

Longer Life Foundation Final Report
Environmental features that influence social engagement of older adults residing in congregate living facilities
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Abstract

Introduction: The objective of this study was to describe how physical and social environmental features of assisted living facilities influence social engagement behaviors of older residents. A secondary objective was to identify the environmental features that were important to residents' social engagement from their perspectives.

Methods: A cross sectional, mixed-method, pilot study was conducted in two assisted living facilities in urban St. Louis. In the first phase, several standardized measures were used to evaluate the environment of two assisted living facilities, measure covariates, and to capture social engagement and activity participation of a random sample of 42 older adults. Descriptive analysis was conducted to analyze the data. In the second phase, 10 in-depth interviews and 16 field observations were conducted. All interview transcripts and field notes were included in the data analysis.

Results: There were no significant demographical differences between the groups of subjects at the two facilities, and the physical and social environments in both facilities are also relatively similar. However, when the participants were grouped based on the self-reported health status, a descriptive analysis identified two distinct activity locations. Those who reported "poor health" on SF-12 engaged significantly more in the services offered at the facilities than those in the "good health" group. However, both groups presented same levels of social engagement. In the qualitative phase, five themes regarding physical and social features were found to influence residents' social engagement in both facilities. Residents with low, moderate and high activity levels were also found to have different perceptions about the environmental features that are most influential on their social engagement.

Discussion: Environmental support does influence activity engagement. Highly active older adults (healthier) depend less on the assisted living facility and more on the community environment. The opposite is true for less active residents. The quantitative

phase of the study suggests a more sensitive measure that examines the frequency and extent of engagement is warranted for future study, and the qualitative phase proposes primitive design guidelines to enhance social engagement in future facilities.

Lay Summary

This pilot study looked at the influences of environmental features on older adults' social engagement in two assisted living facilities. Assisted living facilities are one of the senior housing options where social opportunities are provided. While social engagement has been suggested by previous studies to provide health benefits to older adults, our pilot study found that the environment plays an important role in older adults' social engagement pattern. There was a significant difference in the location where their social activities took place. Most frail older adults engage in activities inside the facilities. Compared to the healthy counterparts, more frail elders depend more on their proximate environment, such as their apartment and the community spaces in the facilities, to support their social engagement. This finding indicates that the environment is an important factor to support social engagement and should be included in the activity measures of older adults. Implications of architectural designs are also suggested in this study to enhance social engagement in future assisted living facilities.

Introduction

Social engagement is the maintenance of many social activities and a high level of participation in social activities (Barnes, Mendes de Leon, Wilson, Bienias & Evans, 2004). Studies of the elderly population have demonstrated that social engagement is associated with healthier physical and mental status (Kawachi, et al., 2001; Mendes de Leon et al, 2003), slower cognitive decline (Barnes et al, 2004; Bassuk et al, 1999; Stevens et al, 1993; Yeh et al, 2003), decreased mortality (Glass et al, 1999; Kiely et al, 2000; Zunsunegui et al, 2003), and higher quality of life (Yang, 2004).

Assisted living facilities are one of the senior housing types that provide opportunities for social engagement. Although the services provided vary by state and by facility, assisted living facilities generally provide opportunities for social engagement such as social activities (i.e. table games, birthday parties) and gathering areas (i.e. sitting areas, activity rooms, and dining rooms). While assisted living facilities are estimated to house more older adults than nursing homes by 2010 (Meyer, 1998), little is known about how well and to what extent these facilities support residents' social engagement (Zimmerman et al., 2003).

The built environment offers a potentially cost-effective means of improving health outcomes and quality of life by increasing social engagement. This cost-effective benefit can be seen in light of the Environmental Docility Hypothesis (Lawton & Simon, 1968; Lawton, 1990), whereby a small change to the environment can make a greater impact on individuals with lower capacity (i.e. elders) than those with higher capacity. Yet, little research has been conducted to determine the impact of environmental features to enhance social engagement. (Cohen and Day, 1993; Schwarz and Brent, 1999; Rowles, Oswald, & Hunter, 2004; Carstens, 1998; Mihalko & Wickley, 2003).

