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ABSTRACT

The purpose of this study was to document the existing environmental, organizational, and operational patterns of PEAK 2.0 participating homes at early stages of adoption and the patterns of sustained adopters to determine whether there were notable or distinguishing features that were different between these two groups. Using a case-study approach, a qualitative mixed-methods research design was employed. The patterns of staffing structures and patterns of spatial layout are used to understand the environmental affordances provided to residents and staff of these settings. The theory of environmental affordances has been applied here as a perceptual framework for understanding how person-centered care (PCC) behaviors can be enacted within a space. Environmental assessments revealed that advanced adopters had patterns of building use that were notably different from those of early adopters. Advanced adopters designated more staff to a single area; early adopters expected staff to cover multiple areas on each shift. Additionally, advanced adopters created more environmental affordances for residents and staff through the types of space allocations and features present. Results demonstrated that if considered holistically and strategically, impactful changes to institutionally shaped buildings can be made to accomplish and sustain PCC goals.

KEYWORDS

Environmental assessment;
person-centered care;
affordances; quality of life

Introduction

In the area of long-term nursing care, there has been a growing movement to change the manner in which we approach both the housing and care for frail elders. These changes are multidimensional and require a total shift in philosophy about what nursing homes and nursing home services should look and feel like. Likewise, terminology has evolved along with these changes in order to express and actualize the distinctions between old institutionalized models of care and newer concepts of person-centered care (PCC). Proponents of the PCC movement typically seek to alter the institution into a home, which embodies inherent physical features as well as the sociocultural attributes related to meaning and place experience. Thus, the

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emphasis is on a holistic milieu, including the acknowledgment of place, and good quality of life for residents, as well as quality health care for chronic conditions (Rabig, Thomas, Kane, Cutler, & McAlilly, 2006, p. 533; Shields & Norton, 2006; Kane, Lum, Cutler, Degenholtz, & Yu, 2007; Lustbader, 2001). Rahman and Schnelle (2008) note, however, that outcomes for PCC models have been difficult to correlate with any specific dimension of the change; therefore, they have been difficult to duplicate. The changing role of staff in these models appears to have a strong tie to the aims of improving quality of life dimensions, yet these roles and the settings they occur in are not well understood. This leaves a continued gap in our understanding of how to use existing traditionally institutional buildings to accomplish person-centered care goals.

Statement of the problem

There are numerous examples of successful models of PCC that have been featured in the literature for their radical shifts in the built environment, such as the Green House models and other small house design strategies (e.g., Rabig et al., 2006). However, the preponderance of nursing home buildings in existence in the United States are still physically designed around a large-scale institutional archetype and mimic the dominant pattern for many health care facilities built since 1960 (Koncelik, 1976; Schwarz, 1996; Thompson & Goldin, 1975). This creates a recurring question for providers: “How do we deliver PCC in an old building?” Resource limitations are frequently noted as the challenge for changing both place and practice simultaneously. In one Midwestern state, an initiative to incentivize PCC care has demonstrated that comprehensive adoption can result in meaningful outcomes for residents and staff (Poey et al., 2017; Hermer et al., 2018b). It is hypothesized that within these participating PCC homes, there are identifiable approaches to using space in nursing home buildings and effective strategies for organizing care teams that can be shared to assist providers in finding feasible ways to use their existing institutional settings to advance their own PCC goals.

Setting criteria for person-centered care

Promoting Excellent Alternatives in Kansas Nursing Homes (PEAK 2.0) is a pay-for-performance program that provides incentive for PCC through financial increments tied to levels of PCC adoption (Hermer et al., 2018a). Participating homes are provided with clear definitions and expectations for implementing PCC, and reviewers who have expertise in PCC and skilled care services evaluate actual adoption of PCC both internally and externally. These characteristics make the PEAK 2.0 program unique

among other PCC models that are adopted by providers in the United States (Poey et al., 2017).

There are four domains in the PEAK 2.0 program: resident choice, staff empowerment, home environment, and meaningful life (see Table 1). All of these domains, which include more detailed cores and strategic practices within them, have been derived from research on PCC that demonstrates those actions that are most likely to positively impact residents and staff (e.g., Colorado Foundation for Medical Care, 2006). Defining characteristics and identifiers have been operationalized so both the staff at the participating home and the external reviewers who assess their outcomes are provided with the same information about what is expected to achieve a passing score. For complete information on the PEAK 2.0 program see <https://www.hhs.k-state.edu/aging/research/peak20/>.

There are six levels of PCC adoption: The Foundation Level is an educational level. As a facility moves to level 1, participants spend a minimum of 1 year implementing PCC in four areas covered in their action plan. At level 2, a facility works to adopt 8–12 program areas—this usually takes at least 2 to 3 years to accomplish. At levels 3–5, homes demonstrate that they can implement and sustain adoption across all 12 areas. Homes at

Table 1. PEAK domains, cores, and strategic practices.

Domains	Cores	Strategic practices
Resident choice	Food	What to eat When to eat Where to eat
	Sleep	Individual sleep routines Undisturbed sleep practices
	Bathing	Bathing choice Bathing alternatives
	Daily routines	Move-in assessment PCC care plan development PCC care plan delivery
Staff empowerment	Relationships	Get small Consistent staffing
	Decision making resident care	Shared understanding Access to information and resources
	Decision making staff work	Staff scheduling Hiring and orientation practices
	Career development	Leadership Professional development
Home environment	Resident bedrooms	Outside education Privacy Personalization
	Resident use space	Self-care and mobility Private space Self-care and mobility
Meaningful life	Supporting the human spirit	Institutional elements Day-to-day life Planned and spontaneous activities
	Community involvement	Internal community External community

