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Original Research Article

Does Comprehensive Culture Change Adoption via the Household Model Enhance Nursing Home Residents' Psychosocial Well-being?

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Abstract

Background and Objectives: Several studies suggest that to substantially improve residents' psychosocial well-being, traditional-model nursing homes should redesign themselves as small, homelike "households" along with comprehensively adopting other aspects of "culture change," a set of reforms meant to improve residents' quality of life. But this evidence mainly comes from qualitative studies. This comparative, observational study tested quantitatively whether residents in a household-model nursing home that had comprehensively adopted culture change reforms displayed greater positive affect, increased cognitive engagement, more extensive social interactions with staff and greater use of the environment than did residents at partial culture-change-adopting facilities with traditional, institutional environments.

Research Design and Methods: Household-model residents were matched on clinical and demographic factors with residents at two institutional control facilities that had partially adopted culture change and were observed for 8 hours each. To provide potentially converging evidence, aides and nurses were also observed. Finally, a culture change implementation assessment was conducted.

Results: The implementation assessment showed that the household-model home had implemented culture change beyond national norms, whereas the control facilities were U.S.-typical partial adopters. It also revealed that household-model staff cared for residents in a more person-centered manner. Observation analyses revealed that household-model residents spent less time idle and less time stationary at wheelchair hubs. Moreover, although household-model residents did not spend the most time in the dining area overall, they spent the greatest percentage of time there talking with staff, displaying positive affect, and displaying active engagement. Finally, household-model residents and staff spent the most time in task-oriented interactions, including personal care.

Discussion and Implications: These results suggest that the intended psychosocial benefits materialize in household-model facilities, particularly in the dining area and in resident–staff relationships. The findings raise the possibility that facilities may be able to achieve these outcomes without entirely redesigning their environment.

Translational Significance: Overall, the findings support making nursing home environments and procedures more homelike. However, they suggest that some environmental modifications, such as creating a dining area with more intimate spaces for talking among residents, staff, and family, along with certain policies, such as having appetizing food available at all times, may be more important than others. Thus, nursing home providers may be able to achieve the resident psychosocial benefits reported here with a smaller capital outlay than would be required for a complete redesign of their facilities into small households.

Keywords: Culture change, Household model, Nursing homes, Person-centered care, Psychosocial well-being

Background and Objectives

Many U.S. nursing homes have at least partially implemented "culture change" in an effort to improve residents' psychosocial well-being and increase frontline staff members' work satisfaction (Miller, Looze, et al., 2014). The culture change movement, begun in the late 1980s to remediate the poor resident quality of life in many nursing homes, advocates (1) making nursing home environments homelike, (2) fostering close relationships among residents and staff, (3) determining residents' choices and preferences and allowing them to guide nearly all nursing home operations, and (4) empowering frontline staff members to make care decisions and advance their careers (Koren, 2010). Although most nursing homes adopt culture change partially and in an idiosyncratic fashion (Miller, Looze, et al., 2014), numerous specific interventions have been developed to help instantiate the full adoption of culture change, such as the Eden Alternative, the Wellspring model, the Household model and a subtype of the Household model, the Green House model (Brownie & Nancarrow, 2013; Koren, 2010).

The Household model of culture change entails renovating old facilities or building new ones that are structured as "households" or "small homes" (henceforth HHs) in addition to making care resident-centered and -directed, fostering close resident–staff relationships, and empowering direct care workers (Elliot, Cohen, Reed, Nolet, & Zimmerman, 2014; Norton, 2006). In the HH model (Norton, 2006), small groups of residents live in private rooms surrounding a living room-like area and a dining area and kitchen where foods that residents prefer are available around the clock. When implemented as proponents advise (Norton, 2006), the HHs do not have long hallways, nurses' stations are discreetly located, and there are several more intimate gathering spaces where residents, family, staff members, and members of the community can interact, often including an unlocked outdoor space. They also advocate that resident choice and direction should guide all aspects of nursing home life. As important as providing excellent medical care, the nursing home should be a place where residents take pleasure in their surroundings, are actively engaged in whatever they choose to do (for those with sufficient cognitive abilities), and enjoy close relationships with staff members, their family and the community. Given that HH-model nursing homes are meant to be much more like the homes that residents left than so-called "traditional," institutional facilities, adopting this model usually requires a major capital outlay (e.g., Jenkens, 2011) in addition to making comprehensive changes to organizational policies and procedures and considerably retraining staff (Koren, 2010).

Numerous qualitative studies have appeared to show clear benefits of adopting the HH model for residents' well-being. In a case study of one of the U.S.'s first HH-model facilities, Green found that the facility's smaller scale appeared to free frontline staff members' time so that they could engage in more frequent social interactions with residents, as well as perform more HH-related tasks such as cooking for residents; residents also seemed to become more engaged in daily life and more willing to be social with others (Green, 2014). In a case study of a newer HH facility located next to a traditional "legacy home"—the organization's older, unrenovated institutional facility—where interviewed staff worked at both, Kaup found that aides reported feeling closer to residents in the HH facility, although they struggled to identify what made the difference (Kaup, 2016). Finally, several qualitative studies have suggested that dining areas with more intimate spaces and family-style dining appeared to facilitate increased interactions among residents and staff and create a sense of familiarity and enjoyment (Chaudhury, Hung, & Badger, 2013; Hung, Chaudhury, & Rust, 2016; Schwarz, 2004). However, while these studies may have shed light on contextual factors that would be difficult to illuminate with quantitative studies, they did not make comparisons to a control group, and they may have suffered from other limitations common to qualitative research such as confirmation bias (Rabin, 1999).