The purpose of this pilot study was to explore the influence of physical and social features of two assisted living facilities on social engagement (SE) patterns of older adult residents, and to identify and describe the physical and social environment features that facilitate or limit SE from the perspectives of various residents in these two assisted living facilities.

Methods

Research Sites

Two architecturally-similar ALFs located in urban Saint Louis, MO, served as the research sites for the study. One site, built in 1997, was the first Saint Louis facility that

offered assistance with IADLs, medical service and accessible designs. The second site was built in 2002 by the same company.

Both facilities adopted the concept of universal design and were fully accessible and were designed with features that have been associated with improved social interactions (median community size, median-rise building and centrally located activity spaces) (Williams, 2005; Zavotka & Teaford, 1997). In addition to physical and design features, both assisted living facilities offered similar formal social opportunities

Finally, the location of each facility was within 0.25 miles of a major hospital and other essential community resources and there was a bus stop within one block of the facility.

Study Sample

We conducted a cross sectional pilot study using a mixed method approach. In the first phase of the study, a convenience sample of 42 older residents was recruited during informational sessions held at the facilities. The study included those who were (1) aged 65 years or older; (2) aware of time, space, and people and (3) resided in the facility for at least one year.

The majority of residents at both ALFs were African American, consistent with the ethnic composition of urban Saint Louis. Most residents were female. The only significant demographic difference between the two populations was mean age. Residents at the facility constructed earlier were much older (85 versus 62 years old) than residents from the other site, suggesting that many residents aged in place at the older facility.

Inclusion criteria for qualitative study (Phase 2) were: (1) agreed to an additional interview; (2) were key informants (determined by whether the individual was able to provide detailed information regarding personal or the surrounding social interactions during the quantitative study); and (3) represented a variety of social engagement patterns, ages and disability levels. A total of 13 participants from the larger study met

the criteria. Individuals who had been especially informative and who represented the greatest variety in the sample were asked to participate first. Saturation for the first research question was reached at the 8th interview, and saturation for the second research question was reached after two additional interviews were conducted. Therefore, a total of 10 participants were included in the study.

Procedures

During Phase 1, standardized measures were conducted to investigate the *physical and social environment* (Multiphasic Environmental Assessment Procedure (MEAP); Moos & Lemke, 1988), residents' *social engagement* (summary measures of social engagement; Glass et al., 1999; and the Assisted Living Social Activity Scale; Zimmerman et al, 2003), *activity participation* (Activity Card Sort; Everhard, Lach, Fisher & Baum, 2000), and covariates such as *health* (SF-12), *depression* (Geriatric Depression Scale; Brink, Yesavage, Lum, Heersema, Adey & Rose, 1982), *memory* (the Short- Blessed Memory Test; Katzman , Brown , Fuld , Peck, Schechter & Schimmel, 1983), *functional independence* (FIM), and *social resources* (Multidimensional Functional Assessment Questionnaire; Fillenbaum, 1988).

Finally, each participant in Phase 1 were asked by the researchers to describe all activities (social or non social) in which they engaged every hour, the locations of their activities, and their companions in a typical weekday and both weekend days. Social activities were defined as participation in formal or informal social activities taken place inside or outside ALFs with one or more companions (for example, talking on the phone, dining out with someone, picking up grandkids, or participating in exercise class in the facilities). The researcher calculated each of the 42 participant's weekly social activity hours by quintupling a typical weekday's social activity hours plus two weekend days' social activity hours. The mean social activity hours of the 42 participants was 41 per week ($SD=16$). Therefore, the hours spent in social activities more than 57 hours per week was considered highly active, between 25 and 57 hours per week of social activity was considered moderately active, and fewer than 25 hours per week was considered

slightly active. For each activity level, we also tried to enroll an equal number of residents from both genders and different age groups. Four participants were classified as highly active residents, 3 were classified as moderately active, and 3 were classified as slightly active.

During Phase 2, subjects who were key informants and who presented a variety of social engagement patterns, ages, and disability levels were recruited for in-depth qualitative interviews. A total of 10 participants were included. Meanwhile, 16 observations of social engagement in the facility were also conducted to more fully understand how the environment influences social engagement in the assisted living facilities.

