Neighborhood Quality and the Older Elderly: Theory and Two Pilot Tests

Michael R. Greenberg[1]
Edward J. Bloustein School of Planning and Public Policy
Rutgers University
New Brunswick, NJ

Abstract

Neighborhood quality ratings among those 75+ years old are compared with their 50-74 year old counterparts. Using a sample of 400 from central New Jersey and a national sample of about 20,000, I find that the older elderly have constructed elaborate mental models of their environment that incorporate feelings and emotions about their home, ethnicity/race, religion, and the nation, as well as their perceptions about their neighborhood. About 30-40% of respondents have quite positive perceptions of their neighborhoods along with similar perceptions of their other environments and their own lives. Ten to 15%, however, do not. Their neighborhood quality ratings are fair or poor and many are not happy with their home or spiritual environments. Assisting this second group is a major challenge.

Keywords: *neighborhood quality, older elderly, perceptions, environment*

Introduction

Changes in consumer awareness, improvements in diagnostic treatment, emergency medicine, nutrition, rehabilitation services and educational outreach have contributed to a demographic shift in the United States population. The 75+ year old population (hereafter called "older elderly") is the most rapidly increasing age group in the U.S. In 1990 it was 13.1 million, and it rose to 16.6 million by 2000. In those years, the 75+ year old age group was 5.2% and 5.9%, respectively, of the national population. It is estimated to comprise 8% of the national population by 2025 and almost 12% by the year 2050, when it is expected to be about 50 million (U.S. Department of Commerce 1995; U.S. Census Bureau 2008). In a seminal paper, Fries (1980) anticipated this change, noting that U.S. residents would routinely live into their 80s, and he expected they would be relatively healthy until multiple body system failures ended life—in other words, morbidity would be compressed.

While attention is appropriately drawn to the implications of this demographic shift on social security, health care and other services, this paper examines the satisfaction of the older elderly with their neighborhoods and implications of their perceptions. Based on a substantial existing literature, the first major purpose of this paper is to assert that the older elderly (75+ years old) should have a somewhat different view of their neighborhoods than that of their younger (50-64 years old) counterparts. The second purpose is to pilot test the assertion. The empirical test had two steps. The first was to find the anticipated relationships between neighborhood quality, neighborhood attributes, and respondent characteristics, in which age is one of many predictors. Then the second step required multiplying each neighborhood and respondent attribute by specific age-group-categories to produce age-impacted predictors of neighborhood quality. If older age is associated with neighborhood quality, these interaction variables should be different for the oldest elderly than for the younger population. Operationally, the paper answered three questions:

1. What proportion of respondents 50+ years old rate their neighborhood quality as excellent, good, fair, and poor quality? This is referred to as the neighborhood quality question.
2. What neighborhood, other environmental, and demographic characteristics are associated with neighborhood quality ratings of the respondents? This is labeled the standard neighborhood quality predictors question.
3. Do the older elderly compared to their younger counterparts demonstrate different interactions with the standard predictors of neighborhood quality? This is the age-impacted question.

Before describing key elements of the literature, it is important that three caveats be presented. There are large literatures about both neighborhood quality and the older elderly, and many researchers have explored the link between them, as well as with housing quality and personal health (see for example, Iwarsson et al. 2007 and Pinquart and Burmedi 2003 for a summary). The contributions of this paper are meant to be modest and exploratory, specifically to suggest how perceptions of neighborhood and housing quality join with what I call a broader spiritual or value environment, and

using neighborhood quality as a focal point to show how perceptions about these perceptions cluster in large segments of the older elderly population. The second caveat is that all of the data are respondent self-reports; I had no ability to verify perceptions with census or other data as some studies in the literature have. Third, the dependent variable in the analysis is neighborhood quality because of the author's prior research and interests. Another analyst with less investment in understanding neighborhood quality could have used health, economic, and housing status as the outcome measure. Arguably, the outcome measure could have been a multivariate combination of all of these.

Prior Research and Expectations

In trying to understand the impact of being 75+ years old on perception of neighborhood quality, I begin with the understanding that people create mental models (heuristics) to cope with environmental stresses (Chaiken 1980; Eagly and Chaiken 1993; Kahlor et al. 2003). These mental models are shortcuts that integrate the sum of personal knowledge, emotions, experiences and feelings. When a message about a proposed or actual event arrives (e.g., a neighbor's home was burglarized), it filters through these heuristics, enabling the person to quickly respond and cope with a minimum of stress. With regard to neighborhood quality, statistical analyses have shown relatively little correlation between age and neighborhood quality rating. Any correlation that the author has observed has been modest and lost in colinear relationships with other influences described below. This inability to understand the interactions of age and other influences (e.g., street noise-age; trust neighbors-age) on neighborhood quality prompted this research.

Starting with neighborhood quality in the U.S., the literature paints a direct path to detrimental neighborhood characteristics (Cozens and Plimmer 2000; Clay and Hollister 1983; Greenberg 1999; Ross and Mirowsky 1999). Approximately 85% of U.S. residents rate their neighborhoods as "excellent" or "good" quality. Those who classify their own neighborhoods as excellent quality typically do not identify a single neighborhood characteristic that distresses them. A "good" quality rating may be associated with a single or two concerns, but nothing that really severely distresses the respondent and causes them to want to leave.

The remaining 15% rate their neighborhoods as "fair" or "poor" quality; 3% as "poor" quality, and 12% as "fair" quality. Crime and blight are the major drivers for these 15% (Kelling and Coles 1996; Ross and Mirowsky 1999). Residents worry about petty burglary, violent attacks, and commonly about drug-related crime. Many of these residents do not trust their neighbors, the police or elected officials to protect them, and they do not trust their local shop owners; they bar their windows and erect other anti-intruder barriers.