levels 4 and 5 can serve as mentor homes to other facilities. The higher the level in the program, the greater is the financial incentive. Results from an analysis of satisfaction surveys demonstrate that homes that are recognized as adopting greater levels of PCC have resident satisfaction characteristics distinguished from those of homes at earlier stages of PCC adoption (Poey et al., 2017). Further, results from a study evaluating clinical care outcomes demonstrate better health for residents in homes with higher levels of PCC adoption (Hermer et al., 2018b). The built environment has multiple variables embedded within the PEAK domains, cores, and strategic practices, but the manner in which a provider accomplishes the outcomes is not prescribed. From the surface many participating homes look very similar, especially in their architectural and interior layout, but the manner in which their spaces have been reconceived by staff and residents may be a critical attribute in establishing and sustaining person-centered experiences. For example, in the domain of “Resident Choice,” the core of “Food” and the strategic practice of “where to eat” require that the home provide alternatives in the locations where a resident can eat a meal. The options that are developed by homes may differ based on the spaces they have available that would be desirable locations for residents to choose from and suitable for supporting staff members in their work associated with meals. The intention of the structure of the PEAK criteria is to recognize the interconnectedness of multiple environmental, organizational, and operational variables in accomplishing PCC goals. The purpose of this study was to document the existing environmental, organizational, and operational patterns of participating homes at early stages of adoption (levels 1 and 2) and the patterns of sustained adopters (levels 4 and 5) to determine whether there were notable distinguishing features that were different between these two groups. The objective of this study is to explore the details and combinations of these contextual variables of the organizational, operational, and environmental practices that may contribute positive environmental affordances that support a more sustainable process for PCC. For the purposes of this article we are reporting primarily on staff work areas and associated patterns as an example of the larger context.

A theoretical approach

While there is important work that has been valuable in identifying the variables associated with improving the quality of life in long-term care, limited attention has been given to some of the variables that are harder to “statistically quantify” and generalize to all settings (Shier, Khodyakov, Cohen, Zimmerman, & Saliba, 2014). For example, self-determination theory offers a solid foundation for the premises of person-centered care as

related to autonomy or having “free choice” (Shura, Siders, & Dannefer, 2010, p. 214). Research has demonstrated, however, that residents’ perception of authentic choice is shaped by contextual variables that nursing home staff may not recognize (Bangerster, Heid, Abbott, & VanHaitisma, 2017). Consider the situation of a resident being asked whether they would like to participate in an activity. If the distance required to travel to activities creates a burden on the resident, or they perceive it to be a burden on the staff, a resident may not experience actual autonomy or self-determination.

The architectural layouts and interior features of many institutional nursing homes reflect (outdated) assumptions about how residents and staff use and experience the spaces (Weisman, 2001, p. 164). If PCC initiatives aim to redefine these expectations within existing institutional models of long-term care, then there is much to be learned about how places can be reconceived to support the desired actions and activities that will support both quality of care and quality of life.

The theory of affordances

This study documents and evaluates select environmental features of nursing homes participating in the PEAK 2.0 program. The patterns of staffing structures and patterns of spatial layout are used to understand the potential environmental affordances provided to residents and staff of these settings. The theory of environmental affordances has been applied here as a perceptual framework for understanding how PCC behaviors can be enacted within a space. This construct was originally explored by Gibson (1976, 1979) as a means for articulating the complexity of the perceptual systems and how individuals react to the opportunities afforded to them through their surrounding environments. This theory has since been extended into other fields of study, including architecture and interiors, and can be used to assess the effectiveness of intentional planning and design strategies for user–environment outcomes (Topo, Kotilainen, & Eloniemi-Sulkava, 2012). Affordances are distinguished from other types of interactions by the potential usefulness of the relationship (Maier, Fadel, & Battisto, 2009, p. 397). In order to advance and sustain meaningful change for residents and staff members who are currently constrained by traditional institutional buildings, it is critical to identify the details of the combination of practices and the environmental features in nursing homes that can work in co-occurrence to support PCC (Shippee, Hong, Henning-Smith, & Kane, 2015, p. 573).

Description of the study

Sample size

In 2016, there were 339 nursing homes eligible to participate in the PEAK 2.0 program, and 229 homes enrolled in PEAK. A purposeful sample of 10 nursing homes was targeted. These homes represent a unique group of PEAK providers who, working with the exact same framework of PCC, are all participating in both an internal assessment of their outcomes and an external review of their level of adoption. Five of these homes were in the early adoption stage of PCC (previously evaluated to be at levels 1–2). These sites shared the similarity of being committed to PCC adoption but not yet at full adoption, and had traditional institutional building types. Five of the homes were at advanced levels of adoption (previously evaluated to be at levels 4–5). These sites shared the similarity of having complete adoption of all 12 cores in the PEAK program, and, they had done so within homes with a traditional institutional layout.

The PEAK staff members conduct reviews of facilities each year and collaborate with the Kansas Department for Aging and Disability Services (KDADS) to make a determination of each participating home's level of PCC adoption based on the domains and cores and the practices as reported and demonstrated by the home. This research study assessment did not attempt to provide another "rating" of accomplishment, but rather was to describe the context of the facility at its current level of PCC performance. It should also be noted that some of these participating homes are dynamic, not static, and were actively evolving their PCC adoption efforts during the study. The goal was not to document their active change, but rather to take a "snapshot" of the existing environmental settings and operational practices that were in play at that particular level of PCC adoption and provide a visual, diagrammatic, and narrative articulation of any differences for deeper understanding.

Methods

Using a case-study approach, a qualitative mixed-methods research design was employed (Creswell, 1994; Groat & Wang, 2002; Yin, 1984). This project was approved for use of human subjects in research through an institutional review board (IRB) office. Yin (1984) notes that case studies can be either descriptive or explanatory in purpose. This methodological approach applies a descriptive framework. Data collection for each of the homes included ethnographic approaches, including participant observation and open-ended staff interviews; archival search and schematic articulation of the setting to provide architectural layouts and as-built conditions; an analysis of the floor plans to establish environmental inventories; and photo

documentation of the composition of the interior features and spaces and equipment integral to strategic practices that support PCC.