Open-ended interview

An interview guide was developed based on the social engagement data gathered from the activity logs from the quantitative study. The open-ended interview was designed to elicit details about social interactions, social activities, the spaces inside each facility, and design features of senior housing that enhanced social engagement.

Interviews were conducted in a mutually agreeable space inside the facilities and lasted between 45-75 minutes. The researcher asked for an indoor tour of the facility and/or accompanied each participant on his or her natural outings or indoor activities after three interviews because these participants were not restricted by time constraints or physical endurance. Each tour took approximately 30 minutes. Participants were remunerated 10 dollars for their participation in the study. Tapes were transcribed verbatim.

Participant observation

In addition to interviews, participant observations were conducted by the interviewer. Although it is possible to engage in active observation (e.g., participating in an activity

with the persons being observed while simultaneously observing them), the researcher in the current study acted as a passive observer (not participating in an activity). Sixteen visits were made during the 5-month interview period. Six visits (three at each facility) were conducted to observe formal social activities including table games, poker games, and exercise sessions scheduled during daytime or nighttime. Visits ranged from 30 minutes to 3 hours, and field notes were taken during each observation.

Field Notes

Field notes were completed for open-ended interviews, group-activity observations, and after informal conversations with both the staff and the residents at the two facilities. During open-ended interviews, the researcher took field notes and recorded the participants' non-verbal expressions, the characteristics of the place where the interviews took place, and the interactions between each participant and his/her environment. During group activities, the researcher recorded observations about the social engagement behavior of the residents, including informal chatting; greeting; social group participation; social support through verbal and/or non-verbal expressions; interaction among residents/ neighbors/ females versus males/ residents versus staff; group dynamics; etc. In addition to social engagement behavior, observations about the residents' interactions with their environments were also recorded, such as natural social gathering spots and location choices for different self-initiated social activities. Lastly, informal conversations with the staff and the residents were recorded in the field notes about the perceptions of the spaces used and the social dynamics inside the facility. All data were included in subsequent analyses.

Results

Phase 1

Demographics

In Phase 1, there were 34 females and 8 males, of whom 25 are widowed, 4 are currently married, 7 are divorced and 6 were never married. The mean age is 78 years. Most of the sample (32 individuals) had a high school diploma or college education and nearly all (40) live alone. T-tests were conducted on the sample demographics and indicated no difference between groups on demographic variables between the sites.

Table 1. Demographic Characteristics of Entire Study Population

Characteristic	Phase 1 (<i>n</i> = 42)
Mean age, yr (standard deviation)	78 (7.7)
Gender, <i>n</i> (%)	
Female	340 (81)
Marital status, <i>n</i> (%)	
Married	4 (10)
Widowed	25 (60)
Divorced	7 (17)
Never married	6 (13)
Education, <i>n</i> (%)	
High school or college degree	76 (32)
Living status, <i>n</i> (%)	
Lives alone	40 (95)

The Environment

Two subscales of the MEAP, the Physical and Architecture Feature (PAF) and the Rating Scale, indicate both assisted living facilities were similar in their physical and social environment.