Blight, the second major driver of neighborhood quality ratings, includes deteriorated buildings, graffiti, trash in the street, crumbling infrastructure, and in industrial neighborhoods includes odors, distressing sounds, visible plumes of pollution, and truck traffic (Greenberg and Schneider 1996; Kraut 1999; Spelman 1993). Crime and blight overwhelm any positive influences of parks, good schools, and adequate services, if these are present. Some poor quality neighborhoods have more than a dozen physical characteristics that distress residents sufficiently that they want to leave.

Neighborhood conditions as predictors of neighborhood quality are confounded by other factors. One is home quality; an excellent home is likely to be associated with an excellent neighborhood quality rating (Greenberg and Crossney 2007). Socioeconomic status, gender and race/ethnicity have been associated with neighborhood quality ratings. Affluent white males tend to rate their neighborhood quality higher than others perhaps because they have had more choices than their counterparts about where to live and they may have more control of local conditions. Women are more likely to rate the same neighborhood as lower quality than men. This has been explained by the fact that women spend more time in their neighborhood than do men, and they have a greater feeling of vulnerability and greater concern with family (Koshela and Pain 2000). In essence, the previous four paragraphs are a reiteration of the standard model of predicting neighborhood quality.

Understanding the neighborhood quality ratings of 75+ year old residents compared to somewhat younger people (50 to 74 years olds) begins with the assumption that physical and cognitive capacities vary within each age group, as well as between them. Some fully or partly retired and healthy older elderly often are fully engaged in their neighborhoods. They should be expected to visit their neighbors, join clubs and other groups that take them into the streets and neighborhood. Some monitor neighborhood change, positive or negative, and become involved in policy actions. Not surprisingly, the literature shows that these elderly are healthier than their counterparts (Balfour and Kaplan 2002).

Yet the assumption here is that many older elderly compared to their younger counterparts are less physically active and some become cognitively impaired. Those with limitations, I expect, have different perceptions of their neighborhoods. Activity pattern studies show that the elderly spend more of their time in their homes than their younger counterparts (Iwarsson et al. 2007). This implies that the residence should become a more prominent environment for the older elderly than for the younger resident, who spends more time outdoors and working outside the home. If seriously im-

paired, the older elderly may be less able than their younger counterparts to be outdoors and to hear, smell and see the neighborhood change. Another possibility that would differentiate some of the older elderly from younger respondents is that the older elderly have become desensitized to their neighborhoods because of their long residence and their lack of financial resources to relocate. Burkhauser et al. (1995) observed that older homeowners were three times less likely to move from a distressed neighborhood than their younger counterparts, and they may of necessity become desensitized to distressing conditions. Cognitive deficits can compound physical and financial ones. Cognition is the capacity to remember, focus on, and process information, and to make assessments and decisions. It declines in the elderly and people rely more on affect, which is immediate reaction to an experience, such as fear, that typically occur before cognition (Carstensen and Hartel 2006; Charles et al. 2003; Damasio 1994; Finucane et al. 2005; Gray 2004).

Along with the influences of changes in physical capacity and cognition, older elderly are more likely than their younger counterparts to encounter life-threatening challenges that demand their full attention. New neighborhood conditions may be ignored or not considered in detail, unless they cannot be ignored because they are personally threatening. In short, relying more on affect, beliefs and less on physical and cognitive capacity helps those with physical and cognitive limits, as well as those distracted by life-threatening challenges, cope with negative or positive neighborhood-related stress (Gray 2004; Finucane et al. 2005; Goel and Dolan 2003; Slovic et al. 2005; Loewenstein and Lerner 2003).

The literature also shows that neighborhood quality ratings are influenced by other factors. One is residence quality; an excellent home can buffer a lesser quality neighborhood and visa versa (Greenberg and Crossney 2007). Educational achievement, income, race/ethnicity, and gender have been associated with neighborhood quality rating. The college-educated, wealthy, white, and male tend to rate their neighborhood quality as higher than their counterparts. The first three demographic characteristics are influenced by the reality that educated and affluent whites can choose to reside in high-quality neighborhoods. Women tend to rate the same neighborhoods as lower quality than men. This has been explained by women's sense of vulnerability, concern with children and typically more time spent in their neighborhood (Koshela and Pain 2000).

Perhaps the most novel suggestion made here is that the older elderly disproportionately incorporate a spiritual environment—how they feel about their religious and ethnic/racial backgrounds, national and local identity, and family—into their perception of factors that influence their neighborhood perceptions, that is, disproportionately they add a third environmental dimension (the first two are neighborhood conditions and home quality) into their neighborhood quality heuristic.

Overall, I expected the mental models of younger respondents (50 to 64 years old) to focus on distressing neighborhood attributes. The older elderly (75+ years old) would use many more non-neighborhood elements in their heuristic that would allow them to respond to their neighborhood.

Data and Methods

No survey data that fit the precise needs of this analysis were available. Hence, two were used that had many of the essential indicators.

Mercer County Survey

Part of the empirical test was based on data collected via a telephone survey conducted under the auspices of the Center for Survey Research at the Edward J. Bloustein School of Planning and Public Policy at Rutgers University. The data were collected in April 2007. The author requested only the data for those 50 years of age or older, which numbered 433 valid responses. The choice of ≥50 year old residents was made because I wanted to focus on the older elderly, and limiting the age range to those 50+ years limits the range of age effects that had to be modeled.

Households were contacted through random digit dialing (RDD), which gives every working residential telephone number in the region an equal probability of being selected for an interview. The random digit aspect of the sample avoids "listing" bias by ensuring that contacting efforts to both listed and unlisted numbers (including not-yet-listed). The design of the sample ensures this representation by random generation of the last two digits of telephone numbers selected on the basis of their area code, and telephone exchange. Two limitations of RDD are that it does not reach those without phones (or who use answering machines and other devices to screen callers), nor does it reach people with only cell phones. This can reduce the sample of poor and younger people.