The overall characteristic of ethnographic work includes holistic exploration of a setting using context-rich detail; a reliance on unstructured (i.e., not precoded) data; a focus on a single case or small number of cases; and data analysis that emphasizes meaning and functions of human actions in a cultural context (Groat & Wang, 2002, p. 183; Morse & Niehaus, 2009, p. 96).

In order to transfer the everyday experience of residents in the nursing home into policy change and better practices, research strategies must better capture the richness of the lived experience. Consistent information at each home was collected in systematic ways, but at times in different order and at various levels of depth. Every effort was made to confirm information obtained about patterns of practices and environmental use from at least two sources of evidence.

The approach to interviews was both semistructured and spontaneous. Due to the dynamic nature of each of the sites visited, open-ended interviews with staff varied in number of staff members and duration. Types of staff positions represented included administrators, directors of nursing (DONs), other professional nurses, certified nurse aids, dietary staff, and housekeeping staff. In many cases, interviews were conducted when the staff member was between tasks. While this created variability between the case studies (a notable limitation), it also allowed the researchers to be immediate with questions as they were contextually relevant to the observation or needed information to verify other information collected. Information gathered through interviews was recorded through written field notes and used to correspond with other documented observations and information gathered. Interviews were not formally coded.

Handwerker (2001) describes quick ethnography as an approach consisting of a methodological package that integrates conventional means of collecting cultural data and analyzing cultural data, including organizational data through Gantt and PERT (Program Evaluation Review Technique) charts with more novel forms of data collection and analysis (p. 4). Graphic ethnography—still-photo data as well as other graphic-based imagery—can be effectively used to capture and convey these meanings and processes at a more descriptive level (Pink, 2006). When complementary tools are incorporated they have the potential of yielding findings with high construct validity (Handwerker, 2001, p. 4).

As noted, the evaluative approach for these case studies was to use a descriptive assessment. Descriptive assessments differ from evaluative assessments in that no “rating” is applied to the recording of the information (Craik & Feimer, 1987). The environmental assessments included

Table 2. Example of environmental inventory to document the spaces in SWAs and shared spaces in the home.

Participating Home 4b				Primary users	Secondary users	Other users
	Room/space	Qty:	Description			
Rooms/ Spaces in SWA.EM	Resident rooms (per staff work area)	8	16 total residents			
	Private	0				
	Shared—Level 1 (traditional; side-by-side beds, only a curtain for visual separation)	8		Residents	Staff	Visitors
	Dining room	1	Small dining space used by SWA.EM residents. Residents may elect to use another dining room	Residents	Staff	Visitors
	Shower room	1	Shared with SWA.SK	Residents	Staff	
Rooms/ Spaces in SWA.SK	Staff desk	1		Staff		
	Resident rooms (per staff work area)	10	11 total residents			
	Private	9		Residents	Staff	Visitors
	Shared—Level 1 (traditional; side-by-side beds, only a curtain for visual separation)	1		Residents	Staff	Visitors
Rooms/ Spaces in SWA.WM	Chapel/activity room	1	This space is shared with SWA.EM and SWA.WM	Residents	Staff	Visitors
	Dining room	1	This is also an activity room that is used by all residents.	Residents	Staff	Visitors
	Resident rooms (per staff work area)	10	16 total residents			
	Private	4		Residents	Staff	Visitors
	Shared—Level 1 (traditional; side-by-side beds, only a curtain for visual separation)	6		Residents	Staff	Visitors
	Dining room	1	Largest of the dining rooms and can be used by all residents. Located farthest from resident rooms	Residents	Staff	Visitors
	Bathing room	1	Shared with SWA.SK	Residents	Staff	
Rooms/ Spaces Shared between SWAs within Facility	Shower room	1	Shared with SWA.SK	Residents	Staff	
	Staff desk	1		Staff		
	Linens/supply closet	1	Shared among all halls	Staff		
	Janitor closet	1	Shared among all halls	Staff		
	SWAs in neighborhood	3				
	Bathing/shower rooms	3	As noted on SWA.EM and SWA.WM	Residents	Staff	
	Linens Closet	1	As noted on SWA.WM	Staff		
	Laundry room	1		Staff		
	Nurses' station	0	There is no traditional nurses' station.	Staff		
	Staff offices	7	DON, MDS, SSD, Activities, Staff, Business, Administrator	Staff		
	Med room	1	They use med. carts and treatment carts	Staff		
	Med supply room	1	Located along SWA.SK hallway	Staff		
	Oxygen storage	1	Located at the intersection of all hallways	Staff		
	Soiled utility room	1	Located at the intersection of all hallways	Staff		
	Living room/sitting area	1	There is one sitting area at the intersection of all of the SWAs	Residents	Staff	Visitors
Bistro	1	This room at the intersection of all SWAs always has snacks and soup available.	Residents	Staff	Visitors	
Country store	1	Directly off of the SWA.WM dining room is a country store that is used by residents, staff, and visitors	Residents	Staff	Visitors	
Salon	1	There is a salon with two stations located adjacent to the SWA.WM dining room	Residents	Staff	Visitors	
Private dining room	1	Chai-to-chew room for small gatherings and parties, also used by three ladies from different halls for meals.	Residents	Staff	Visitors	
Central kitchen	1	All food is prepared centrally and transported to the various dining rooms.	Staff			
Central laundry	1	All laundry is managed in-house in a central location and transported back to residents on carts	Staff			

completing an environmental inventory of the composition of spaces contained within the building (see Table 2). These spaces were described and diagrammed in relationship to identified staff work areas (SWAs) within the building (see example in Figure 1). This included verifying (and sometimes correcting) the floor plan drawings for the facility based on current patterns of use; photo documentation of the primary interior components related to the PEAK domains; and documentation of key functions of space and environmental supports present or absent.