Figure 1. PAF Scores

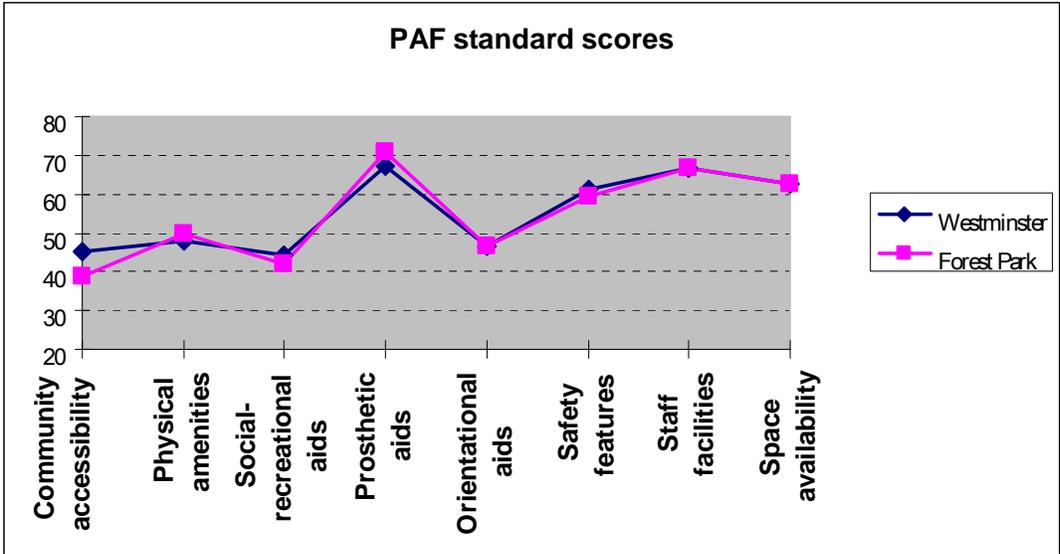
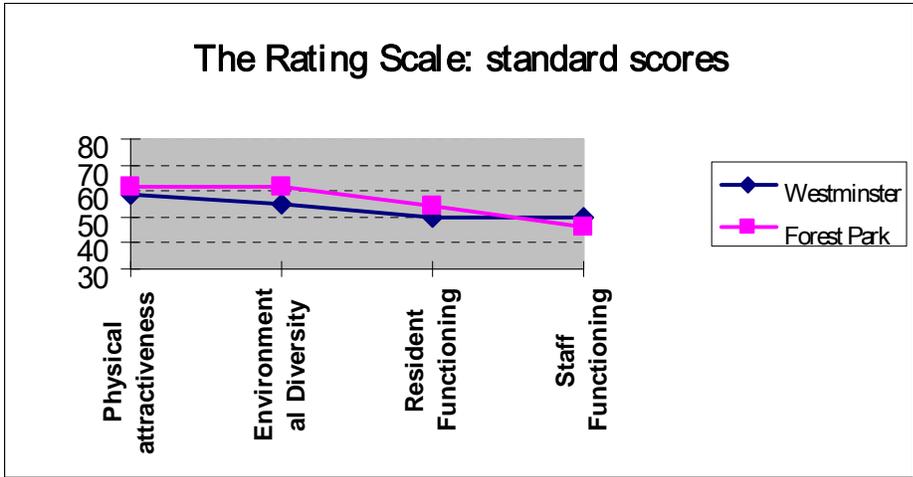


Figure 2. The Rating Scale Scores



Good Health vs. Poor Health

Twenty subjects reported they were in poor health compared to 22 subjects who reported good or excellent health on SF-12 survey. When the participants were divided into “good health” and “poor health” group based on SF-12, the analyses show that the two groups are similar on nearly all characteristics with the exception of participation of activities inside the facility.

Table 2. Demographic Characteristics by Health Quality Group

	<i>"Good Health"</i> (n=22) mean (SD)	<i>"Poor Health"</i> (n=20) mean (SD)
Age	78.36 (8.22)	78.35 (7.26)
Depression (GDS)	1.36 (1.68)	2.40 (2.28)
Cognition (Short Blessed)	4.64 (4.38)	4.95 (4.27)
FIM Total	122.18 (4.69)	117.25 (11.31)
Cognitive Subtotal	33.82 (1.50)	33.90 (1.37)
Motor Subtotal	88.36 (3.79)	83.35 (11.08)
Physical Health (SF-12)	42.85 (5.49)	42.45 (5.76)
Mental Health (SF-12)	35.17 (6.88)	37.93 (4.86)
Engagement in social activities (out of facility)	8.23(1.57)	8.25 (2.17)
Engagement in productive activities (in facility)	8.68 (1.21)	9.10 (2.88)*
Total Social Activity Scale	16.91 (2.33)	17.35 (4.08)
Satisfaction with social contacts	2.05 (.65)	2.00 (.59)
Assisted Living Social Activity Scale	6.18 (1.97)	6.32 (1.97)

