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Residential satisfaction among aging people living in place

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ABSTRACT

Residential satisfaction is a significant topic in environmental psychology yet there is little research on residential satisfaction among elders. This research aims to identify the cognitive structure of residential satisfaction of elderly persons living in their own dwellings and to identify demographic and psychological variables related to this residential satisfaction. One hundred and three participants, ranging in age from 72 to 86 years old and living at home in the central France, answered (a) a purpose-developed questionnaire to measure their residential satisfaction, (b) an environmental quality questionnaire aimed at evaluating both the physical and social environments, and (c) several psychological variables including: the ESV, a French adaptation of the Satisfaction with Life Scale which examines the general well-being of aging people; and three single well-being items assessing financial well-being, perceived health, and perception of oneself as active. The results indicated that in this sample, residential satisfaction corresponds to a four-dimension structure organized by physical location rather than psychological or behavioral aspects. The four components were the local area, access to services, relations with neighbors, and the home itself. Satisfaction with each component was related to different predictors, supporting the idea that elders hold complex and nuanced views of their homes and neighborhoods.

The relation between people and their residential environment is a significant topic in environmental psychology, possibly because home environments are one of the most salient environments in human experience (Lawrence, 2002; Tognoli, 1987). For elders – especially those with physical and financial limitations – home is often the central focus of their days, making it even more important to understand the personal and environmental predictors of residential satisfaction. There is a growing literature on factors that support elders' aging in place, but it is difficult to identify general patterns of results. The total number of studies is not large; research is done in different countries and among different ethnic groups and typically uses different conceptualizations and ways of measuring residential satisfaction, including shifting between objective and subjective measures. One purpose of the present research is to contribute an additional study to this growing field, using a French sample and scales specifically developed for this sample from in-depth interviews.

Like other researchers (Apparicio, 2006, p. 42; Bonaiuto, Aiello, Perugini, Bonnes, & Ercolani, 1999; Canter & Rees, 1982; Potter & Cantarero, 2006), we adopt a broad view of residential satisfaction on the assumption that we cannot and should not isolate the dwelling from its surrounding social and physical community. Although the dwelling's interior supports private aspects and is certainly important to residential satisfaction (Altman, 1975; Apparicio, 2006), there is an emerging appreciation among researchers that focusing on the home per se has been inadequate for accurately conceptualizing and measuring residential satisfaction. More and more researchers consider residential satisfaction to be multi-faceted, comprising the home's interior and exterior, relationships with neighbors, the local physical environment, especially its functionality (safety, presence of and access to services), aesthetics (appearance), and health features (air quality and pollution). For example, several authors have included spatial (architecture, urban form), human (people and social relationships) and functional aspects (services and facilities) in their conceptual frameworks (Amérigo, 2002; Canter, 1983; Francescato, 2002). Others include these features and add broader contextual factors such as pace of life, environmental health/pollution and the community's upkeep and care (Bonaiuto et al., 1999). Indeed, in an overview of research, Bonaiuto (2004) drew on all of these perspectives and suggested four broad areas that have consistently emerged in the literature on residential satisfaction: spatial or physical environmental features (e.g., urban planning); social features and social relationships; functional supports and services; and more transient contextual features such as lifestyle, maintenance, and care.

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Research generally supports these multi-faceted conceptualizations. For example, Adriaanse (2007), following Canter and Rees (1982), drew items from a longer housing survey and found that the single housing scale could be subdivided into three strong subcomponents representing satisfactions with different domains or areas in the environment: the dwelling, the neighbors, and the broader physical-social neighborhood. Similarly, Bonaiuto and Bonnes (2002) developed comprehensive measures of residents' activities, needs, and preferences in order to understand use of and satisfaction with both residential and neighborhood settings. Like these authors and others (Bonaiuto, Bonnes, & Continisio, 2004; Bonaiuto, Fornara, & Bonnes, 2003; Lawton, 1982), we assume that residents are active users of their environment, and that an important basis of satisfaction is whether the individual's goals and needs are supported by the environment. Especially among the elderly who might be limited by health problems the skills and abilities of residents limit or enhance their engagement with their socio-physical environment which then influences their views and satisfactions. Thus we include predictors of satisfaction that tap participants' perceptions of the supportiveness of their social and physical environments and their own effectiveness as individuals (e.g., feeling healthy, feeling physically active). (See Fig. 1).