The survey was conducted in and around Mercer County, New Jersey. In New Jersey, this area is part of the so-called New Jersey "wealth belt" that includes six central New Jersey counties (Hughes et al. 2000). While the area as a whole is affluent, portions of it, notably Trenton, a city of 84,000, has many of the poverty-related problems of larger cities. More important from the perspective of this paper, it is a region that is relatively similar to the nation with regard to the proportion of the older elderly population. According to the American Community Survey (U.S. Census Bureau 2006a), the proportion of the population 75+ years old is

5.8% compared to about 5.6% in the U.S. Coupled with the relative affluence of the area, results should make the findings from this study of interest to officials from jurisdictions across the U.S. who are facing the relative and absolute growth of the relatively affluent older elderly.

The survey was designed to gauge civic engagement. Although the questionnaire contained over 100 questions, the author's use of the survey was limited to 26 questions. One question was how the respondents rated their neighborhood as a place to live. The choices were "excellent," "good," "fair," and "poor" quality. The remaining 25 questions are the predictors described earlier. One set of nine survey questions asked about neighborhood-related factors that should be strongly associated with perceptions of neighborhood quality. These include the respondent's trust of people in the neighborhood, people who work in stores where they shop, the police in their local community, and people who hold office in their local government. Next, respondents were asked how much impact they thought they could have in making their community a better place to live. Related questions asked if they were involved in a neighborhood association (block association, homeowners association, tenants association, crime watch group), and if they had a friend who was a community leader. The survey asked how often a respondent had visited their neighbors during the last year, and if they expected to be a victim of crime during the next 12 months.

Seven survey questions asked about issues not directly related to neighborhood quality, but also assumed to be related for reasons described above. These include the importance of ethnic/racial background, religion, being an American, and place of residence to the respondent's sense of who he/she is. Three questions asked if the respondent had been involved with a club or organization for senior citizens; a hobby, investment or garden club; or a self-help group for people with disabilities, illnesses, addictions or other family problems. The last set of nine questions asked about personal characteristics. These included respondent age, sex, race/ethnicity, educational achievement, income, home ownership, and their assessment of their personal health, life satisfaction, and satisfaction with their present financial circumstances.

American Housing Survey (AHS)

The Mercer county data provided a good set of people-oriented and activity-oriented questions. The AHS provided neighborhood physical attribute data, which was collected by the U.S. government as part of the American Housing Survey in 2005 and published in 2006 (U.S. Census Bureau 2006b). Users can access the raw data from this national survey via the web. The author obtained only the data for those 50 years of age or older, which numbered 20,528.

The survey contained hundreds of questions. The author's use of the survey was limited to 27 questions. One question was how the respondents rated their neighborhood as a place to live. The choices were from 1(worst neighborhood) to 10 (best neighborhood). The remaining 26 questions are the predictors described earlier. One set were the outdoor physical characteristics that have been the strongest neighborhood quality predictors. These include street noise or traffic, crime and barred windows, odors, abandoned or vandalized housing, trash and junk in the streets, and a catch-all "other neighborhood problems." Also, one question asked how the current neighborhood compares to the prior one, which is germane to those who have moved. Other questions asked about issues not directly related to the set of distressing neighborhood quality characteristics, but which could be predictors, especially for the older elderly. These included the quality of the respondent's home, a comparison of the quality of the current and prior home, whether the respondent was an owner or not, the presence of public transportation, shopping, recreational, commercial establishments, and the quality of police in schools in the area. The last set of questions asked about personal characteristics. These included respondent age, sex, race/ethnicity, educational achievement, income, and marital status.

Statistical Methods

In order to answer the research questions, the author used simple descriptive statistics, discriminant analysis and ordinal regression as described below. The discriminant analysis results are emphasized because they are somewhat richer with regard to outcome measures than the ordinal regression results. The author recognizes that both the discriminant-based results and regression-based ones are challenging to interpret because there are so many interaction terms. Hence, I tried to present the results in more detail in the text than I normally would. Specifically, discriminant analysis produces "functions" that describe the relationship between a categorical dependent variable (three categories of neighborhood quality) and a set of predictors. The discriminant analysis produces two discriminant functions (the number of categories minus one in the dependent variable). The strength of the results is assessed by examining the correlation between each function and the dependent variable (canonical correlation). It is also assessed by noting the proportion of cases accurately predicted. With a three category dependent variable, by chance, one third of the cases will be accurately predicted. Also, sometimes the average values by group by variable can be quite informative, consequently, these are presented. Correlations of $r \geq 0.2$ between a function and an original variable are shown in the tables in order to emphasize the more important predictors.

Results

Sample Characteristics: Mercer County and AHS Data

Compared to the U.S. population, the demographic characteristics of the respondents who are 50+ years old in the Mercer County sample are more affluent (household income about 25% higher), more formally educated (56% of the sample population 50 and older graduated college, which is about double the national rate), and much more densely populated (2400 per square mile). Yet, 19% (84 of 433) of responses were from Trenton, a relatively poor city, so the sample is not entirely affluent. The U.S. proportion from the AHS is virtually identical to national estimates for 2005 for age, ethnicity/race, gender, and income.

Question 1: Neighborhood Quality: Mercer County and AHS Data

Table 1 summarizes the neighborhood quality. At the national level, the AHS 1-10 scale is clearly skewed toward higher quality ratings, as expected. The modal responses for the three U.S. populations are 8, 10 and 10 (where 10 is the best neighborhood), among the entire population, the population 50 years and older, and the older elderly population, respectively. Because of the skewed variable, an obvious implication is that it is inappropriate to use a linear regression model to analyze the relationship between neighborhood quality and predictors. Several versions of ordinal regression and discriminant analysis were tried with 6, 4, and 3 groupings of the original 10 categories. The six and four category groupings did not produce results that are marginally more interesting than the simpler trichotomous grouping of fair/poor (1-6), good (7-9), and excellent (10).

With regard to the Mercer county data, 44% rated their neighborhood as excellent quality, 43% rated it as good quality, 11% rated their neighborhood fair, and only 2% rated their neighborhood as poor quality. Because there were so few poor quality ratings, the author combined the fair and poor quality ratings into a fair/poor quality group (Table 1). Like the AHS national data, Table 1 shows that the 75+ year old group had relatively few fair/poor quality ratings and many more good or excellent quality ratings.