Cross-sectional information, data obtained at a singular point in time, about patterns of use in the building was collected and recorded by two lead researchers on this project. In order to confirm interpretations, information was frequently cross-checked to assure accuracy. If differing interpretations existed, additional evidences were sought and collected. Observations included staff movements throughout the building, staff engagement with

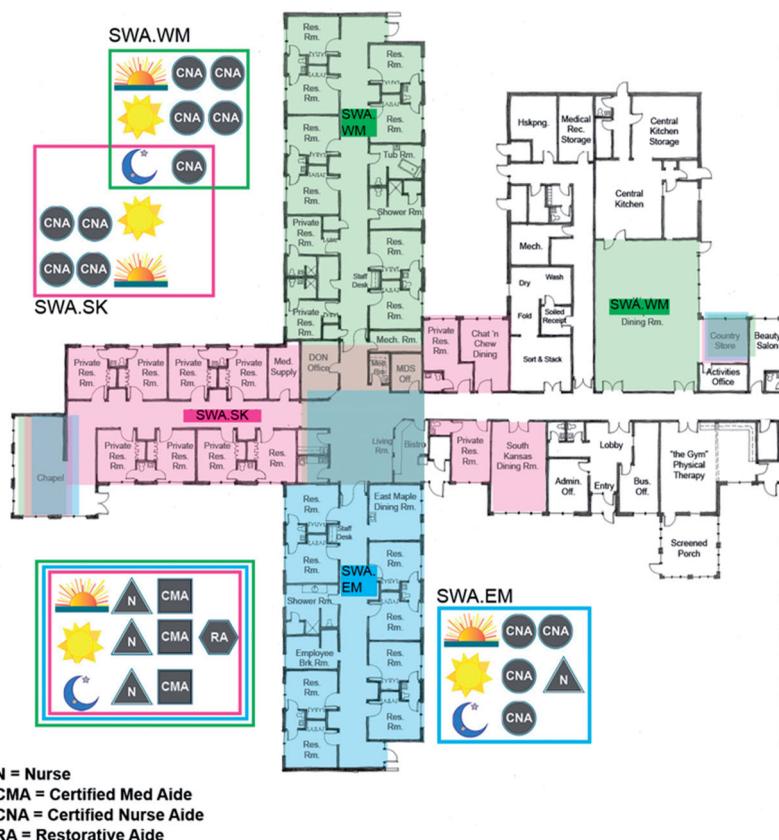


Figure 1. Example of floor plan diagramming locations of SWAs and staffing assignments by shifts; AM, PM, night.

residents in social areas, and use of different environmental features throughout the building (e.g., nurses' stations, charting areas, kitchen equipment, etc.) These collected pieces of information (i.e., photographs, floor plans, staffing schedules) were used to correlate between the "stated" and the "enacted" practices of the facility (Zube, 1991). The information was then organized according to environmental attributes related to spatial parameters, as well as temporal patterns related to staff shifts (see Tables 3 and 4).

Specific strategies for the environmental assessment

The staff work area

One of the key spatial features of the PEAK 2.0 criteria is the identification of a "staff work area" (SWA¹). This is described in the program criteria as

¹The term "staff work area" (SWA) is as a generic term used by the PEAK program to define the zone where staff members are assigned. Individual homes may refer to these identifiable areas as "house," "household," or "neighborhood." The purpose of using a generic term in the PEAK 2.0 program was to be inclusive of all the variations of approaches that a nursing home may apply to meeting this standard, and to avoid implying that a facility had to have invested in a major construction project to accomplish this expectation.

Table 3. Temporal staffing patterns for SWAs for level 1 and 2 homes.

Area Identifier	SWA	Approx. SF/ SWA	Approx. SF/NBHDs	No. of Res/SWA	No. of Res/NBHDs	No. of Staff/SWA AM Shift (6a-2p)		No. of Staff/SWA PM Shift (2p - 10p)		No. of Staff/SWA Night Shift (10p-6a)	Approx. SF/Res. in SWA	Approx. SF/Res on NBHDs	Approx. SF/Staff in designated SWA		Approx. SF/ Staff on Neighborhood			
						Dedicated	Floating	Dedicated	Floating				AM	PM	AM	PM	Night	
Participating Home (1.a)	SWA.NH	6,148	19	0	0	0	0	0	0	0	324	NA	NA	NA	NA	NA		
	SWA.SH	5,944	19	45	0	10	0	7	0	3	313	400	NA	NA	1,800	2,571	6,000	
	SWA.EH	4,800	7	0	0	0	0	0	0	0	686	NA	NA	NA	NA	NA	NA	
Participating Home (1.b)	SWA.NR	12,855	31	5	5	2 ^a	5	1 ^b	2	1 ^b	415	415	2,571	2,571	6,428	7,877	15,753	
	SWA.R	2,898	8	8	2	2	2	1	1	0	362	362	1,449	1,449	2,898	1,449	2,898	
Participating Home (1.c)	SWA.TLC	5,151	18	18	4	2	2	1	1	0	286	286	1,288	2,576	5,151	1,288	0	7
	SWA.S ¹	8,988	12	36	0	0	7	0	3	0	749	419	NA	NA	NA	1,887	2,157	5,033
	SWA.L ¹	10,426	24	24	0	0	8	0	0	0	434	434	NA	NA	NA	NA	NA	NA
Participating Home (2.a)	SWA.SH	5,974	15	50 ^a	6	4	4	0	0	0	398	447	996	1,494	NA	NA	NA	9,112
	SWA.KH	11,854	35	35	7	3	3	0	3	0	339	339	1,693	3,951	NA	NA	NA	NA
	SWA.HH	4,982	16	16	5	4	4	1	1	0	311	311	996	1,246	4,982	996	1,246	4,982
Participating Home (2.b)	SWA.CC	9,570	25	45	0	0	7	6	0	3	383	432	NA	NA	NA	2,777	3,240	6,481
	SWA.CL	7,315	20	20	0	0	0	0	0	0	366	366	NA	NA	NA	NA	NA	NA

Keyed Notes.