In the present research, we develop measures of satisfaction for different aspects of the environment and ask whether residents view these different domains similarly (i.e., whether the predictors are the same for each domain) or if different combinations of demographic, behavioral, psychological and health variables predict satisfaction within each environmental domain. We begin with a brief review of research on residential satisfaction followed by a review of research on neighborhood satisfaction among elderly respondents.

1. Residential satisfaction among the elderly

1.1. Demographic predictors

Studies of elders' satisfaction with their residential environment have yielded complex patterns of relationship between rated satisfaction and individual, physical and social characteristics. Numerous studies have aimed to identify the personal (Bruin & Cook, 1997; Golant, 1992; Klein, 1993) and environmental variables (Carp & Christensen, 1986; Christensen & Carp, 1987; Evans, Kantrowitz, & Eshelman, 2002; Jirovec, Jirovec, & Bosse, 1984; Lawton, Brody, & Turner-Massey, 1978) that might affect elderly people's satisfaction with the residence itself.

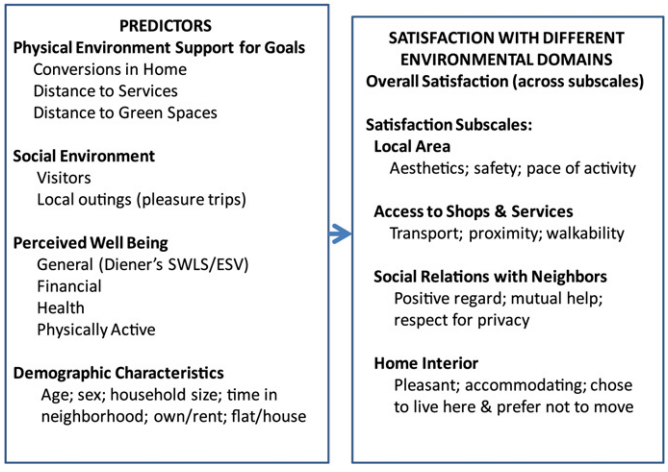

Fig. 1. Potential predictors and domain-linked satisfactions.

One theme has been to identify which demographic variables are associated with residential satisfaction, and the nature of those relationships. Research shows that elderly people have a relatively high level of residential satisfaction (Cohn & Sugar, 1991; Francescato, Weidemann, & Anderson, 1987; Golant, 1984; Lawton, 1991; Rojo-Perez, Fernandez-Mayoralas, Pozo Rivera, & Rojo Abuin, 2001), which can be higher than satisfaction reported by younger persons (Baba & Austin, 1989; Fine-Davis & Davis, 1982; Jelinkova & Picek, 1984). For example, Fine-Davis and Davis (1982); see also Davis, Fine-Davis, and Meehan (1982) studied housing satisfaction of over twelve thousand people in eight European countries and found that older people (over 55) were more satisfied with their dwellings than younger people.

Some research has found different demographic characteristics to be related to residential satisfaction. One study found that marital status, socio-economic factors, and race were negatively correlated with residential satisfaction, such that married, low-income, African American seniors were least satisfied (Galster & Hesser, 1981). The level of residential satisfaction has also varied according to sex, and has been higher among women in both a U.S. (Golant, 1984) and a Spanish sample Rojo-Perez et al. (2001).