Question 2: Standard Neighborhood Quality Predictors

Mercer County Data

Before summarizing the first set of results of the answers to question two in two tables, the author briefly reviews preliminary analyses. Each of the four groups of predictors (neighborhood, home and spiritual environment, and demographic) were tested separately. Then a stepwise analysis was calculated, which emphasizes most important predictors. To conserve space, the two stepwise models are presented rather than all 16 results. The discriminant analysis and ordinal regression methods produced similar results. The author presents the discriminant analysis results, because as noted earlier, the results are somewhat richer with regard to a variety of outcome measures.

Table 2 summarizes the results of the standard predictive model for the Mercer County data. The strongest predictor, indicated by the highest variable correlation with Function 1, was trust people in my neighborhood. The correlation with

Table 1. Neighborhood Quality Ratings: 50+ Year Old Population of the United States

Rating	United States, all respondents, 2005, %	United States, 50+ years old, 2005, %	United States, 75+, 2005, %	Mercer County, 2007, %	Mercer County, States, 75+, 2007, %
1	0.7	0.6	0.4		
2	0.6	0.4	0.3		
3	1.1	0.7	0.3		
4	1.6	1.1	0.9		
5	6.2	5.1	4.3		
6	5.7	4.4	3.9		
Fair/Poor	**15.9**	**12.3**	**10.1**	**12.7**	**2.7**
7	13.6	10.9	7.8		
8	27.1	26.3	24.2		
9	16.6	17.4	16.2		
Good	**57.3**	**54.6**	**48.2**	**43.0**	**50.7**
10 or Excellent	**26.6**	**33.0**	**41.7**	**44.3**	**46.7**
Total	**99.8**	**99.9**	**100.0**	**100.0**	**100.1**

function one was r=0.624. Seventy-seven percent of respondents who rated their neighborhood as excellent quality trusted people in their neighborhood a lot. This compared with 51% of those who rated their neighborhood as good, and only 22% of those who rated their neighborhood as fair/poor quality. By far, this is the strongest indicator.

Function 1 also highlights other major differences between those who rated their neighborhood quality as excellent versus fair/poor. Those who rated their neighborhood quality as excellent were satisfied with their personal financial circumstances, and they were disproportionately Caucasian, homeowners, and college-educated. They also felt that they could have a major impact on their neighborhood, and they trusted local government officials and people who work in the stores where they shop. In contrast, their counterparts who rated their neighborhood quality as fair/poor were less likely to trust their neighbors, store employees, and government officials; and they were more likely to be nonwhite, not college graduates and less likely to be homeowners. The first discriminant function captures the essence of why some people rate their neighborhood as excellent quality and others rate their neighborhood as poor quality.

The second discriminant function is more difficult to interpret. In essence, it seeks to discriminate between a good neighborhood quality and both excellent and fair/poor quality. The strongest part of the function focused on differences between excellent and good quality ratings with regard to perception of their ability to have an impact on the community and trust of local office holders. Function 2, however, is not particularly useful. This is also underscored by the fact that function1 had a canonical correlation of r=0.545 with the dependent variable compared to only r=0.256 for function 2. This model accurately predicted 64% of the responses into the neighborhood quality group they selected.

A final and important point is that age had one of the lowest correlations with the dependent variables (r=0.113). In other words, as expected, age was a statistical afterthought.

AHS Data

Table 3 summarizes the results of the standard predictive model for national AHS data. The strongest predictor is, noted by the highest variable correlation with Function 1, was housing quality with a correlation with function 1 of r=0.872. The average housing quality score of those who rated their neighborhood quality as excellent was 9.6 (10 is the maximum) compared to 6.8 among those who rated their neighborhood quality as fair/poor. Function 1 also shows interesting correlations, although they are much weaker with age (r=0.295) and widowed (r=.200). Age, in other words, is linked to housing quality, but the relationship is not very clear in this model.

Table 2. Discriminant Analysis of Neighborhood Quality and Standard Correlates: Mercer County, Central New Jersey (E=excellent, G=good, F/P=fair or poor)

Explanatory Variable	Mean values by group		Function 1 correlations	Function 2 correlations
Trust people a lot in my neighborhood (1=yes, 0=no)	E	.77	.624	
	G	.51		
	F/P	.22		
Satisfied with present financial situation (1=very satisfied, 2=somewhat, 3=not at all)	E	1.6	-.420	
	G	1.8		
	F/P	2.1		
Respondent was Caucasian (1=yes, 0=no)	E	.88	.419	.332
	G	.80		
	F/P	.52		
Own place where living (1=yes, 0=no)	E	.91	.399	.270
	G	.84		
	F/P	.60		
Graduated college (1=yes, 0=no)	E	.66	.371	.228
	G	.57		
	F/P	.28		
Can have impact on making community a better place to live (1=yes, 0=no)	E	.47	.344	-.548
	G	.23		
	F/P	.22		
Trust people a lot who hold office in local community (1=yes, 0=no)	E	.16	.262	-.408
	G	.05		
	F/P	.04		
Racial/ethnic background is very important to your sense of who you are (1=yes, 0=no)	E	.38		-.621
	G	.31		
	F/P	.60		
Religion is very important to your sense of who you are (1=yes, 0=no)	E	.46		-.344
	G	.49		
	F/P	.66		
Respondent belongs to a support group or self-help program for people with specific health problems (1=yes, 0=no)	E	.17		-.257
	G	.18		
	F/P	.33		
Has friend who is a community leader (1=yes, 0=no)	E	.55		-.202
	G	.43		
	F/P	.46		
Trust people a lot who work in stores where respondent shops (1=yes, 0=no)	E	.55	.245	
	G	.43		
	F/P	.46		
Place of residence is very important to your sense of who you are (1=yes, 0=no)	E	.52		.301
	G	.47		
	F/P	.52		

The second function is about distressing neighborhood attributes. It distinguishes between those who rated their neighborhoods as excellent and those who rated them as fair/poor. Those who rated their neighborhood as lower quality observed trash and junk in their streets (r=0.509), abandoned and vandalized buildings (r=0.499), heard bothersome street noises (r=0.379), and encountered bad smells

(r=0.254). They also judged police protection to be unsatisfactory (r=-0.392), observed barred windows (r=.224), observed other bothersome conditions (r=.344), and felt that their public elementary school was so bad that they wanted to leave (r=0.245). Finally, disproportionately they are not homeowners (r=-0.279). The two functions accurately classified 66% of the cases.