In contrast, there have been few quantitative and more rigorously controlled studies of the household model, and those that have been performed have yielded mixed evidence as to its effectiveness at improving residents' psychosocial well-being. A relatively large, mixed methods study of HH facilities more generally versus traditional facilities found no direct effect of the care model on resident quality of life (Keefe, 2017). Two smaller quantitative studies found that Green House residents reported better quality of life in several domains, and that compared to control facility residents, Green House residents' probability of being socially engaged appeared to increase over time (Kane, Lum, Cutler, Degenholtz, & Yu, 2007; Yoon, Brown, Bowers, Sharkey, & Horn, 2015). However, Green House residents were also more likely to become depressed over time (Yoon et al., 2015), although this may have resulted from more accurate diagnosis stemming from closer staff–resident relationships. Limitations of these studies include the fact that most did not assess culture change implementation, and in one of the studies, residents at the experimental versus control sites differed demographically.

In addition to the lack of quantitative evidence favoring the household model, few studies have compared psychosocial outcomes in facilities with differing degrees of culture change adoption. This is an important evidence gap because only 13% of U.S. facilities have comprehensively adopted culture change, whereas 74% have partially implemented it (Miller, Looze, et al., 2014). Thus, the most relevant comparison needing study may be that of comprehensive versus partial culture change adopters. Most HH-model adopters have implemented culture change comprehensively (Elliot et al., 2014). Partial adoption, in contrast, typically includes dividing an institutional layout into "neighborhoods"—larger areas than HHs that often include 20–30 residents living in

one part of the building, as well as incorporating some degree of resident choice into dining and sleeping options, consistently assigning staff to the same residents, and implementing some employee empowerment measures (Elliot et al., 2014; Miller, Looze, et al., 2014). Facilities are facing growing pressure to adopt culture change, and increasingly, to redesign themselves as HHs (e.g., Keefe, 2017). Yet, there remains little evidence regarding whether any resident psychosocial benefits produced by the HH model exceed those of more typical, partial culture change adoption within a traditional environment.

The current quantitative, comparative, observational study addressed these evidence gaps by employing high-frequency observations of matched residents as well as staff members at a HH-model facility versus two control sites that were partial culture change adopters. Its goal was to determine directly—with quantitative analyses of observation data—whether the intended psychosocial benefits of the HH model materialized and exceeded those of partial culture change adoption.

Conceptual Model

To assist in designing and interpreting the study, Low and Altman's place attachment theory was employed (Low, 1992). Some background essential to understanding this theory is that as opposed to "spaces," which are abstract and not imbued with specific meaning resulting from one's experiences there, "places" provide a sense of belonging, foster attachments, and perform other functions that suffuse spaces with meaning resulting from lived experience (Low, 1992). Moreover, "place identity"—the knowledge and feelings associated with the environments with which one is familiar—is a fundamental part of an individual's self-identity (Prochansky, 1983). "Place attachment" describes the affective states, thoughts, social interactions, and other drivers and consequences of experience that bond an individual to particular places (Low, 1992). Studies of older adults have shown that it is extremely painful for them to consider leaving their homes and communities due to a need for greater care (e.g., Gillsjö, Schwartz-Barcott, & von Post, 2011). The upheaval associated with moving to a nursing home disrupts an individual's former place attachments and forces her to forge an identity within an entirely new environment, including forming new place attachments (Low, 1992).

For any given place, place attachments have at least five fundamental dimensions:

(1) Affective components associated with activities or other experiences
(2) Cognitive components associated with activities or other experiences
(3) Social-interpersonal components deriving from meaningful experiences with others there
(4) A "place orientation," with the place interlocking with smaller or larger environments (e.g., a resident's private room within a nursing facility)
(5) Temporal components, in which time may be linear (e.g., a beloved past and an uncertain future) or cyclical (e.g., enjoyable, regular mealtimes at one's nursing home).

—(Low, 1992)

Thus, a part of this study was to test whether HH residents formed place attachments to various parts of their environment more so than matched residents at traditional homes. Accordingly, the time residents spent in major facility locations, with particular affective states and levels of cognitive engagement, as well as their activities and the persons with whom they were sharing those experiences, were coded and analyzed.

Hypotheses

The study's hypotheses stemmed from the anticipated dynamics within HH-model nursing homes (Norton, 2006), the findings of the qualitative studies reviewed above, and place attachment theory. There were two sets of hypotheses, one that applied to the findings across all studied environmental areas combined, and another that applied to each environmental area of interest, such as the dining area. Across environmental areas, it was hypothesized that relative to institutional control residents, HH-model residents would display increased positive affect and greater engagement in their activities; spend less time idle, blankly staring, and sleeping during the day; and spend more time in socioexpressive activities and meaningful social and caregiving-related interactions with staff. Additionally, it was hypothesized that given the HH-model facility's intention to implement culture change thoroughly, including in their training procedures and policies, staff members at the HH-model home would provide care that was more person-centered than staff at the institutional control facilities.

Regarding specific places in the environment, it was hypothesized that compared to institutional control residents, HH-model residents would display evidence of enjoying and making greater use of the places, which included the dining area, the common area or hearth, the TV area, and the patio. In each of these places, it was hypothesized that relative to institutional-model controls, HH-model residents would display more positive affect and greater engagement in activities, while spending less time staring blankly, as a window into whether they had formed positive place attachments to those spaces and to whether the HH-model components delivered their intended benefits. Finally, it was hypothesized that relative to institutional-facility controls, HH residents would spend less time parked in hallways and other wheelchair hubs.

Research Design and Methods

Study Design

This study was part of a larger prospective cohort study to test whether residents living in the HH facility experienced

reduced depressive symptoms and slower progression of dementia. At baseline, residents across the three nursing homes were matched on clinical and demographic characteristics. The current, cross-sectional study used data collected at the 1-year follow-up time, which included observing residents' activities, affective state, and degree of cognitive engagement, as well as frontline staff members' activities and affect, at 5-minute intervals for 8 hours each. Staff members' degree of person-centered care delivered to residents was also assessed, and an in-depth culture change implementation assessment was conducted.

All study procedures were approved in advance by an IRB. To recruit participants, social workers at the three sites obtained permission for study staff to contact residents, their families, and staff members about the study. Study staff explained the experiment to those who considered participating and ensured they understood that participation was purely voluntary, while seeking informed consent. For residents, if either a resident or their proxy did not want the resident to participate, they were not added to the study. Staff members were also informed that their supervisors would not learn of their participation status, and that if they participated, only study staff, not their supervisors, would have access to their data.