1.2. Functional predictors

Other research addressed the physical limitations of aging, and examined how the residents' physical health and vitality related to residential satisfaction. For example, a sample of Spanish elders yielded a positive relationship between perceived health and residential satisfaction (Fernandez-Ballesteros, 2001); in a similar study, a sample of French elders showed that residential satisfaction was positively related to a behavioral indicator of health, residents' frequency of outings (short pleasure trips) (Rioux, 2007). In addition, several studies in the U.S. and Asia used items from the World Health Organization's Quality of Life Survey (World Health Organization, 1998) and found strong positive relationships between psychological well-being and residential satisfaction (Brown, 1995, 1997; Phillips & Yeh, 1999; Siu & Phillips, 2002). Carp and Christensen (1986) drew on ideas of "environmental press" to identify fit between residents' capabilities and the supportiveness of the environment and found significant relations between environmental supports and residents' satisfaction with either the home or neighborhood. Also consistent with ideas of press and need for a supportive environment, a qualitative analysis suggested that elders' choice of housing was strongly influenced by whether the physical environment and local amenities supported their mobility and health needs (Hunt, Merrill, & Gilker, 1994). Thus, studies of residential satisfaction in a variety of settings support the importance of effective functioning and a fit between environmental supports and residents' activities.

2. Neighborhood context and residential satisfaction

Other research has emphasized the importance of neighborhood context in residential satisfaction (e.g., Bonaiuto et al., 1999). This would include amenities such as green spaces, environmental health or pollution, upkeep and cleanliness, pace of life, as well as the social milieu. Considerable research shows that social and physical contexts are related to older adults' satisfaction with their immediate residence, supporting the view that satisfaction with the dwelling should not be separated from its broader neighborhood or community context (Altman, Lawton, & Wohlwill, 1984; Carp & Christensen, 1986; Phillips, Siu, Yeh, & Cheng, 2005; Rojo-Perez et al., 2001).

In terms of the physical environment, we draw on research that considers multiple features of the physical environment, including

urban design, architectural features, cleanliness, safety from traffic and crime, air quality and low pollution, as well as green areas, such as parks and natural areas (Apparicio, 2006; Bonaiuto, 2004). For example, in a large sample of elderly people (65–84 years old) living in family housing in Madrid, participants were concerned about exterior features of their residences, such as the conditions of the street, congestion in car-parking areas, road-works, and building location (Rojo-Perez et al., 2001). A sample of elderly U.S. citizens found that objective measures of housing and neighborhood characteristics such as safety, cleanliness, quiet, privacy, and proximity to services were closely related to residential satisfaction (Carp & Christensen, 1986).

A broad literature review suggested that neighborhood aesthetics such as well-maintained homes and good air quality were important bases for elders' environmental and general satisfaction (Kahana, Lovegreen, Kahana, & Kahana, 2003). Neighborhood safety may be particularly salient to elders because of their increasing frailty. Indeed, Kahana et al.'s review suggested neighborhood safety was an important predictor of satisfaction for the elderly perhaps because of their greater vulnerability to crime and traffic dangers as well as their greater awareness of these dangers.

Access to green areas such as parks and natural areas is often found to be related to elders' residential satisfaction. Among elderly French women aging in place, residential satisfaction has been positively related to proximity to green areas (Arrif & Rioux, 2008; Rioux, 2007). Similarly, in Spanish samples, Rojo-Perez and colleagues found that access to urban parks and green areas was a predictor, albeit weak, of aging people's residential satisfaction (Rojo-Perez, Fernandez-Mayoralas, & Pozo, 2000). Kahana et al.'s (2003) review also indicated greenery such as trees was an important basis of elders' residential satisfaction.