Table 3. Discriminant Analysis of Neighborhood Quality and Standard Correlates: United States, 2005
(E=excellent, G=good, F/P=fair or poor)

Explanatory Variable	Mean values by group		Function 1 correlations	Function 2 correlations
Housing unit rating (1-10, where 10 is best)	E	9.6	.872	
	G	8.3		
	F/P	6.8		
Respondent age, 50+ years (1=yes, 0=no)	E	66.9	.295	
	G	64.1		
	F/P	64.4		
Respondent widowed (1=yes, 0=no)	E	0.24	.200	
	G	0.18		
	F/P	0.18		
Trash/junk in streets/properties within 1/2 mile (1=yes, 0=no)	E	0.02		.509
	G	0.06		
	F/P	0.21		
Crime exists in neighborhood (1=yes, 0=no)	E	0.05		.500
	G	0.12		
	F/P	0.34		
Abandoned/vandalized buildings within 1/2 block (1=yes, 0=no)	E	0.02		.499
	G	0.03		
	F/P	0.12		
Satisfactory police protection in neighborhood (1=yes, 0=no)	E	0.95		-.392
	G	0.94		
	F/P	0.82		
Bothersome street noise in neighborhood (1=yes, 0=no)	E	0.16		.379
	G	0.25		
	F/P	0.48		
Bothersome characteristics (bad public services, people, or properties) (1=yes, 0=no)	E	0.05		.344
	G	0.13		
	F/P	0.30		
Home owner (1=yes, 0=no)	E	0.82		-.279
	G	0.82		
	F/P	0.72		
Neighborhood has bad smells (1=yes, 0=no)	E	0.02		.254
	G	0.04		
	F/P	0.11		
Public elementary is so bad respondent wants to leave neighborhood (1=yes, 0=no)	E	0.001		.245
	G	0.001		
	F/P	0.010		
Home with barred windows within 1/2 block (1=yes, 0=no)	E	0.03		.224
	G	0.06		
	F/P	0.14		

Summarizing, the two standard predictor analyses replicated what was anticipated from the literature, that is, those who rate their neighborhoods as poor or fair quality find numerous distressing physical and human characteristics in the neighborhoods. They do not like what they see and they do not trust those in the neighborhood, nor do many believe that they can affect what goes on in their neighborhoods. Not surprisingly, often they assess their economic status as not satisfactory, they do not rate their homes high quality, they have relatively low socioeconomic status, and many are not White.

Question 3: Age-impacted Results

Mercer County

By building interaction between age and the other 24 predictors, we can observe the impact of age (50-64 vs. 75+) on the other predictors (Table 4). The results demonstrate an interesting impact of age on the other predictors. Function 1, in essence, replicates function 1 of the first Mercer discriminant analysis, but identifies some relationships not identified by the first discriminant function. It identifies younger respondents (50-64) who rated their neighborhood quality as excellent, who trust their neighbors, who do not think they are likely to be a victim of crime, feel that they can impact their community, and yet are not involved with a block or other neighborhood association. They tend to be college educated, judge their health to be excellent, and are satisfied with their economic circumstances. Their counterparts who rated their neighborhoods as fair/poor do not trust their neighbors, do not think that they can have much of an impact on their neighborhood, think that they will be a victim of crime, are involved with a neighborhood/block association, are not satisfied with their economic situation, their self health assessments were disproportionately fair or poor, and they are not college educated. Older respondents who rated their neighborhoods excellent are nearly all retired and were disproportionately college-educated. Their definition of an excellent neighborhood includes being involved with a neighborhood/block association, knowing a neighborhood leader, feeling that they can impact their neighborhood, belonging to a senior citizen organization, and visiting their neighbors. Their counterparts who rated their neighborhood as fair/poor tend to be disconnected from their neighbors and neighborhoods. In short, function 1 captures age-stratified interactions of neighborhood quality. Eight of the key indicators were for the younger population and six for the older group.

While function 2 is less powerful statistically, it is more interesting because it responds more directly to the ideas developed earlier in the paper. Fourteen indicators had correlations of $\geq$.200 with the function. Notably 10 were with the 75+ year old age group. The discrimination is primarily between those who rated their neighborhoods as good versus

Table 4. Age-Interacted Discriminant Analysis of Neighborhood Quality and Correlates: Central New Jersey (E=excellent, G=good, F/P=fair or poor)