Note: Significant at p.=.05

Table 3. Activity Levels By Health Quality Group

	Good Health (n=22) mean (SD)	Poor Health (n=20) mean (SD)
Instrumental Activities Retained	.84 (.08)	.84 (.08)
Low Demand Activities Retained	.68 (.17)	.72 (.14)
High Demand Activities Retained	.46 (.28)	.48 (.23)
Social Activities Retained	.63 (.20)	.65 (.19)

Note: Significant at p.=.05

Phase 2

Demographics

The mean age of the 10 participants was 77.1 years ($SD=8.02$). Four of the participants were male and 6 were female. One participant used a power wheelchair, one used a walker, and others did not use any mobility aids. Based on data collected from an activity diary, activity levels were classified as either “highly active,” “moderately active,” or “slightly active.”

Table 4. Characteristics of the interview participants

NUMBER	ACTIVITY LEVEL*	AGE		GENDER	ETHNICITY	FACILITY
1	H (60 hr/wk)	68	Young-old	Female	African American	1
2	H (87 hr/wk)	69	Young-old	Male	African American	2
3	H (64 hr/wk)	74	Young-old	Female	Caucasian	2
4	H (67 hr/wk)	80	Old-old	Female	African American	1
5	M (37 hr/wk)	71	Young-old	Female	African American	1
6	M (35 hr/wk)	74	Young-old	Male	African American	1
7	M (30 hr/wk)	88	Oldest-old	Male	African American	1
8	S (24 hr/wk)	72	Young-old	Female	African American	2
9	S (12 hr/wk)	86	Oldest-old	Female	Caucasian	2
10	S (21 hr/wk)	89	Oldest-old	Male	Caucasian	2

* H= Highly active; M= Moderately active; S= Slightly active

Constant comparative analysis (Hewitt-Taylor, 2001; Sandelowski, 1995; Strauss & Corbin, 1994) was used to analyze both interview and observational data with NVIVO version 1.2, for coding and code sorting. The process of data analysis was iterative, in which features and concepts were developed by comparing and contrasting categories back and forth to answer the research questions. Common features identified across different sample strata were used to identify the physical and social environmental features that influenced participants’ social engagement. Features that emerged within

each sample strata were contrasted to understand perceived differences of the environment within the three activity level groups.

Five physical and social features were identified by participants as important influences on social engagement.

Feature 1: Apartment Size (physical feature)

Nearly all participants identified size of their apartment as a significant influence on their social engagement. In both facilities, participants who had of one- (475 to 527 square feet) or two-bedroom (709 square feet) apartments indicated their space was small. They reported that their living space was large enough for sedentary activities such as reading, watching TV, chatting with guests, talking on the phone, or playing cards, but not large enough for social activities. The small apartments, however, did not discourage children's visits. Unlike adult visitors, grandchildren were able to stay for several days, sleeping with their grandparents, watching TV, or playing table games. Despite the limitations of a small apartment for hosting adult visitors, having a small apartment size appeared to promote social engagement opportunities outside the apartment. Residents reported wanting to venture out and socialize in the shared community spaces of each facility, because, as Participant 4 reported, they "*wanna get out of this close place.*"

Feature 2: Proximity of sitting areas to functional spaces (physical feature)

In the shared community spaces within the facilities, sitting arrangements close to locations where daily activities took place were more commonly used as places to socialize than other sitting spaces because they provided a transitional space for residents to spend time before or after their daily routines. Examples of functional spaces included laundry rooms, elevators, and the area by the mailboxes. Two additional areas provided opportunities for social engagement activities because of their proximity to functional space. A sitting area with couches next to the elevators on each

resident floor provided quiet spaces for residents to rest while waiting for the elevator. Couches in the laundry room provided residents with comfortable places to sit while waiting for their laundry, allowing them to avoid numerous trips to and from their apartments between laundry cycles.

Feature 3: Expectation of encounters (social feature)

Expectation of encounters emerged from field note observations and interviews as an important social influence on when and where residents preferred to gather.

Interestingly, expecting to engage socially with others appeared to influence informal social activities more than formal activities. While sitting arrangements next to functional spaces provided a platform for social interactions, the expected presence of other people influenced the popularity of these informal social spaces. For example, many residents reported going to the lobby near the mailboxes during the daytime because they knew they might meet someone there. This made the lobby a more popular informal social space than sitting areas on each floor.