Resident Sample

At baseline, the study included 26 residents at the HH facility who were successfully matched with 1 of 26 residents at each of the other two homes. The current study included 26 residents at the HH home, 25 residents at the first institutional control site, and 17 residents at the second institutional control site. The remaining residents had either passed away ($N = 9$) or been transferred to another facility ($N = 1$). The residents lost to follow-up did not differ on baseline demographic or health characteristics.

Inclusion and exclusion criteria

All residents on the general care units at each facility, who provided informed consent themselves or via a proxy, were eligible, except for residents whom the facilities' directors of nursing classified as having advanced dementia, who were severely aphasic or otherwise completely uncommunicative, or were on hospice; additionally, residents were excluded if their combination of primary diagnoses, depressive symptoms, and cognitive status did not permit a match with a resident at each of the other two nursing homes.

Matching

At baseline, in May of 2015, each consented HH-model resident was matched to consented residents at the two control facilities based on:

(1) Presence or absence of a dementia diagnosis.
(2) Cognitive status (a Brief Inventory of Mental Status [BIMS] score to within 3 points, or a staff cognitive assessment at the same impairment level).
(3) Presence or absence of depressive symptoms and diagnosis (for symptoms, a Patient Health Questionnaire 9 [PHQ-9] score to within 2 points).
(4) Primary diagnoses (e.g., dementia or an ischemic event), to the extent possible given the variation in doctors' choices of primary versus secondary diagnoses.
(5) To the extent possible, age to within 5 years, gender, and race.

The BIMS and PHQ-9 are both part of the validated, quarterly assessments made of all residents at certified nursing homes, comprising part of the Minimum Data Set 3.0 health information that is reported quarterly to the Centers for Medicare and Medicaid Services. The BIMS is a measure of cognitive functioning, with scores that range from 0 to 15, with higher scores indicating better cognitive function. The PHQ-9, which measures the type and severity of depressive symptoms, has scores ranging from 0 to 27; higher scores indicate larger numbers of, and/or more severe, depressive symptoms.

Staff Sample

At baseline, the study included 18 aides and two nurses at the HH facility, 16 aides and two nurses at the legacy control, and 14 aides and three nurses at the second control site. At the current follow-up time, there remained 18 aides and one nurse at the HH facility, 15 aides and one nurse at the legacy control site and 13 aides and one nurse at the second control site.

Settings

The three sites were located within 20 miles of one another in a mid-Atlantic U.S. state. The experimental facility was chosen because of its known attempt to adopt the household model of culture change comprehensively, and the other two sites were chosen because they were known to be partial adopters of culture change that were conveniently located relative to the experimental home. All three had not-for-profit ownership, and their RN, LPN, and aide staffing ratios and levels were identical. All neighborhoods used in the study were intended to have a typical case mix of residents, for example, residents and staff from specialized dementia care units were not included. However, the three facilities were not matched on case mix and may have differed in that regard.

HH-model facility

This facility was recently built and the organization's leadership intended from the outset that its staff would strongly adopt culture change. It began admitting residents in December, 2014, and had been operating for 19–22 months during the study. The study used two neighborhoods that were in turn divided into two 16-resident HHs that were separated by hallways. Each HH featured a central kitchen and dining area, with baking and cooking taking place throughout the day and food available any time. All rooms

in each HH were private except for one double suite. Each HH contained two central, small gathering areas outside the dining room, one of which had a TV. The nurses' stations were inconspicuously located near the hallway leading to the neighborhood's other HH. Each neighborhood featured a locked patio where it was expected residents would tend to a vegetable and flower garden. Most residents in this facility privately paid for their rooms and care.

Legacy control facility

This facility was one of the same organization's older nursing homes which continued to operate with its institutional layout after the HH facility opened (hence the "legacy" designation). The management had gradually been implementing culture change since the late 1990s when it was certified as an Eden facility. The study made use of three neighborhoods, each with 20–21 residents. Most rooms were semi-private and located along a long hallway, with a central nurses' station midway through each hallway. There was a single large common area for both neighborhoods featuring natural sunlight, a piano, and a TV. There was also a single patio with a garden which was unlocked during the warmer months. As with the HH-model home, most residents in this facility privately paid for their rooms and care.

Second control facility

This facility with an institutional layout was religiously affiliated, with different ownership. Its management had slowly begun implementing culture change. The portions used in the study consisted of two neighborhoods with 30 residents each. In each neighborhood, all rooms except two were semi-private and located along a long hallway. The dining room also served as the common area, TV area, and activities area. The facility had an unlocked patio, but the neighborhoods used in the study were on the second floor of the building, serviced by pass-operated elevators, so for the study's residents, the patio was effectively locked. In contrast to the above two homes, most residents in this facility had their rooms and care paid for by Medicaid.

Culture Change Implementation Assessment

During the larger cohort study's 12-month follow-up period (the time at which the presently reported observation data were collected), an assessment of each facility's implementation of culture change was conducted. At each site, the nursing home administrator completed Miller and colleagues' culture change questionnaire, which had been shown to elicit more accurate answers than The Artifacts of Culture Change tool (Miller, Looze, et al., 2014). The Miller instrument assessed culture change in three domains: Nursing Home Environment, Resident-Centered Care, and Staff Empowerment. It also asked them to judge their overall stage of implementation, with choices being "complete adoption," "partial adoption," and "traditional nursing home" (nonadoption).

The Miller instrument, however, included relatively few questions about on-unit dining and organizational policies supporting culture change. Thus, to further rank the homes against one another and among facilities nationally, the administrators were asked to complete the 23 published items in Elliot and colleagues' culture change assessment tool, which included questions on Dining on the Unit, Practice and Organizational Policies, Staff Coordination, and Environmental Transformations (Elliot et al., 2014). An additional reason for using Elliot and colleagues' tool was that it had revealed partially separate clusters of culture change practices in HH-model facilities versus traditional homes implementing culture change, which further helped to place the study's facilities in a national context.