Explanatory Variable	Mean values by group		Function 1 correlations	Function 2 correlations
Younger: trust people in my neighborhood (1=yes, 0=no)	E G F/P	.71 .49 .22	.356	
Younger: not satisfied with present financial situation (1=very satisfied, 3=not at all satisfied)	E G F/P	1.6 1.8 2.2	-.376	
Older: not satisfied with present financial situation (1=very satisfied, 3=not at all satisfied)	E G F/P	1.5 1.9 2.0		.413
Younger: involved with neighborhood, block association (1=yes, 0=no)	E G F/P	.16 .31 .39	-.345	
Older: involved with neighborhood, block association (1=yes, 0=no)	E G F/P	.40 .08 .00	.307	-.283
Older: know neighborhood leader (1=yes, 0=no)	E G F/P	.60 .26 .00	.300	
Younger: self health evaluation (1=excellent, 2=very good, 3=good, 4=fair, 5=poor)	E G F/P	2.1 2.3 2.8	-.226	
Older: self health evaluation (1=excellent, 2=very good, 3=good, 4=fair, 5=poor)	E G F/P	2.7 3.0 4.0		.317
Older: can have impact on making community a better place to live (1=yes, 0=no)	E G F/P	.37 .18 .50	.222	
Younger: can have impact on making community a better place to live (1=yes, 0=no)	E G F/P	.46 .24 .20	.237	-.276
Younger: think they will be robbed (1=yes, 0=no)	E G F/P	.15 .22 .28	-.210	
Older: think they will be robbed (1=yes, 0=no)	E G F/P	.09 .26 .50		-.217
Older: college educated (1=yes, 0=no)	E G F/P	.57 .18 .50	.207	
Younger: college educated (1=yes, 0=no)	E G F/P	.73 .67 .29	.230	.360
Older visited neighbors at least 5 times last 12 months (1=yes, 0=no)	E G F/P	.57 .42 .00	.203	
Older: belongs to club for senior citizens (1=yes, 0=no)	E G F/P	.54 .40 .00	.200	
Younger: racial/ethnic background important to your sense of who you are (1=yes, 0=no)	E G F/P	.30 .27 .58	-.281	-.451
Younger: religious background important to your sense of who you are (1=yes, 0=no)	E G F/P	.43 .38 .49		-.265
Older: religious background important to your sense of who you are (1=yes, 0=no)	E G F/P	.63 .66 .50		.254
Older: racial/ethnic background important to your sense of who you are (1=yes, 0=no)	E G F/P	.54 .58 .50		.219
Older: being American important to your sense of who you are (1=yes, 0=no)	E G F/P	.86 .95 .50		.291
Older: evaluation of life satisfaction (1= extremely dissatisfied, 10=extremely satisfied)	E G F/P	8.4 8.1 6.5		.246
Older: own place where living (1=yes, 0=no)	E G F/P	.91 .74 .50		.232
Older: respondent is Caucasian (1=yes, 0=no)	E G F/P	.91 .82 .50		.230
Older: residence is important to view of self (1=yes, 0=no)	E G F/P	.68 .71 .50		.212

fair/poor. The older elderly members of the good neighborhood quality group tend to be Caucasian, are satisfied with their financial circumstances, their self health evaluation is likely to be good, and they have a relatively high level of satisfaction with life. They own their homes and do not think that they will be robbed.

What stands out in this second function, however, is that their religious and ethnic/racial backgrounds, their sense of being American, and their home are all important to their self identity. Among those 75+ years old and rated their neighborhood quality as good, 58%, 71%, 66%, and 95% indicated that ethnic/racial background, their home, religion, and being an American were very important to their identity, respectively. In the older elderly group, these are slightly higher proportions than among either those who rated the neighborhood quality as excellent or fair/poor, and notably higher among the 50-64 year old age group. This is fascinating because it is not what had been anticipated. The assumption was that these spiritual environmental indicators, if associated at all with neighborhood quality, would be stronger in self-defined "excellent" neighborhoods.

This age-impacted model accurately classified 60% of the cases, slightly less than the non-age impacted one. With regard to providing insights about the role of age, it is much more revealing.

AHS

The age-impacted AHS results (Table 5) show a striking split by age between the two functions. All seven of the indicators in function 1 are the younger age group, and all are outdoor neighborhood characteristics: crime, trash/junk, abandoned/vandalized buildings, street noises, smells, bad schools and other bad characteristics. The average values underscore the differences between the excellent and fair/poor responses. The proportions of respondents in the lowest quality grouping are 3 to 12 times the proportion in the excellent quality ones. For example, 39% of those in the 50-64 year old age group who rated their neighborhood as fair/poor were distressed by crime compared to 5% of those who assessed their neighborhood as excellent.

Function 2 includes seven correlations that involve the older elderly, and none of these are physical neighborhood stressors, such as odors, noise, and the others described above. They are housing quality, satisfactory police protection, better housing and better neighborhood for them, and the availability of community recreation facilities. None of the outdoor neighborhood quality indicators that were so prominent among younger respondents were even significant enough to be in the stepwise results. These respondents were more likely to be widowed and less likely to be homeowners than their counterparts. Overall, the AHS data discriminant analysis shows how much more important non-outdoor physical characteristics are to the older elderly. This discriminant analysis accurately classified 59% of the respondents in the neighborhood quality that they had selected.

Table 5. Age-Interacted Discriminant Analysis of Neighborhood Quality and Correlates: United States, 2005
(E=excellent, G=good, F/P=fair or poor)