Participating Home (1.a):

a. All three hallways share and additional 1,250 sf of space.

Participating Home (1.b):

1. 4,316 sf is an overlap.

a. Nurse and RA's float the entire building; CMAs & CNAs float SWA.S and SWA.L.

b. Nurse floats entire building; CNAs float between SWA.S and SWA.L.

Participating Home (2.a):

a. Shared areas (approximately 4,525 sf) like the coffee shop, beauty parlor, and the library are openly shared between these two households.

Note. Approx. SF: approximate square feet; SWA: staff work area; NBHDs: neighborhoods; Res: residents.



Table 4. Temporal staffing patterns for SWAs for level 4 and 5 homes.

SWA	Approx. SF/ SWA	No. of Res/SWA	No. of Staff/SWA Day Shift (06-19)		No. of Staff/SWA PM Shift (10p-6a)		Approx. SF/Res on NHBs		Approx. SF/Staff in designated SWA		Approx. SF/ Staff on Neighborhood	
			Dedicated	Floating	Dedicated	Floating	Dedicated	Floating	Day	Night	Day	Night
Participating Home (4a)	SWA.BH-1 ¹	12	1	4	1	382	542	4,587	4,587	5,406	21,623	
	SWA.BH-2 ²	11	2	4	2	417	542	2,294	2,294	5,406	21,623	
	SWA.CH-3 ³	11	1	4	1	417	542	4,587	4,587	5,406	21,623	
	SWA.CH-4 ⁴	12	1	4	2 ²	382	542	4,587	4,587	5,406	21,623	
<p>1. excludes dining (1,664 sf) and shared social (1620 sf) a. Up to 2 CNAs cover Celest Hall 4 between the hours of 4-10 pm, but do not stay overnight</p>												
Participating Home (4b)	SWA.EM	16	2	2	2	298	432	2,381	2,381	2,061	5,495	
	SWA.SK	11	43	2	2	NA	464	3,308	3,308	NA	2,061	
	SWA.WM ^a	16	2	2	2	NA	413	3,308	3,308	NA	2,061	
<p>a. Area SWA.WM includes distance to Dining Room. b. on the night shift one person is dedicated to SWA.WM and SWA.SK</p>												
Participating Home (4c)	SWA.M	14	4	4	3	391	391	1,369	1,825	5,476	1,369	
	SWA.H ¹	16	4	0	3	371	234	1,485	1,960	5,941	NA	
	SWA.A ¹	22	4	0	3	226	373	1,241	1,655	4,965	17,116	
	SWA.S	22	4	4	3	373	373	2,053	2,737	8,210	NA	
<p>1. 1,000 sf is an overlap a. verify that 1 nurse is floating during this shift between SWA.H and SWA.A b. verify that 1 nurse is floating during this shift between SWA.H, SWA.A, and SWA.S c. verify that no other staff are covering SWA.M during the Night Shift</p>												
Participating Home (5a)	SWA.B	20	7	5	5	595	595	1,700	2,380	5,950	1,700	
	SWA.W	20	4	5	5	595	595	2,975	2,380	5,950	2,975	
	SWA.H	17	7	5	5	378	378	918	1,286	6,428	918	
	SWA.S	23	6	1 ^b	4	314	314	1,203	1,805	7,219	1,203	
	SWA.L	13	7	4	4	455	455	846	1,480	5,920	846	
	SWA.St ¹	17	6	1 ^c	4	406	579	1,152	1,728	6,910	1,902	
	SWA.C ¹	16	6	1 ^c	4	432	432	1,151	1,727	6,906	2,663	
<p>1. 500 sf is an overlap a. Nurse floats at night b. Nurse floats L c. Homemaker Floats between SWA.St & SWA.C d. Nurse floats between SWA.St & SWA.C</p>												
Participating Home (5b)	SWA.P (SCU)	20	6	5 ^b	2	413	413	1,376	1,651	4,127	NA	
	SWA.H	26	5	4 ^b	2	484	484	2,517	3,146	6,293	NA	
	SWA.WC	11	3	3 ^c	2	645	645	2,363	2,363	3,545	NA	
	SWA.HH	11	3	1 ^e	3 ^c	645	645	2,363	2,363	7,090	14,180	
	SWA.RR	10	10	3 ^d	1	274	274	912	912	2,736	NA	
	SWA.C ¹	24	5	3	2	509	361	2,441	4,068	6,102	NA	
	SWA.I ¹	21	5	3	1	593	593	2,448	4,080	12,241	NA	
<p>1. 4,104 sf is an overlap a. Up to 4 CNAs and 1 dedicated Nurse b. Up to 3 CNAs and 1 dedicated Nurse c. Up to 2 CNAs and 1 dedicated Nurse d. Up to 2 Nurses and 1 CNA, one may float on the PM Shift e. Staff are dedicated to a house, only 1 nurse is assigned to either SWA.W or SWA.HH during the AM & PM shifts - they float as needed.</p>												

Note. Approx. Sf: Approximate square feet; SWA: staff work area; NHBs: neighborhoods; Res: residents.

“Work areas are defined by specific physical locations, no more than 30 residents live in each area, and, the necessary supplies and equipment are convenient and available in each work area” (Center on Aging, Kansas State University, 2018, p. 6).

Staff work areas frame out a major spatial variable for homes in the PEAK domains and cores. For example Domain #2, Staff Empowerment, is defined as “all staff are empowered to support resident choices and make decisions about their own work.” This has an embedded core attribute of “Relationships,” which is defined as “residents enjoy meaningful relationships with a small group of consistently assigned caregivers.” This is enacted (and documented) by the Supporting Practice #1 of “get small”—defined as “the team identifies small areas of the home as work areas.” Therefore, the first environmental assessment measure was to confirm the boundaries of the SWA on the floor plan (see Figure 1 for example of diagrammed floorplan) and to complete an environmental inventory of the spaces contained within the designated SWA (see Table 2 for example of an environmental inventory).