A further component of the implementation assessment was structured interviews with the human resources directors for each facility to determine the extent to which the principles of person-centered care and culture change were incorporated into hiring procedures, training procedures, and organizational policies. This aspect of the assessment also included a review of recent advertisements for aides at the three facilities that were provided by the human resources directors, to determine further whether the facilities' staff characteristics might have differed.

Finally, twice during the 8 hours of staff members' observations, the observing team (described in the Observations section below) administered the CARES Observational Tool (COT; HealthCare Interactive Incorporated, Minneapolis, MN; Gaugler, Hobday, & Savik, 2013) to assess the degree of person-centeredness in the care they provided to residents. The COT is designed to assess a single episode of care, starting when the staff member approaches the resident and ending at the conclusion of that care episode. Care is rated on 16 items worth one point each, including whether the staff member greets the resident by name, involves the resident in the care activity (e.g., "Please lift your arms"), and mentions at least one personal detail (e.g., "How was your daughter's visit yesterday?"). The tool has been found to demonstrate high face validity, content validity, and interrater reliability (Gaugler et al., 2013). When providing consent, staff members were informed that "their activities would be observed," but not that their care would be evaluated.

Observations

The observation techniques employed here were inspired by dementia care mapping (Brooker, 2005; Williams & Rees, 1997), although they were designed to provide considerably more detail about residents' daily lives. Eight trained undergraduates who were kept blind to the study's overall purpose and hypotheses observed residents or staff members two at a time, at 5-minute intervals, for a total of 8 hours. The observations took place from 11:00 a.m. to 3:00 p.m. and 3:30 p.m. to 7:30 p.m., timed to include two meal periods and four-hour portions of the staff members'

morning and late-afternoon/evening shifts. All observations were completed during the summer of 2016.

The observers worked in teams of two, and team composition varied each day, with all observers monitoring residents and staff across all three sites to evenly distribute any bias or inaccuracy. Observers were instructed not to coordinate their coding, to provide as full and unbiased a representation of residents' and staff's activities and other coded parameters as possible. They were told at the outset of the study that the purpose of the experiment concerned one or more nursing homes' interventions to reduce depression and slow the progression of dementia, but that the specific purpose of the study, the intervention(s) being tested and the study hypotheses could not be revealed until their observations had been completed. At the end of the observation period, they were quizzed on the study's aims and hypotheses, and their choices were at chance level. The observers took measures to prevent residents and staff members from knowing they were the target of a given day's observations, walking around the facility appearing to code information about all the activities and people around them rather than exclusively following or sitting by the targeted residents or staff members.

There were two notable judgment calls that had to be made regarding coding, and the observers were given instructions on how to handle them. First, for the dining room/multipurpose space in the second control facility, when residents had food in front of them or were seated in the same position as where they had eaten, observers coded that time as being spent in the dining area. When residents were not eating and in different positions, the observers coded the time as being spent in the common area. Second, when residents were in the TV area and the TV was playing, residents' activity was coded as "watching TV" even if they were not paying attention. In that case, their engagement was encoded as "engaged in other activity," "staring into space," or "eyes closed/sleeping," as appropriate.

Measures

For residents, at each interval, the observers coded the following categories:

(1) Primary activity (e.g., eating)
(2) Secondary activity, if any (e.g., talking)
(3) With whom the activities were occurring
(4) Where they were occurring
(5) Residents' affective state
(6) Residents' degree of cognitive engagement
(7) When talking with staff members, whether the conversation was "task-oriented" or "social."

The Observed Emotion Rating Scale, which has been validated in elderly populations (Lawton, 1999) and extensively used for observations of older adults with dementia (e.g., (Moyle et al., 2013; Phillips, Reid-Arndt, & Pak, 2010), was adapted for coding affective states; choices included "pleasure," "anger," "anxiety/fear," and "neutral." The Menorah Park Engagement Scale, which has been validated in nursing home populations (Camp & Skrajner, 2004) and used in observations of residents with dementia (e.g., Camp & Skrajner, 2004; Skrajner & Camp, 2007), was employed to code engagement; its choices were: "actively engaged," "engaged in other activity," "staring into space," and "eyes closed/sleeping." When staff appeared to be administering personal care to a resident in his or her room, the observers coded it as such but made no attempt to code the other parameters.

For staff members, all parameters above except engagement were coded. For affective state, the Observed Emotion Rating Scale with the choices above was also used partly because it had been employed in studies of younger populations (e.g., Schipor, 2011). Engagement was not coded because staff members were expected to be actively engaged throughout their shifts. As described in the section above on the culture change implementation assessment, twice during the 8 hours of staff members' observations, the observers also administered the COT to quantify the degree of person-centered care they provided to residents.

Data Analysis

Analyses of resident data were carried out with Stata v.12 (StataCorp, College Station, TX) and analyses of staff data were conducted with SPSS v.21 (IBM, Armonk, NY). One-way analyses of variance (ANOVAs), chi-square tests, and Fisher's exact tests were used to determine whether residents or staff across the three homes differed on any demographic or (for residents) clinical characteristics. Factors found to differ were included in the analyses of observation data.

Observation data from residents were analyzed with mixed linear models, with the dependent measures being the total time spent in displaying positive affect, active engagement, and in the other manners hypothesized above. For analyses of overall effects and the amount of time spent in each environmental area, the denominator was total time observed (8 hours in most cases). For further analyses in specific parts of the environment, for example, time displaying positive affect in the dining area, the denominator was the total time spent in that location. When total times were found to differ across facilities, the percentage of time spent displaying positive affect in that location or in the other hypothesized manners was analyzed. The key predictor variable was nursing home, for which fixed effects were computed, and additional covariates, also modeled as fixed, included any factors above found to differ among residents across facilities. Match was modeled as random because it was expected that the covariance would be higher within matched triplets of subjects. Follow-up Tukey Honestly Significant Difference (HSD) tests comparing the HH home to the other two facilities were performed (which corrected for the multiple follow-up tests).