Explanatory Variable	Mean values by group		Function 1 correlations	Function 2 correlations
Young: Crime exists in neighborhood (1=yes, 0=no)	E	0.05	.468	
	G	0.13		
	F/P	0.39		
Young: Trash/junk in streets/ properties within 1/2 mile (1=yes, 0=no)	E	0.02	.438	
	G	0.06		
	F/P	0.24		
Young: Abandoned/vandalized buildings within 1/2 block (1=yes, 0=no)	E	0.02	.433	
	G	0.03		
	F/P	0.13		
Young: Bothersome street noise in neighborhood (1=yes, 0=no)	E	0.15	.387	
	G	0.24		
	F/P	0.52		
Young: Bothersome characteristics (bad public services, people, or properties) (1=yes, 0=no)	E	0.06	.314	
	G	0.14		
	F/P	0.34		
Young: Neighborhood has bad smells (1=yes, 0=no)	E	0.03	.245	
	G	0.05		
	F/P	0.13		
Young: Public elementary is so bad respondent wants to leave neighborhood (1=yes, 0=no)	E	0.002	.222	
	G	0.001		
	F/P	0.02		
Old: Housing unit rating (1-10, where 10 is best)	E	9.8		.401
	G	8.7		
	F/P	6.2		
Young: Satisfactory police protection in neighborhood (1=yes, 0=no)	E	0.95		-.375
	G	0.93		
	F/P	0.80		
Young: Home owner (1=yes, 0=no)	E	0.84		-.337
	G	0.81		
	F/P	0.67		
Young: Housing unit is worse than prior one (1=yes, 0=no)	E	0.013		-.326
	G	0.022		
	F/P	0.055		
Young: Neighborhood is worse than prior neighborhood (1=yes, 0=no)	E	0.002		-.314
	G	0.010		
	F/P	0.059		
Young: Neighborhood transit satisfactory (1=yes, 0=no)	E	0.427		-.312
	G	0.538		
	F/P	0.643		
Old: Satisfactory police protection in neighborhood (1=yes, 0=no)	E	0.96		.305
	G	0.95		
	F/P	0.88		
Old: Housing unit is worse than prior one (1=yes, 0=no)	E	0.006		.296
	G	0.013		
	F/P	0.018		
Old: Neighborhood is worse than prior neighborhood (1=yes, 0=no)	E	0.003		.294
	G	0.006		
	F/P	0.016		
Old: widowed (1=yes, 0=no)	E	0.53		.222
	G	0.47		
	F/P	0.50		
Old: community recreational facilities available (1=yes, 0=no)	E	0.40		.218
	G	0.39		
	F/P	0.30		
Old: homeowner (1=yes, 0=no)	E	0.80		.204
	G	0.76		
	F/P	0.74		
Young: central city resident of a metropolitan statistical area (1=yes, 0=no)	E	0.19		-.202
	G	0.28		
	F/P	0.39		

Discussion

Before summarizing the results and discussing their implications, I reiterate several of the key limitations of this research. First, as a practical matter it was difficult to find a data set that had the breadth of questions needed to test the ideas about the older elderly and neighborhood quality. Multiple questions were needed for indicators of blight, crime and other safety issues, for trust of neighbors and store owners, as well as for the components of the spiritual environment, and other potential influences. Second, one survey in a relatively affluent area and a national survey are satisfactory for testing an idea, but it would be inappropriate to overstate the implications of the results, rather it is more appropriate to emphasize the implications for research.

Despite these limitations, the findings are consistent with the theory that older elderly do build complex integrated mental models that join the outdoor environment, the home environment, and the spiritual environment. Two clusters of mental images were observed. One is composed of the 30-40% of the older elderly who rate their neighborhood quality as excellent. Nearly all of them also rated their homes as excellent and were homeowners. Over half considered their religion, ethnicity/race and being an American important. In the neighborhoods, many are involved with neighborhood organizations, think they can have a positive impact on their neighborhoods, frequently visit their neighbors, and belong to clubs for senior citizens. These primarily Caucasian respondents, more than half of whom are college graduates, are not troubled by physical conditions in the neighborhood, and they trust their neighbors and local shop employees, and a plurality say they know a neighborhood leader. Typically, they self-rated their health as between very good and good, their financial situation as between very satisfied and satisfied, and their overall quality of life assessment averaged 8.4 (10 point scale, where 10 is highest). Overall, this large proportion of older elderly have a generally positive perception of neighborhood quality, supported by positive mental images of home, ethnicity/race, religion, of being an American and other environmental elements, and they appear to be comfortable in these different environments. The author speculates that perhaps these respondents who like their non-neighborhood environments use these feelings to buttress their feelings about their neighborhoods. The reverse probably occurs as well, that is, good neighborhoods buttressed their feelings about other environments.

In strong contrast to this large group, about 10-15% of respondents are much less satisfied with neighborhood, housing or spiritual environments. They are distressed by many outdoor neighborhood characteristics associated with crime and blight. It is telling that none of these respondents reported visiting neighbors at least five times during the last 12 months. In contrast to their more satisfied counterparts who reported an average health assessment of 2.7 (2=very good and 3=good) these respondents typically rated their health as 4 (fair). Their average quality of life assessment was 6.5 compared to 8.4 for those who rated their neighborhood quality as excellent.

While the two sample data sets did not probe depression, it probably is not a large leap of faith to assume that many of these respondents are those captured by epidemiologists, gerontologists, psychologists, social workers and others who have indicated that a distressed neighborhood can exacerbate clinical depression for someone with an already negative mental model of their personal environment, people who feel trapped with relatively little assistance available (Balfour and Kaplan 2002: Burkhauser et al. 1995; Diez Roux 2001; Galea et al. 2005; Kubzansky et al. 2005; Ross 2000; Shaw 2005; White 2001). The challenge of assisting a population of this magnitude is daunting for city officials, not for profits, relatives, friends and neighbors.

A large literature already exists about the older elderly. With perhaps the exception of statistically tying together the neighborhood, home and spiritual environments, the major contribution of this paper has been to paint a rather stark portrait of these two remarkably different older elderly groups. This research adds in a small way to a large and growing literature on the older elderly. It shows that survey questions from diverse sources can be useful for building an understanding of the complex environments of the older elderly. I feel confident that progress in both theory and measurement will be rapid and that we will learn more about the older elderly, many living in nursing-home and assisted-living facilities, or with their children, and I hope especially about those living alone in difficult conditions and those who are hard to reach.

Endnote

1. E-mail: mrg@rci.rutgers.edu

Acknowledgments

I would like to thank Dr. Marc Weiner for alerting me to the existence of the Mercer County survey data, and then providing it to me. I thank Professor Frank Popper for his helpful suggestions. All analyses and interpretations of the data are the sole responsibility of the author.

References

Balfour, J. and G. Kaplan. 2002. Neighborhood environment and loss of physical function in older adults: Evidence from the Alameda County study. *American Journal of Epidemiology* 155, 6, 507-515.

Burkhasuer, R., B, Butrica, and M. Wasylenko. 1995. Mobility patterns of older homeowners. *Research on Aging* 17, 4, 363-384.

Carstensen, L. and C. Hartel, eds. 2006. *When I'm 64*. Washington, D.C.: National Academies Press.