Operational practices relative to SWAs: SWAs were confirmed by reviewing the weekly assignments for staffing. Typically, most homes schedule their clinical staff in 8-hour blocks of time. Staff members who are assigned to a dedicated group of residents would be identified as such on the weekly schedules. This allowed for easy identification of homes that still viewed their entire building as a single SWA, and it also provided identification of those staff who covered multiple areas (or floated) during a shift. Interviews confirmed operational practices for staff assignments to verify that designated SWAs for small groups of residents were consistently respected. Tours of the building and interviews allowed the researchers to verify the physical boundaries of designated SWAs that staff identified with. These were often hallways that had been given unique names, but these named hallways were not used as a single source of evidence that it was being used according to the PEAK criteria. This is an important aspect of PCC implementation, as it highlights whether the leadership of a home understands the critical relationship between the organizational design of how staff members are assigned to an area and a group of residents, and the environmental factors that help define the primary work area.

Findings

Temporal factors, relative operational practices, and SWAs

Ratios of staff members to resident numbers vary in a nursing home throughout a 24-hour cycle. Ratios are based on residents’ needs and activity patterns. Staffing patterns were confirmed by reviewing the weekly

posted assignments for employees. When there were assigned SWAs, the staffing schedule would provide this evidence that could be verified through interviews. Typically, homes schedule their care employees (certified nurse aides [CNAs]; certified medication aides [CMAs]; nurses: registered nurses [RNs], licensed professional nurses [LPNs]) by shifts. The common shift pattern found in 9 out of 10 case studies was to run three 8-hour shifts (an a.m. shift, a p.m. shift, and a night shift). Only one case study reported running two 12-hour shifts.

Level 1 and 2 homes were more likely to not designate staff members to a single SWA unless it was a dementia care unit (see [Table 3](#)). More staff members were expected to cover (or “float”) across multiple SWAs and on each shift. The one level 2 home (Participating Home 2.a) that did have clearly identifiable SWAs and designated staff for these areas was also quickly advancing to level 3 of the PEAK program.

Level 4 and 5 homes had a pattern of designating more staff members to a single SWA (see [Table 4](#)). There were still some staff members who were required to float between SWAs, but typically these were clinical care staff (nurses, LPNs, RNs, etc.), and they often covered only two SWAs on a single shift. Night shift was a common time to see more floating staff, as resident care needs are often lower at night.

Scale and scope of the SWAs

In the homes that were at levels 1 and 2, only one out of the five homes had distinctive SWAs that were not solely related to dementia care. As noted in the temporal factors, most staff were responsible for attending to the entire resident population at any time throughout the building, even if the organization had “named” the hallways. At levels 1 and 2, the total area being covered by the majority of staff (in non-dementia-specific units) ranged from 12,855 to 22,353 square feet (sf), for an average of 17,550 sf per staff person.

All level 4 and 5 homes had clearly designated SWAs with dedicated staff members for at least two of the three shifts. The amount of area being covered by most staff ranged from 4,587 to 12,240 sf, or an average of 7,152 sf per staff member. Only one of these homes had floating staff members, and this was isolated to the night shift. This home was smaller than the others with only three SWAs. Even when staff members float between areas, the average area is 10,711 sf. This is nearly 40% less area to cover than in level 1 and 2 homes.

Patterns of place and practice

Environmental inventories (e.g., [Table 1](#)) and square footage information for each SWA by home from the temporal patterns (e.g., [Tables 3](#) and [4](#))

were then consolidated into a summary table for comparisons between the two groups (see [Table 5](#)). Level 1 and 2 homes were more likely to have fewer social areas, amenities, and resident support spaces located “within” an SWA versus level 4 and 5 homes (see [Table 5](#) for example of environmental inventory comparison between SWAs). Designated dining areas for a small group of residents (an SWA less than 30) is a key marker of adjusting operational practices and creating an environmental affordance for residents. Participating Homes 1.b and 1.c only had designated dining areas for a small SWA when it was a secured memory-support unit. Participating Home 2.a was the only home in levels 1 and 2 to have designated dining areas beyond a secured unit, but this home was also rapidly making strides to achieve all of the 12 cores and reach level 3 status. Early adopters were also more likely to expect residents to access centrally located and shared social areas regardless of their proximity to the residents’ rooms. The level 4 and 5 homes also had “shared” areas and amenities, but residents could access many things (including food) in close proximity to their dedicated staff team within the SWA (see [Table 6](#) for an example of differences between social spaces within a SWA for a level 1 home versus a level 4 home). This accessibility through proximity supports the intention of providing an authentic environmental affordance that likely contributes to a home’s successful accomplishment of cores associated with Food, Relationships, and Resident Use Spaces (see [Table 1](#)).

Discussion

Every day in a nursing home is a lived experience for a resident (Powers, 1995). To realize person-centered care, there must be a significant deviation from outdated institutional attitudes about how residents and staff will interact with each other and with their environments. It is not enough to “have certain spaces present” in the building. Studies have demonstrated that staff members may recognize the value of PCC practices, but if they perceive the environment is not supportive of the actions needed to fulfill an expectation, they often diminish the importance of taking the time needed (Abbott, Bangerter, Humes, Klumpp, & Van Haitsman, 2017, p. 8; Cammer et al., 2013, p. 1016). As demonstrated through these assessments, proximity and the accessibility of features to residents and staff members appear to have a strong relationship with achieving higher levels of PCC. Homes that were evaluated to have achieved levels 4 and 5 demonstrated revised patterns of building use. They consistently arranged their care teams closer to residents, identified distinctive boundaries (and sometimes modified spaces) for these interactions, and worked to provide amenities where residents could have a shared sense of territoriality. Level 1 and 2

Table 5. Summary of environmental inventory comparison of all case studies.