Observation data from staff members were analyzed with ANOVAs, with similar dependent measures, the predictor variable nursing home, and any covariates found to differ across facilities. However, because not all staff members were not observed for 8 hours (a few were only observed for 4–7 hours), only the percentage of time spent in a given manner was analyzed. Follow-up Tukey HSD tests comparing the HH home to the other two facilities were performed.

Sample Size, Power, and Detectable Differences

The sample included 78 subjects with 26 subjects in each of the three groups. For percentages of time spent idle, displaying positive affect, or any of the other hypothesized conditions, the study had power of 0.83 to detect a small-to-moderate effect size $\delta = 0.37$, with $\alpha = 0.05$.

Results

The results of the Miller and colleagues' culture change assessment (Table 1) confirmed that the HH-model home had implemented culture change to a greater extent than the other two facilities, with a total score of 34 of 51 possible points, compared to 16 points for each of the other two homes. The vast majority of the disparity arose from the HH facility's environmental differences: The HH-model facility scored nearly three times the national average in this assessment area, significantly exceeding it ($p < .05$), whereas the two control homes had environmental scores statistically similar to the national average. In the other two assessment domains—resident-centered care and staff empowerment—in contrast, all three homes' scores were in line with the national averages. Although this tool indicated that the three facilities were similar in the degrees to which they had adopted resident-centered care and staff empowerment practices, the results with the Elliot and colleagues' tool showed that the HH-model home extent of culture change adoption exceeded that of the other two facilities in those domains as well. Unlike the other two homes, the HH-model home had adopted on-unit dining and had implemented more extensive resident-centered practices, including much greater resident choice in dining options and sleeping times, more measures to foster close resident–staff relationships, and vastly more culture change-oriented organizational policies.

Overlaying the HH-model home's practices, procedures, and policies on the clusters of practices, procedures, and policies found by Elliott and colleagues nationally, the HH facility appeared to be typical of HH-model adopters nationally (Elliot et al., 2014).

The interviews with human resources directors revealed additional differences among the facilities. First, principles relating to culture change were incorporated into position advertisements and training for aides and nurses only at the HH-model facility. But the owning organization of the HH facility and first institutional (legacy) control included language in the advertisements and in the modules of their training procedures about the organization's core principles, unlike those for the second institutional control. Several of the core values overlapped with the principles of person-centered care, for example, respecting the individuality and dignity of each resident. This might have led to the HH and first control facilities having more similar results regarding interactions between staff and residents. Finally, although it was not required, over 90% of staff members at the first institutional (legacy) control had undergone the 3-day Eden certification training in person-centered care, whereas fewer than 10% of staff members at the HH-model home and second control home had done so. This too might have caused the HH facility and legacy control site to exhibit more similar resident–staff interpersonal dynamics than among residents and staff at the second control site. Somewhat mitigating those possibilities, the HH facility was found to have a higher aide turnover rate than the legacy control (25% vs 7%; data were unavailable for the second institutional control).

Finally, analyses of staff members' COT scores showed that the HH-model home's staff cared for residents in a more person-centered manner ($F(2,45) = 6.589$, $p = .003$). Aides and nurses at the HH facility outperformed staff at both the legacy control home (Tukey HSD $p = .001$) and the second control facility (Tukey HSD $p = .019$).

Table 2 presents the sample of residents at each facility who participated in the current study. The residents remaining in the sample were closely matched, but differed

Table 1. Results for Each of the Three Facilities of the Miller and Colleagues' Culture Change Implementation Assessment, Compared to the Results for Nursing Homes Nationally

	Household model	Institutional legacy control	Second institutional control	U.S. mean (*SD*)
Perceived level of culture change implementation	"Complete adopter"	"Partial adopter"	"Traditional nursing home"	"Partial adopter"
Nursing Home Environment (22 points possible)	19*	7	3	6.5 (3.9)
Resident-Centered Care (8 points possible)	6	3	6	5.2 (1.8)
Staff Empowerment (21 points possible)	9	6	7	10.5 (3.2)
Total (51 points possible)	34*	16	16	18.2 (5.4)

Note. *SD* = standard deviation. An asterisk denotes $p < .05$ for comparisons with the national statistics.

slightly in their racial composition and mean PHQ-9 (the tool measuring depression) scores. Although there were no differences between subjects remaining in the sample and those who died or were transferred to another facility, those who died may have been sicker in an unmeasured respect such as their secondary diagnoses, or the study was underpowered to detect measured differences, or both. Table 2 profiles the remaining staff members, largely certified nursing aides, by facility. They differed on gender, but were otherwise similar across the sites.

Table 3 presents the mean percentages of times residents and staff spent in the hypothesized manners (expressed as percentages throughout for simplicity). The presentation of results below parallels the presentation of hypotheses, first concerning observations across all environmental areas and then those occurring within specific places in the environment.

The findings with observations across all parts of the environment supported several of the hypotheses. There was no overall difference in time displaying positive affect overall between HH residents and those in the control facilities. Regarding cognitive engagement, however, there were several significant findings. Compared to residents at the institutional control facilities, residents at the HH-model facility spent less time idle overall ($F(2,38) = 20.14$, $p < .00005$)—only half as much time as residents at the legacy control home (Tukey HSD $p < .0005$) and only one-third as much as residents at the other control home (Tukey HSD $p < .0005$). Additionally, compared to institutional-control residents, HH-model residents spent less time idle and blankly staring ($F(2,38) = 3.54$, $p = .0389$). There were no differences between HH residents and control facility residents in time spent sleeping during the day or time engaged in socioexpressive activities such as playing cards or drawing.

