Issues in Mental Health Nursing. 2003; 24:775–793. 2U1C278W1HD3NG4A [pii]. [PubMed: 13129753]

Glaister JA, Blair C. Improvededucationandtrainingfornursingassistants: Keys to promoting the mental health of nursing home residents. Issues in Mental Health Nursing. 2008; 29:863–872. 795243535 [pii]. 10.1080/01612840802182912 [PubMed: 18649212]

Hobday JV, Savik K, Smith S, Gaugler JE. Feasibility of Internet training for care staff of residents with dementia: The CARES program. Journal of Gerontological Nursing. 2010; 36(4):13–21.10.3928/00989134-20100302-01 [PubMed: 20349855]

Institute of Medicine. Retooling for an aging America: Building the health care workforce. 2008. Retrieved from http://www.nap.edu/catalog/12089.html

Irvine AB, Ary DV, Bourgeois MS. An interactive multimedia program to train professional caregivers. Journal of Applied Gerontology. 2003; 22:269–288.10.1177/0733464803022002006

Irvine AB, Billow MB, Bourgeois M, Seeley JR. Mental illness training for long-term care staff. Journal of the American Medical Director's Association. 2012; 13(1):81.e7–81.e13.10.1016/j.jamda.2011.01.015 [PubMed: 21450251]

Irvine AB, Billow MB, Eberhage MG, Seeley JR, McMahon E, Bourgeois M. Mental illness training for licensed staff in long term care. Issues in Mental Health Nursing. 2012; 33:181–194.10.3109/01612840.2011.639482 [PubMed: 22364430]

Irvine AB, Billow MB, Gates DM, Fitzwater EL, Seeley JR, Bourgeois M. An Internet training to reduce assaults in long term care. Geriatric Nursing. 2012a; 33(1):28–40.10.1016/j.gerinurse.2011.10.004 [PubMed: 22209192]

Irvine AB, Billow MB, Gates DM, Fitzwater EL, Seeley JR, Bourgeois M. Internet training to respond to aggressive resident behaviors. The Geron-tologist. 2012b; 52(1):13–23.10.1093/geront/gnr069

Irvine AB, Billow MB, McMahon E, Eberhage MG, Seeley JR, Bourgeois M. Internet training about mental illness for nurse aides. Journal of Psychiatric and Mental Health Nursing. 2012 Manuscript submitted for publication.

Irvine AB, Bourgeois M, Billow MB, Seeley JR. Internet training for nurse aides to prevent resident aggression. Journal of the American Medical Director's Association. 2007; 8:519–526. S1525-8610(07)00254-X [pii]. [PubMed: 17931576]

Maas ML, Specht JP, Buckwalter KC, Gittler J, Bechen K. Nursing home staffing and training recommendations for promoting older adults' quality of care and life: Part 1. Deficits in the quality of care due to understaff-ing and undertraining. Research on Gerontological Nursing. 2008; 1(2):123–133.10.3928/19404921-20080401-03

MacDonald C, Stodel E, Casimiro L. Online dementia care training for healthcare teams in continuing and long-term care homes: A viable solution for improving quality of care and quality of life for residents. International Journal on e-Learning. 2006; 5(3):27.

Mace, NL.; Coons, DH.; Weaverdyck, S. Teaching dementia care: Skill and understanding. Baltimore, MD: Johns Hopkins University Press; 2005.

Molinari VA, Merritt SS, Mills WL, Chiriboga DA, Conboy A, Hyer K, Becker MA. Serious mental illness in Florida nursing homes: Need for training. Gerontology and Geriatrics Education. 2008; 29(1):66–83.10.1080/02701960802074321 [PubMed: 19042228]

Rahman AN, Schnelle JF. The nursing home culture-change movement: Recent past, present, and future directions for research. Gerontologist. 2008; 48(2):142–148.10.1093/geront/48.2.142 [PubMed: 18483426]

Rosnow, R.; Rosenthal, R. Assessing the effect size of outcome research. In: Nezu, A.; Nezu, C., editors. Evidence-based outcome research: A practical guide to conducting randomized controlled trials for psychosocial interventions. New York, NY: Oxford University Press; 2008. p. 379-401.

Seitz D, Purandare N, Conn D. Prevalence of psychiatric disorders among older adults in long-term care homes: A systematic review. International Psychogeriatrics. 2010; 22:1025–1039. S1041610210000608 [pii]. [PubMed: 20522279]

Shadish, W.; Cook, T.; Campbell, D. Experimental and quasi-experimental designs for generalized causal inference. New York, NY: Houghton Mifflin; 2002.