Expectation of encounters influenced the location of social activities for both facilities. The lobby was the most popular space for socializing because residents expected to encounter most people there in the daytime (residents, staff, and visitors coming and going from the entrance). During the nighttime, as the expectation of encounters decreased in the lobby, a private space tended to be more popular for social activities.

Feature 4: Homogeneity of residents (social feature)

Homogeneity of residents was the most frequently identified social feature that encouraged social engagement. Because all residents were close in age and many of them had previously lived in neighborhoods close to the facilities, they felt relaxed being together. They greeted each other when they met in the hallway. They talked about their grandchildren and the history of their neighborhoods. They told jokes, learned and taught card games from neighbors, and cheered for a fellow resident who had recently arrived back from the hospital. Commonalities in lifestyle and interests not only made

residents comfortable socializing with each other, but also provided a social support network.

Feature 5: Multi-purpose spaces (physical feature)

When the participants were asked about the types of features that would encourage more social opportunities in their facility, various spaces for exercise (e.g., pool table), outdoor spaces, and spaces for visitors were the most common suggestions.

Participants 2 and 4 proposed adding outdoor spaces that would allow for gardening and barbequing, in part because they had enjoyed doing these activities before becoming ALF residents. In addition to outdoor spaces, Participant 7 reported that he *“wants to get [his] relative spaces to socialize.”* Activity spaces in both ALFs were only allowed to be used for activities for all residents (e.g., a New Year’s Party); residents were not permitted to use these spaces to host gatherings for their families and/or friends. Some especially active residents had found spaces outside of the ALF to host gatherings, but they reported being disappointed in not being able to perform these activities in their “homes.” Including multi-purpose spaces of residents’ preference would make socializing at “home” easier.

In sum, social engagement in both facilities was influenced by physical and social environmental features. Those five features included apartment size, proximity of sitting areas to functional spaces, expectation of encounters, homogeneity of residents, and multi-purpose spaces. Close proximity of sitting arrangements to functional spaces, expectations of encounters, and resident homogeneity proved to be positive influences on social engagement. Small apartment sizes appeared to have both positive and negative effects: Although the lack of space limited the ability of residents to entertain in their homes, it also encouraged residents to leave their homes more often and interact with others outside of their living space. Finally, not being able to use multi-purpose spaces for non-resident gatherings was found to negatively impact residents’ ability to socialize with their non-resident family and friends. Although these features are presented here separately, the social and physical features of each space are inevitably

intertwined. For example, sitting arrangements, a physical feature, preserved spaces for social interactions before and after routine activities, but the expectation of encounters, a social feature, encouraged social gatherings at these locations.

Discussion

More frail adults who report poor health have the same levels of social engagement as older adults with better health, however these social engagement encounters occur more within the proximate environment (inside the facilities). This significant finding indicates that more frail older adults are highly dependent on the features and layout of the environment inside the assisted living facility, including their apartment, the community spaces, and grounds, to support their social activities. More frail older adults also show no significant difference on functional disability measured by the FIM despite obvious differences when observing the residents during interviews. It appears that the environmental support has compensated disability (as measured by the FIM) and has negated the difference health might ordinarily have on disability. If the environment of an assisted living facility has fewer supports, social engagement and disability might look different. Conversely, environments designed to support social engagement might in fact enhance social engagement levels. It seems that environment support has the effect of identifying differences in activity patterns on standardized measures currently available. Also, in an effort to determine a primary endpoint for future studies, we used several activity measures to determine which would be sensitive. There was no difference between groups based on health or age or driving ability. The findings of the quantitative phase suggest that a more sensitive measure that examines the type of activity, location of activity and frequency of engagement is warranted. Finally, the qualitative phase of this study informs future design guidelines to enhance social engagement. Spaces near main entrance, mailboxes, and laundry spaces are popular socializing spaces. Therefore, architectural designs that support social interactions such as flexible seating and comfortable lighting should be considered. Also, to support more frail adults' social engagement, quiet socializing spaces close to apartments should be provided.

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