Additionally, there were several differences regarding interpersonal interactions between residents and staff members. HH-facility residents and staff spent more time in personal care sessions than did residents and staff at the control facilities (resident data: $F(2,38) = 4.04$, $p = .0257$)—almost three times more than at the legacy control home (Tukey HSD $p < .005$) and almost six times more than at the other control site (Tukey HSD $p < .005$). HH-model residents and staff spent more time in other task-oriented interactions than residents at the other two homes (resident data: $F(2,38) = 3.85$, $p = .0301$; staff data: $F(2,45) = 4.919$, $p = .001$)—significantly more time than at the legacy control home (Tukey HSD $p < .0005$) as well as the second control home (Tukey HSD $p = .043$). There was some evidence that they spent more time in non–task-oriented social interactions as well, with only a marginal difference across the three nursing homes (staff

Table 2. Profile of Residents and Staff in the HH-Model Facility, Legacy Institutional Control Facility and Second Institutional Control Facility

	Household model	Institutional legacy control	Second institutional control
Resident characteristics			
N	26	25	17
Mean age (*SD*)	85.8 (8.3)	86.8 (9.1)	86.9 (7.4)
Female gender (%)	76.0	84.0	58.8
Race (%)**			
White	100.0	92.3	70.5
Black or Asian	0	7.7	29.5
Dementia Dx (%)	88.4	88.0	88.2
Mean BIMS score (*SD*)	6.8 (4.2)	6.9 (4.7)	6.9 (4.3)
Depression Dx or depressive symptoms (%)	60.0	68.0	62.5
Mean PHQ-9 score (*SD*)**	1.0 (2.9)	2.6 (5.3)	0 (0)
Staff characteristics			
N	19	16	14
Role (%)			
Nurse (LPN or RN)	5.3	6.3	7.1
Nursing aide	94.6	93.7	92.9
Female gender (%)*	79.0	100.0	100.0
Race (%)			
Asian	10.5	6.3	23.0
Black	52.6	75.0	61.5
Hispanic	10.5	6.3	0
White	26.3	12.5	15.4

Note. ANOVA = analysis of variance; BIMS = Brief Inventory of Mental Status to assess cognitive functioning; Dx = Diagnosis; PHQ-9 = Patient Health Questionnaire-9 to assess depression; *SD* = Standard deviation. Asterisks indicate factors that differed significantly across facilities in the overall ANOVAs (for continuous covariates) or chi-square/Fisher's exact tests (for categorical covariates) used to assess potential confounding. *$p < .05$; **$p < .01$.

Table 3. Main Results of the Study

	Percentage of time (*SD*)					
	Residents			Staff		
Overall hypotheses	Household model	Institutional legacy control	Second institutional control	Household model	Institutional legacy control	Second institutional control
Cognitive engagement						
Time displaying active engagement in activities	33.5% (21.8%)	39.2% (24.6%)	28.5% (18.7%)	–		
Time engaged in socioexpressive activities	15.6% (12.7%)	22.5% (22.5%)	12.1% (8.6%)	–		
Time idle	**10.1% (6.6%)******	**20.3% (14.4%)**	**33.1% (20.2%)**	–		
Time staring blankly	6.6% (8.0%)	11.6% (12.7%)	9.1% (10.1%)	–		
Time sleeping during day	4.3% (7.8%)	11.9% (23.4%)	2.8% (4.7%)	–		
Affective state						
Time displaying positive affect	3.3% (3.8%)	3.2% (4.2%)	3.7% (3.4%)	6.7% (3.8%)	5.1% (3.8%)	4.8% (4.4%)
Social interactions						
Time spent in resident-staff "social" interactions	1.4% (2.0%)	0.8% (1.8%)	1.1% (1.5%)	9.9% (4.9%)	8.6% (6.3%)	5.9% (4.3%)
Time spent in personal care	**13.0% (8.1%)***	**4.9% (2.8%)**	**2.2% (1.7%)**	8.4% (6.6%)	8.2% (5.9%)	6.2% (4.2%)
Time spent in resident-staff "task-oriented" interactions	**2.0% (3.3%)***	**0.5% (1.0%)**	**0.6% (0.9%)**	**15.1% (10.4%)***	**4.2% (3.5%)**	**10.2% (8.2%)**
Hypotheses for specific parts of the environment						
Time parked in the "hallway or other wheelchair hubs"	**5.0% (5.8%)***	**21.2% (14.2%)**	**6.4% (8.2%)**	–		
Time staring blankly	8.3% (24.7%)	14.5% (25.4%)	15.1% (28.3%)	–		
Time in the "dining area"	**24.2% (13.8%)******	**15.6% (16.0%)**	**39.6% (31.7%)**	**19.8% (9.8%)***	**9.3% (6.9%)**	11.4% (9.4%)
With active engagement	**67.1% (38.8%)****	**60.7% (60.6%)**	**46.1% (41.2%)**	–	2.5% (4.2%)	16.1% (29.3%)
With positive affect	**6.9% (9.0%)****	**0.6% (1.8%)**	**2.4% (3.3%)**	10.8% (11.8%)	**8.1% (5.8%)**	**21.6% (6.2%)**
Engaged in resident-staff conversations	**19.9% (28.6%)***	**2.0% (7.2%)**	**9.8% (13.3%)**	**29.5% (5.5%)***		
Staring blankly	14.5% (17.4%)	23.9% (44.7%)	15.4% (19.3%)	–		
Time in the "common area"	28.1% (17.9%)	25.6% (25.6%)	41.1% (29.0%)	–		
With active engagement	40.7% (30.2%)	30.7% (25.8%)	29.9% (32.2%)	–		
With positive affect	3.3% (5.0%)	2.3% (6.0%)	4.9% (5.9%)	–		
Staring blankly	6.3% (12.1%)	13.0% (15.9%)	16.9% (26.3%)	–		
Time in the "TV area"	15.3% (15.3%)	11.7% (16.5%)	8.7% (8.3%)	–		
With active engagement	35.2% (25.0%)	43.9% (30.6%)	28.2% (30.2%)	–		
With positive affect	3.0% (9.4%)	0.5% (2.3%)	3.3% (8.1%)	–		
Staring blankly	**8.4%**** (10.2%)**	**17.0% (11.6%)**	**0.2% (0.5%)**	--		
Time on the "patio"	1.8% (3.6%)	3.4% (4.9%)	2.4% (4.1%)	ł		
With active engagement	19.0% (33.2%)	15.7% (27.6%)	13.8% (30.5%)	–		
With positive affect	5.5% (13.3%)	10.6% (21.6%)	6.8% (16.1%)	ł		
Staring blankly	0	3.4% (11.9%)	6.7% (21.7%)	–		