Squillace MR, Remsburg RE, Harris-Kojetin LD, et al. The National Nursing Assistant Survey: improving the evidence base for policy initiatives to strengthen the certified nursing assistant workforce. Gerontologist. 2009; 49:185–97.25. [PubMed: 19363014]

Vandelanotte C, de Bourdeaudhuij I, Sallis J, Spittaels H, Brug J. Efficacy of sequential or simultaneous interactive computer-tailored interventions for increasing physical activity and decreasing fat intake. Annals of Behavioral Medicine. 2005; 29(2):138–146. [PubMed: 15823787]

Yeatts DE, Cready C, Swan J, Shen Y. The perception of "training availability" among certified nurse aides: Relationship to CNA performance, turnover, attitudes, burnout, and empowerment. Gerontology and Geriatrics Education. 2010; 31(2):115–132. 922540347 [pii]. 10.1080/02701961003795722 [PubMed: 20509059]

Biographies

A. Blair Irvine, PhD, MAPE, MS, is a Research Scientist at ORCAS, a science technology development company in Eugene, OR. He has been a NIH behavioral health researcher for two decades, with recent research focused on Web training for family and professional caregivers to interact with older adults with dementia and other mental disorders. He also has published on Internet interventions in the areas eating habits, and exercise for workers and for seniors. In his other life, he's part of a 42 year study of a herd of wild dolphins near Sarasota, FL.

Jeff A. Beaty, DHEd, LMSW, MSHA, SSBB, is the Chief Research Officer for Signature Research Institute in Louisville, Kentucky, and he has work experience as a clinical social worker and nursing home administrator. He has been actively involved in research with persons with dementia and the training and education of care providers actively engaged with persons with dementia. His areas of interest include psychological aspects of aging, dementia, mental illness and psychopharma-cology utilization in older adults as well as the clinical assessment of cognitive decline and functional assessment in older adults.

John R. Seeley, PhD, is a senior research scientist at the Oregon Research Institute in Eugene. He is actively involved with research on web-based interventions and training. His current interests include health-related technology, research methodology, and the epidemiology, prevention, and treatment of mood disorders.

Michelle Bourgeois, PhD, CCC-SLP, ASHA Fellow, is a Professor in the Department of Speech & Hearing Science, Ohio State University. She has received numerous grants from the National Institutes of Aging (NIA) and the Alzheimer's Association to investigate interventions for spousal and nursing home caregivers designed to improve the quality and quantity of communicative interactions with residents with dementia, to evaluate memory aids and interventions for persons with dementia and traumatic brain injury, and to develop training programs for institutional caregivers. A clinical researcher, Dr. Bourgeois has published numerous research articles, training manuals and CDs, and books. She was the recipient of the 2007 Barry Reisberg Award for Non-Pharmacologic Research, Theory, and Clinical Practice.

Table 1

Sample Demographic Characteristics

	All cases (*n* = 68)		Nurses/LPNs (*n* = 25)		Nonlicensed (*n* = 43)	
	N	**%**	***N***	**%**	***N***	**%**
Sex (% female)	55	85.9	22	76.7	33	76.7
Race (%)						
White	61	89.7	23	92.0	38	88.3
Native Hawaiian/Pacific Islander	2	2.9	0	0.0	2	4.7
American Indian/Alaskan Native	4	5.9	1	4.0	3	7.0
Other	1	1.5	1	4.0	0	0.0
Highest education level						
Some high school	8	12.5	0	0.0	8	19.5
High school graduate	17	26.6	0	0.0	17	41.5
Some college	13	20.3	6	26.1	7	17.1
Trade school	12	18.8	10	43.5	2	4.9
College or professional graduate	14	21.9	7	30.4	7	17.1
Annual household income						
Less than US$19,999	14	26.9	0	0.0	14	45.2
US$20,000–US$39,999	10	19.2	3	14.3	7	22.6
US$40,000–US$59,999	14	26.9	9	42.9	5	16.1
Greater than US$60,000	14	26.9	9	42.9	5	16.1
Work schedule						
Part-time	4	6.2	0	0.0	4	9.7
Full-time	60	93.8	23	100.0	37	90.3
Length of time as professional caregiver						
0–2 years	17	27.4	6	27.3	11	27.5
3–5 years	14	22.6	1	4.5	13	32.5
6–10 years	5	8.1	2	9.1	3	7.5
11–15 years	8	12.9	2	9.1	6	15.0
16–20 years	13	21.0	7	31.8	6	15.0
21 or more years	5	8.1	4	18.2	1	2.5

	All cases (*n* = 68)		Nurses/LPNs (*n* = 25)		Nonlicensed (*n* = 43)	
	N	%	*N*	%	*N*	%
Amount of dementia care training						
0 hr	6	9.8	1	4.3	5	13.2
1–10 hr	13	21.4	4	17.4	9	23.7
11 + hr	16	26.2	8	34.8	8	21.1
Only on-the-job training	26	42.6	10	43.5	16	42.1
Hours per week on a computer						
0 hr	18	28.1	5	21.7	13	31.7
1–4 hr	10	15.6	3	13.0	7	17.1
5–10 hr	10	15.6	3	13.0	7	17.1
11 or more hours	26	40.6	12	52.2	14	34.1

Note: Percentages are based on valid number of responses.