Area Identifier	SWA	sf	Designated to an individual SWA										Notes	
			Residents	Bathing	Dining Room	Res. Kitchen	Social Spaces	Staff Desk	Staff Storage	Linens Supply	Med. Room			
Participating Home (1.a)	SWA.NH	1	23	1	0	0	0	0	0	0	0	0	0	All social, staff and dining spaces are shared by all SWAs
	SWA.SH	2	19	1	0	0	0	0	0	0	0	0	0	
	SWA.EH	3	6	1	0	0	0	0	0	0	0	0	0	
Participating Home (1.b)	SWA.NR	1	37	1	1	0	1	1	1	1	1	1	1	All social, staff and dining spaces are shared amongst 37 residents Secured memory care
	SWA.R	2	12	1	1	0	1	1	1	1	0	0	0	
Participating Home (1.c)	SWA.TLC	1	18	1	1	1	2	1	1	1	2	0	0	Secured memory care All social, staff and dining spaces are shared by SWAs that are not for memory care
	SWA.S	2	12	0	0	0	0	1	1	1	1	0	0	
	SWA.L	3	24	2	0	0	0	0	1	1	1	0	0	
Participating Home (2.a)	SWA.SH	1	20	1	1	1	1	1	1	1	1	1	1	Home 2.a was advancing rapidly to Level 3 at the time of the assessment Secured memory care
	SWA.KH	2	27	2	1	1	1	2	2	2	2	1	1	
	SWA.HH	3	16	1	1	1	2	1	1	1	1	1	1	
Participating Home (2.b)	SWA.CC	1	25	0	0	0	0	0	0	0	0	0	0	All social, staff and dining spaces are shared by all SWAs
	SWA.CL	2	20	0	0	0	0	0	0	0	0	0	0	
Participating Home (4.a)	SWA.BH-1	1	12	1	0	1*	1	1	1*	1	1	1	1*	Shared culture of this group bring them together in one dining room by choice
	SWA.BH-2	2	11	1	0	1*	1	1	1*	1	1	1	1*	
	SWA.CH-3	3	11	1	0	1*	1	1	1*	1	1	1	1*	
	SWA.CH-4	4	12	1	0	1	1	1	1*	1	1	1	1*	
Participating Home (4.b)	SWA.EM	1	16	1	1	1*	1*	1	1	1	1*	1*	1*	Social spaces shared at the intersection of the SWAs
	SWA.SK	2	11	0	1	1*	1*	1	1	1	1*	1*	1*	
	SWA.WM ^f	3	16	2	1	1*	1*	1	1	1	1*	1*	1*	
Participating Home (4.c)	SWA.M	1	14	1	1	1	1	1	1	0	0	0	0	Short-term post-acute services
	SWA.H	2	16	2*	1*	1	1	1*	1	1	1	1	0	
	SWA.A	3	22	2*	1*	1	1	1*	1	2	1	2	1*	
	SWA.S	4	22	2	1	1	1	1	2	1	1	1	0	
Participating Home (5.a)	SWA.B	1	20	1	1	1	3	6	3	1	1	1	1	Short-term post-acute services
	SWA.W	2	21	1	1	1	3	6	3	1	1	1	1	
	SWA.H	3	21	1	1	1	2	3	2	2	2	1*	1*	
	SWA.S	4	25	1	1	1	2	3	3	3	1	1	1	
	SWA.L	5	17	1	1	1	2	2	2	1	1	1	1	
	SWA.SI	6	17	1	1	1	1*	1	3	2	1	1	1*	
	SWA.C	7	16	1	1	1	1*	2	3	2	1	1	1*	
Participating Home (5.b)	SWA.P	1	18	1	1	1	1	4	2	1	1	1	1	Short-term post-acute services
	SWA.H	2	26	1	1	1	3	3	4	1	1	1	1	
	SWA.WC	3	11	1	1	1	3	3	2	1	1	1	1	
	SWA.HH	4	11	1	1	1	3	3	2	1	1	1	1	
	SWA.RR	5	10	0	1*	0	1*	1	1	1	1	1	1*	
	SWA.C	6	22	1	1*	1	1	2	2	2	2	2	1	
SWA.L	7	22	1	1*	1	1	1*	2	2	2	2	1		

*Shared with another SWA.

Table 6. Example of a comparison between a home with no social spaces in SWA (e.g., Participating Home 1.a) to home with social amenities within SWA (e.g., Participating Home 4.c).

Participating Home 1.a						
	Room/space	Quantity	Description	Primary Users	Secondary Users	Other Users
Rooms/ Spaces SWA.NH	Resident rooms (per staff work area)	13	up to 23 total residents			
	Private	3	Most rooms can be either shared or private	Residents	Staff	Visitors
	Shared—Level 1 (traditional; side-by-side beds, only a curtain for visual separation)	10	Residents primarily depend on curtains for privacy	Residents	Staff	Visitors
	Bathing room	1	Only a shower is available	Residents	Staff	

Participating Home 4.c						
	Room/space	Quantity	Description	Primary Users	Secondary Users	Other Users
Rooms/ Spaces in SWA.A	Resident rooms (per staff work area)	22				
	Private	14		Residents	Staff	Visitors
	Shared—Level 1 (traditional; side-by-side beds, only a curtain for visual separation)	4	Toilet only—lavatory in room	Residents	Staff	Visitors
	Living room and/or sitting areas	1	Cross Roads shared with Heritage	Residents	Staff	Visitors
	Dining room	1	Shared with SWA.H	Residents	Staff	Visitors
	Kitchenette	1		Staff		
	Bathing room	2	Shared with SWA.H and SWA.S	Residents	Staff	
	Med room	1	Shared with SWA.Mk, SWA.H, and SWA.S	Staff		
	Linen/supply closet	2	Small; one has linens, one has extra clothing	Staff		
	Soiled linen storage	1		Staff		
	Janitor closet	1	Shared with SWA.H	Staff		

homes continued to have patterns of institutional building use and staffing assignments that required residents and care providers to cover larger areas for everyday activities.