Note. Mean percentages of time residents and staff spent in the manners hypothesized in the far left column, with standard deviations. Percentages for the overall hypotheses and for time spent in each part of the environment were based on the total time observed. Percentages for conditional activities and states in specific parts of the environment were based on the time spent in that location. Bold font indicates comparisons that were significant at $p \leq .05$. Asterisks denote the level of significance of *F*-tests of fixed nursing home effects. *$p \leq .05$, **$p \leq .01$, ***$p \leq .005$, and ****$p \leq .0001$. – Indicates that there was no hypothesis to be tested and ł indicates that the conditional sample was too small to be analyzed. *SD* = standard deviation.

data: $F(2,45) = 2.428$, $p = .10$), but a significant pairwise difference between HH-model staff and residents and those at the second control home (Tukey HSD $p = .034$) that suggested that HH-model residents and staff spent more time engaged in these social interactions.

With the analyses of specific environmental areas, most of the significant findings were concentrated in the dining area, where there were numerous differences across the facilities. Residents at the second control home, not the HH-model home, spent the most time in the dining area ($F(2,38) = 12.49$, $p = .0001$)—significantly more than the HH-model residents (Tukey HSD $p = .005$). Residents at the second control home also spent the most time dining with staff at their table ($F(2,38) = 5.68$, $p = .0069$). However, HH-model residents displayed positive affect in the dining area the greatest percentage of the time ($F(2,38) = 4.84$, $p = .0167$). They also exhibited active engagement there the greatest percentage of the time ($F(2,38) = 12.01$, $p < .0005$), significantly more of the time than residents at second control home (Tukey HSD $p < .0005$). When staff members were at the table with them, HH-facility residents spent a greater percentage of the time actively engaged with them ($F(2,38) = 9.73$, $p = .0004$)—53.0% of the time at this home versus only 18.3% of the time at the legacy control home (Tukey HSD $p < .0005$). Additionally, both the resident and staff data analyses showed that residents at the HH-model home spent a greater percentage of time talking with staff members while dining (resident data: $F(2,38) = 3.85$, $p = .0301$)—an average of 19.9% of the time, versus only 2.0% at the legacy control home (Tukey HSD $p = .01$); staff data: ($F(2,45) = 3.515$, $p = .038$—also significantly more than at the legacy control site (Tukey HSD $p = .012$)). Finally, the staff data analyses revealed that HH staff members spent the most time in the dining area ($F(2,45) = 5.041$, $p = .011$), which may have reflected time preparing meals or retrieving snacks for residents as well as time spent there while residents were eating—19.8% of their time in the HH home versus 9.3% at the legacy control home (Tukey HSD $p = .004$) and 11.4% at the other control home (Tukey HSD $p = .026$).

There was little support for the hypotheses concerning the common area, TV area, and patio, and only one result was significant. Residents at the legacy control home spent the most time in the TV area staring into space ($F(2,22) = 14.24$, $p = .00001$), significantly more than HH residents (Tukey HSD $p = .01$).

Finally, regarding the hypothesis that HH-model residents would spend less time stationed in hallways and other wheelchair hubs, there were two significant, related findings. HH-model residents spent less time in this manner overall ($F(2,38) = 3.94$, $p = .0278$)—only 5.0% of their day, and this was less than one-fourth as much time as residents at the legacy control home (Tukey HSD $p = .001$).

Discussion and Implications

This was the first study to test quantitatively whether the improved psychosocial dynamics expected from adopting the household model of culture change actually accrued. It revealed that, compared to residents at two control facilities with a traditional environment and an average degree of culture change adoption, HH-model residents experienced a distinct set of enhancements to their daily life. Overall, they spent less time idle and less time stationary in hallways. Additionally, they spent more time with staff engaged in personal care and in other task-related interactions, with some evidence suggesting that they also spent more time in non–task-oriented, purely social interactions with staff. Most strikingly, residents at the HH facility spent a greater percentage of time in the dining area displaying positive affect, showing active engagement, and interacting with staff members. These findings accrued despite the fact that the HH-model and first institutional control facility shared core principles for employees emphasizing providing person-centered care, and that partly toward that goal, most of the staff at the legacy control site, but not at the HH-model home, had undergone Eden training in providing person-centered care. The implementation assessment revealed that HH facility differed most in its environmental layout and resident-choice policies. Thus, together these findings indicate that the HH dining area and resident-choice policies may have played an important role in producing the desired psychosocial dynamics. Further supporting this conclusion, there was little evidence that other parts of the HH's environment yielded the intended benefits or that they contributed to overall improvements to psychosocial well-being. The study was sufficiently powered to detect small-to-moderate differences across the facilities, and yet no significant benefits were found with the more intimate common area spaces or the patio. The findings therefore provide solid though limited support for the benefits of adopting the household model of culture change, relative to partial, more U.S.-typical culture change adoption within a traditional setting. The findings are unlikely to have resulted from demographic or clinical differences among residents at the different facilities because they were matched, and the fact that the observers were kept blind to the study's overall aims and hypotheses mitigated the risk of confirmation bias or observer expectancy effects.