J Appl Gerontol. Author manuscript; available in PMC 2014 October 30.

Table 2

Means, Standard Deviations, and Paired *t* Values for Study Outcome Measures

	T1		T2		T3		T1–T2 contrast			T2–T3 contrast		
Outcome	***M***	***SD***	***M***	***SD***	***M***	***SD***	***t* value**	***p* value**	**Partial point-biserial *r***	***t* value**	***p* value**	**Partial point-biserial *r***
Attitudes												
All cases	5.6	0.7	5.7	0.6	5.9	0.6	0.56	.579	.07	2.89	.005	.36
Nurses/LPNs	5.8	0.6	5.7	0.6	6.0	0.5	0.79	.436	.16	3.05	.005	.53
Nonlicensed	5.5	0.7	5.6	0.7	5.8	0.7	1.12	.270	.17	1.60	.118	.24
Self-efficacy												
All cases	5.4	1.1	5.5	1.0	5.7	1.0	0.81	.419	.11	1.99	.050	.24
Nurses/LPNs	5.9	0.9	5.9	0.6	5.9	0.8	0.20	.844	.04	0.27	.787	.06
Nonlicensed	5.1	1.1	5.2	1.2	5.6	1.1	1.12	.269	.17	2.23	.031	.33
Intentions												
All cases	5.2	1.0	5.0	1.0	5.3	1.2	1.78	.080	.21	2.76	.008	.35
Nurses/LPNs	5.8	0.7	5.5	0.7	5.9	0.8	2.77	.011	.49	2.02	.055	.38
Nonlicensed	4.8	1.3	4.7	1.1	5.0	1.3	0.79	.431	.12	1.98	.054	.29
VST self-efficacy												
All cases	—	—	3.3	0.9	3.6	0.8	—	—	—	3.38	.001	.41
Nurses/LPNs	—	—	3.6	0.7	3.8	0.5	—	—	—	1.74	.094	.33
Nonlicensed	—	—	3.2	0.9	3.5	0.9	—	—	—	2.88	.006	.41
VST knowledge correct												
All cases	—	—	1.8	1.0	2.2	0.6	—	—	—	4.18	.001	.49
Nurses/LPNs	—	—	1.9	0.9	2.3	0.6	—	—	—	2.53	.018	.46
Nonlicensed	—	—	1.7	1.0	2.2	0.7	—	—	—	3.29	.002	.45

Note: VST =Video Situation Test, *SD* = standard deviation. Partial point-biserial *r* (effect size): .14 small, .36 medium, .51 large (Rosnow & Rosenthal, 2008).

J Appl Gerontol. Author manuscript; available in PMC 2014 October 30.

Table 3

User Acceptance of Program Features and Reactions to the Program

	All cases *N* = 57		Nurses/ LPNs		NDCWs	
	M	***SD***	***M***	***SD***	***M***	***SD***
Program features (1 = *disagree* to 6 = *strongly agree*)						
The program has much that is of interest to me	5.1	1.1	5.3	1.3	5.0	0.9
I think that most people would learn to use the program quickly	5.1	1.1	5.1	1.2	5.1	1.0
I liked how some sections of the program guided me through each section	5.0	1.1	4.9	1.4	5.0	0.8
The video segments in the program are believable	5.1	1.0	5.1	1.0	5.1	1.0
The video segments in the program added to its value	5.2	1.0	5.3	1.1	5.1	0.9
The program is attractive and appealing	4.9	1.1	5.1	1.2	4.8	1.0
Reaction to program (1 = *disagree* to 7 = *agree*)						
How satisfied were you with the program?	5.3	1.4	5.5	1.4	5.1	1.4
How useful was the information provided by the program?	5.3	1.4	5.5	1.3	5.3	1.5
How enjoyable was the program?	4.6	1.5	4.9	1.6	4.4	1.5
How easy was it to use the program?	5.4	1.5	5.6	1.4	5.3	1.6
How likely is that you would recommend the program to a friend?	5.0	1.5	5.2	1.4	4.9	1.6

J Appl Gerontol. Author manuscript; available in PMC 2014 October 30.