Person-centered care is often associated with homes that have extensive resources for remodeling their buildings (Grabowski, Elliot, Leitzell, Cohen, & Zimmerman, 2014; Miller et al., 2014). Participating homes in the PEAK program resemble the demographics for nursing homes across the state (Hermer et al., 2018a, p. 537). This is significant, as homes in the state often report being constrained by their buildings to achieve PCC, but PEAK evaluations have demonstrated that some “traditional” homes have succeeded at creating an environment that supports the homelike characteristics required in the PEAK domains and cores with relatively small investments in their buildings (Hermer et al., 2018a, p. 538). Many of these PCC objectives focus on how people interact with the environment, not specific attributes of the environment (Elliot, Cohen, Reed, Nolet, & Zimmerman, 2014, p. S21), or whether or not the environment is perceived to be accessible to residents and supportive of their self-determination (Shura et al., 2010). As was demonstrated through the collected data, the affordances within the building do, however, support or inhibit these interactions.

Like most institutional buildings, the basic forms of the space make any real change in behavior patterns difficult to achieve (Brand, 1994; Rapoport, 1980), but when new patterns of behavior are being implicated by transformative models of care, new environmental affordances must be created in meaningful ways. The theory of environmental affordances allows a lens for understanding how PCC behaviors can be enacted within a space based on how the user perceives attributes or artifacts (Gibson, 1979; Maier et al., 2009). Within the complexity of a nursing home, residents, who have diminished capacity and autonomy, will only be able to experience more control if they perceive that there is an authentic opportunity afforded to them through their surrounding environments. Examples of this include being able to see and easily access food and beverages at any time of their choosing. Level 4 and 5 homes had made deliberate choices about space utilization, including changing the use of some spaces or through modest “in-house” remodeling efforts, to achieve these types of affordances.

Research on staff roles and expectations has also not provided much inquiry into the work settings where new behaviors are expected to be enacted (e.g., Barry, Brannon, & Mor, 2005; Brannon, Zinn, Mor & Davis, 2002; Cammer et al., 2013; Zhang & Grabowski, 2004; Rantz et al., 2004; Siegel, Young, Mitchell & Shannon, 2008). Though the differences may be nuanced, these slight distinctions may hold the key to meaningful and substantive differences in resident and staff experiences. For example in level 4 and 5 homes, conscious decisions were made to make sure that staff support spaces, such as linen and supply storage, were conveniently integrated within each SWA, versus only being centrally located.

Limitations of this inquiry

This research has notable limitations that should be recognized. The first is that the sample for these case studies is purposeful, not random. Some homes were recruited to participate specifically for known environmental attributes, and there were fewer homes at levels 4 and 5 to recruit for this study. The second limitation is in the consistency of the available floor plan information for each of the homes. Current documentation of the existing conditions for several of the case studies was partial, or even missing. In addition, some homes had outdated floor plans that did not reflect their current spatial compositions. This required field measurements and photography to recreate a schematic-level “as-built” plan. Although steps were taken to verify accuracy in the overall scale of the building, precise square footage measures may have some variability. The third limitation is

the capacity to obtain the same level of observational data and staff input from each home. Site visits were for a single day and reliant on staff reports of some variables to staff routines. The number of staff members who provided input also varied between sites. All efforts were taken to obtain multiple points of verification for information reliability in the data collection, but there may be omissions in some areas that have not been identified. The final limitation is that these data do not include the perspectives of the residents who live in these homes. Resources did not permit the collection of data at that level at this time. In the future, these assessments on environmental affordances should be tested with the experts who experience them every day.

There is still much to learn about the relationships between the operational variables, the organizational structures, and the environmental design features of skilled care settings. Future qualitative work should explore how staff perceive environmental variables in their efforts to deliver PCC, especially within buildings that have an institutional layout (double-loaded corridors with long hallways). For PEAK homes, additional exploration of the relationship between these variables to each of the specific cores would also be of great value toward understanding whether there are specific strategies of practice that lead to better PCC outcomes.

Conclusion

As previously outlined, organizations have sociocultural attributes related to meaning and place experience (Feldman & Pentland, 2003), and the impact of the environment has been reported to help an organization “live” its intention of providing autonomy to residents and staff (Abushousheh, Proffitt, & Kaup, 2011; Proffitt, Abushousheh, & Kaup, 2010). This can be especially relevant for interior environments that most closely surround individuals (Rowles, Oswald, & Hunter, 2004). The PEAK 2.0 program has demonstrated that PCC can positively impact dimensions of quality of life and quality of care (Hermer et al., 2018b; Poey et al., 2017). This research demonstrates how it can be done by providers in traditional medical model buildings through a creative use of their spaces and deliberate attention to their operational structures.

While this article supports previous findings, it contributes by controlling for factors not previously controlled for in the literature. Previous studies have not had consistent definitions of PCC or level of adoption. All homes in this sample operated with the same understanding of PCC and had clearly defined levels of adoption across homes. This study also examines these elements of PCC in the context of a traditional nursing-home setting, rather than making a comparison with new models of care, such as Green

Houses. This offers insight and opportunity to many nursing homes in traditional buildings with limited resources, such that these key aspects of PCC are achievable without significant renovation dollars.

The implications for recognizing the combinations of attributes needed for sustained PCC is not an insignificant issue for our long-term care services. Diffusion of PCC continues to be slow among providers. Burgeoning costs, restrictive regulatory environments, and a lack of leadership continue to be barriers in broad implementation and sustainability of PCC in the United States (Miller, Mor, & Clark, 2009). The next step in broad-range improvements is to identify the details of the combinations of place experience and practice that can contribute to these outcomes. This series of case studies is a step in that direction to assist providers in their quest to use existing, often outdated, buildings to achieve their PCC goals.

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