Chaiken, S. 1980. Heuristic versus systematic informtion processing and the use of source versus message clues in persuasion. *Journal of Personality and Social Psychology* 39, 752-766.

Charles, S., M. Mather, and L. Carstensen. 2003. Aging and emotional memory: The forgettable nature of negative images for older adults. *Journal of Experimental Psychology: General* 132, 2, 310-324.

Clay, P. and R. Hollister, eds. 1983. *Neighborhood Policy and Planning*. Lexington, MA: Lexington.

Cozens, P. and F. Plimmer. 2000. Crime and its relationship to environment. *Property Management* 18, 2, 89-91.

Damasio, A. 1994. *Descartes' Error: Emotion, Reason, and the Human Brain*. New York: Avon.

Diez Roux, A. 2001. Investigating neighborhood and area effects on health. *American Journal of Public Health* 91, 11, 1783-1789.

Eagly, A. and S. Chaiken. 1993. *The Psychology of Attitudes*. New York: Harcourt Brace Jovanovich.

Finucane, M., C.K. Mertz, P. Slovic, and E. Schmidt. 2005. Task complexity and older adults' decision-making competence. *Psychology and Aging* 20, 1, 71-84.

Fries, J. 1980. Aging, natural death, and the compression of morbidity. *New England Journal of Medicine* 303, 130-135.

Galea, S., J. Ahern, S. Rudenstine, Z. Wallace, and D. Vlahov. 2005. Urban built environment and depression: A multilevel analysis. *Journal of Epidemiology and Community Health* 59, 822-827.

Goel, V. and R. Dolan. 2003. Explaining modulation of reasoning by belief. *Cognition* 87, 1, B11-22.

Gray, J. 2004. Integration of emotion and cognitive control. *Current Directions in Psychological Science* 13, 46-48.

Greenberg, M. 1999. Improving neighborhood quality: A hierarchy of needs. *Housing Policy Debate* 10, 3, 601-624.

Greenberg, M., and D. Schneider. 1996. *Environmentally Devastated Neighborhoods: Perceptions, Policies, and Realties*. New Brunswick, NJ: Rutgers University Press.

Greenberg, M. and K. Crossney. 2007. Perceived neighborhood quality in the United States: Measuring outdoor, housing, and jurisdictional influences. *Socio-Economic Planning Sciences* 41, 181-194.

Hughes, J., J. Seneca, and C. Hughes. 2000. *Anticipating Census 2000: New Jersey's Emerging Demographic Profile*. Rutgers Regional Report, Number 18, July.

Iwarsson, S., H-W Wahl, C. Nygren, F. Oswald, A. Sixsmith, J. Sixsmith, Z. Szeman, and S. Tomsone. 2007. Importance of the home environment for healthy aging: Conceptual and methodological background of the European ENABLE-AGE project. *The Gerontologist* 47, 78-84.

Kahlor, L.A., S. Dunwoody, R. Griffin, K. Neuwirth, and J.Giese. 2003. Studying heuristic-systematic processing of risk communication. *Risk Analysis* 23, 2, 355-368.

Kelling, G., and C. Coles. 1996. *Fixing Broken Windows. Restoring Order and Reducing Crime in Our Communities*. New York, NY: Touchstone, Simon and Schuster.

Koshela, H., and R. Pain. 2000. Revisiting fear and place: Women's fear of attack and the built environment. *Geoforum* 31, 2, 269-280.

Kraut, D. 1999. Hanging out the no vacancy sign: Eliminating the blight of vacant buildings from urban areas. *New York University Law Review* 74, 1139-1177.

Kubzansky, L., S.V. Subramanian, I. Kawachi, M. Fay, M-J Soobader, L. Berkman. 2005. Neighborhood contextual influences on depressive symptoms in the elderly. *American Journal of Epidemiology* 162, 3, 253-260.

Loewenstein, G., and J. Lerner. 2003. The role of affect in decision making. In R. Davidson, H. Goldsmith, and K. Scherer, eds. *Handbook of Affective Science*, 619-642. Oxford, Oxford University Press.

Pinquart, M. and D. Burmedi. 2003. Correlates of residential satisfaction in adulthood and old age: A meta-analysis. In H. Wahl, R. Scheidt., and P. Windley, eds. *Annual Review of Gerontology and Geriatrics: Focus on Aging in Context, Socio-physical Environments*, 195-222.

Ross, C. 2000. Neighborhood disadvantage and adult depression. *Journal of Health and Social Behavior* 41, 177-187.

Ross, C. and J. Mirowsky. 1999. Disorder and decay: The concept and measurement of perceived neighbourhood disorder. *Urban Affairs Review* 34, 3, 412-432.

Shaw, B. 2005. Anticipated support from neighbors and physical functioning during later life. *Research on Aging* 27, 5, 503-525.

Slovic, P., E. Peters, M. Finucane, and D. MacGregor. 2005. Affect, risk and decision making. *Health Psychology* 24, 4, 35-40.

Spelman, W. 1993. Abandoned houses: Magnets for crime? *Journal of Criminal Justice* 21, 481-488.

U.S. Census Bureau. 2006a. *American Community Survey, 2006*. Available at www.census.gov/acs/www. Accessed May 23, 2008.

U.S. Census Bureau. 2006b. Current Housing Reports, Series H150/05, *American Housing Survey for the United States: 2005*. U.S. Government Printing Office, Washington, D.C.

U.S. Census Bureau. 2008. *Statistical Abstract of the United States*. Available at www.census.gov/compendia/statab/tables. Accessed May 23, 2008.

U.S. Department of Commerce, Economics and Statistics Administration. 1995. *Sixty-Five Plus in the United States*. Available at www.census.gov/population/socdemo/statbriefs/agebrief.html. Accessed May 8, 2008.

White, G. 2001. Home ownership: Crime and the tipping and trapping process. *Environment and Behavior* 33, 3, 325-342.