The clearest support for the household model derived from the findings in the dining area, where affectively, cognitively and in their interpersonal interactions, HH-model residents displayed evidence of place attachment. The results with affect were particularly striking: HH residents displayed positive affect while in the dining room more than twice as often as residents at the other two homes—the only part of their environment in which their visible affective state significantly more often indicated pleasure and enjoyment. Studies of quality of life for nursing home residents have consistently identified food as a major domain contributing to well-being (Burack, Weiner, Reinhardt, & Annunziato, 2012; Kane et al., 2003; Shippee, Hong, Henning-Smith, & Kane, 2015). However, the improvements to HH residents' dining experience may have arisen from a combination of factors, including reputedly better

food, more intimate dining spaces, much greater resident choice in dining times and food options (as found in the culture change implementation assessment), and greater closeness to staff members (as suggested by the observational results). Additionally, more than 88% of HH residents had been diagnosed with dementia, and the time they spent actively engaged in eating and talking may have slowed the progression of their disease; previous studies found that person-centered dining areas help residents with dementia maintain their functional abilities and orientation (Chaudhury et al., 2013), likely owing to the cyclical nature of mealtimes (Low and Altman, 1992) as well as enjoyment of the food and social bonding.

The evidence of increased closeness between residents and staff at the HH facility was on display not only in the dining area, but in personal care and other task-related care. The personal care observations were made when residents were behind their bedroom door with one or more staff members, meaning that the nature of their interaction could not fully be discerned; for example, it could have transcended care tasks and entailed substantial non–task-related social interaction and other forms of bonding. Nonetheless, these findings support and extend the findings from qualitative studies that staff at HH-model homes feel closer to residents (Green, 2014; Kaup, 2016), suggesting that it both arises from and reinforces itself with increased interactions during care tasks as well as social discussions during meals. It should be underscored that aide, LPN, and RN staffing ratios and levels did not differ between homes, so they were not a confounder in the relationship between facilities and the time spent in task-oriented care or mealtime discussions.

Another important finding was that HH-model residents spent less time idle and less time parked in the hallways. Numerous studies have found that spending less time idle or socially isolated (e.g., Wilson et al., 2007) and greater time in cognitive and other leisure activities reduces the risk of dementia (e.g., Valenzuela & Sachdev, 2006) and slows its progression after diagnosis (e.g., Langa & Levine, 2014). HH residents' lack of idle time, therefore, combined with their greater time spent in interpersonal interactions and greater cognitive engagement while dining, may have promoted their cognitive health.

Some previous studies of culture change adopters generally (Grabowski et al., 2014; Miller, Lepore, Lima, Shield, & Tyler, 2014) and HH-model adopters specifically (e.g., Yoon et al., 2015) found no or mixed effects on resident psychosocial well-being. It is possible that the benefits found here resulted at least in part from the use of high-frequency, direct observations of residents in their daily environments rather than less direct, Minimum Data Set depression outcomes, as in several of the above studies. Additionally, not all of these previous studies assessed the level of culture change implementation, or they combined various levels of partial adopters together. There is an emerging body of research finding that objectively determined, *comprehensive* culture change adoption, rather than partial or nonadoption, markedly reduces resident depression (Hermer et al., under review) and improves residents' satisfaction with their homes and their quality of life (Kane et al., 2007; Poey et al., 2017). The current study adds to that growing body of research.

The study did not yield significant overall findings for resident affect and engagement, or for specific parts of the environment other than the dining area and hallways, despite having the power to detect small-to-moderate differences brought about partly by resident pairing. In several cases, including those of displaying active engagement and positive affect overall, HH-model residents did not even nonsignificantly exhibit the most positive results. It is possible that more generally, the main benefits of the HH model arise mostly in the dining area and in resident–staff relationships. However, had residents themselves determined that they wanted an unlocked garden, for example, through a deeper implementation of resident-centered care, it is possible that residents would have become attached to, and showed greater enjoyment of, that space. Furthermore, had they been instrumental in the design of the entire facility (which they were not), they may have displayed greater positive affect and engagement overall.

Limitations

Although improved methodologically over many previous studies, this study was limited by its relatively small sample of residents and staff members, which may have resulted in a lack of power to detect real differences and produced other unrepresentative results. Indeed, this was suggested by the finding that residents who died between baseline and the 12-month follow-up period did not differ on any observed characteristics (and that further, they may have differed on unobserved ones). It is possible that a better strategy would have been to include more nursing homes in the study, or to use propensity score adjustment to control for additional, potential differences across subjects such as secondary diagnoses, which it was not possible to incorporate into the matching performed here. However, the large amount of data collected—8 hours of observations for residents, and 8 hours for nearly all staff, throughout at 5-minute intervals—partly mitigated the risk of unrepresentative findings, as did matching residents across the three facilities and ensuring that the samples consisted of a relatively typical nursing home case mix. Another limitation was that the study included only three facilities and may have lacked external validity. However, the fact that the person-centered care implementation assessment revealed the HH facility to be typical of HH-model adopters, and the control sites to be typical partial culture change adopters in the United States, substantially addressed this limitation. These points also address a further concern: that this was an applied study in which the "experimental" facility only approximated a perfect HH-model adopter and

the two "control" sites partially adopted culture change in somewhat idiosyncratic ways, as is typical of partial culture change adopters (Miller et al., 2014). The results of the implementation assessment, however, indicate that the risk that the findings will not generalize to national nursing home populations is lower than for many applied studies. Finally, it should be noted that the study did not control for an additional difference between the HH-model home and the two control sites: its relative newness and the presence of new leadership expecting to implement culture change. The HH-model home had been operating 19–22 months at the time of the study, and its leadership was chosen with their board's express directive to implement culture change fully. Its leaders may have been able to implement "adaptive leadership" (Corazzini et al., 2015) to improve resident–staff relationships and enact other goals of culture change, underscoring that not all differences found here may have arisen from the HH facility's environment.

Implications

Our findings suggest that to enhance residents' psychosocial well-being, facilities lacking the capital to undertake a complete redesign should consider investing in on-unit dining, implementing resident choice to a large degree, and taking measures to foster closer resident–staff relationships. Although further studies are needed, the current findings suggest that providers may be able to reap most of the benefits of the household model in this manner.

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Conflict of Interest

None reported.

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