3. Dwelling and neighborhood as predictors of residential satisfaction

Although many agree that both residence and context are important for satisfaction, some researchers have compared the two, and asked whether the dwelling or neighborhood is a stronger predictor of elderly people's residential satisfaction. This work has yielded mixed results. Lawton (1982) argued that the home has the strongest impact, although the neighborhood is a major contributor which sometimes equals the home in importance. Additional support for this idea was obtained in a sample of aging people (60 and older) living in Hong-Kong, where residential satisfaction was determined more by the perceived interior environment than the perceived exterior one, even though both had significant impacts (Phillips et al., 2005). In the study of elders living in family housing in Spain (Rojo-Perez et al., 2001), researchers observed that the primary predictor of residential satisfaction was satisfaction with home-related attributes (i.e. comfort, size, distribution and degree of light and insulation) and not neighborhood features, although those were important.

In contrast, a study in the United States used objective measures and found that residential satisfaction was influenced more strongly by neighborhood than by dwelling attributes. This study of elderly U.S. men (aged 60–81 years) used experimenter scoring of 25 dwelling and 25 neighborhood attributes and found that the neighborhood had a stronger relation to overall satisfaction (a combined residence and neighborhood index; Jirovec, Jirovec, & Bosse, 1985). Important neighborhood features included attractiveness, quiet, human scale of buildings, access to shops and services, and personal safety. Similarly, an analysis of urban NORCs (Naturally Occurring Retirement Communities – apartment complexes that attract high proportions of older residents) found that social, physical, and service features of the neighborhood were generally stronger attractants to the NORC than were characteristics of the apartment per se (Hunt et al., 1994). Thus, studies show that residential satisfaction is related to both interior and exterior features, and which of the two is more important seems to be related to how variables are measured and the actual physical features themselves. Overall, the work suggests that there are good reasons to include neighborhood and community features in studies of residential satisfaction.

4. The present research

Consistent with previous research, the present project examines residents' satisfaction with their homes, their larger community, and their relations with neighbors. In contrast to some previous research that used a single index of combined residential and neighborhood satisfaction, we measure residents' satisfaction with different environmental domains and seek to identify the demographic, functional and psycho-social predictors of these different kinds of satisfaction. We begin with an emic approach of in-depth interviews in order to develop a lengthy questionnaire of home and neighborhood satisfactions. We ask whether the items comprise a single scale or if they can be broken into meaningful components that reflect different environmental domains. These items were inspired by Apparicio's (2006) residential satisfaction classification system (human relationships, spatial scale and orientation, daily functioning, physical contextual, and private interior aspects). Second, we explore the relationship between standard predictors of satisfaction and the single home/neighborhood satisfaction scale as well as between these predictors and the scale's components. If all of the subscales are predicted by the same variables, it suggests satisfaction is a single construct. If each subscale has unique predictors and these predictions have face validity, this would suggest respondents have complex and nuanced views of their neighborhoods and their satisfactions with it.

Because of the importance of functionality in elders' physical negotiation of the home and neighborhood (Bonaiuto et al., 2004; Lawton, 1982), we include several psycho-social predictors that might support or undermine participants' functioning and therefore their satisfaction with their environment (their well-being in general and well-being with respect to health, finances, and physical activity). We also include participants' estimates of functional support, such as whether they modified their home to support mobility, and whether they are close to local community services (stores, offices) and amenities (parks and green spaces). We also include information about social visits from friends and family as an index of social contact and sociability, and we ask about their trips into the community ("outings") as an indicator of their vitality and activity. Finally, we use standard demographic predictors to allow comparison of this work with previous research.

This research has four main purposes with respect to understanding residential satisfaction among elders aging in place:

(a) Develop measures of residential satisfaction in different environmental domains and at different levels of scale. With respect to domains, we consider the physical environment, the social milieu, and the environment's functionality, viz. whether the environment supports elders' daily activities. With respect to levels of scale, we ask about satisfactions regarding the dwelling and the larger neighborhood and community;
(b) Use Principal Components Analysis to understand how respondents organize residential satisfaction information in memory;
(c) Compare participants' levels of satisfaction in these different environmental domains; and
(d) Using psycho-social, functional, and demographic predictors, identify and compare the predictors of each domain of residential satisfaction to see if all are predicted by the same

variables or if each domain is related to a different set of relevant predictors.

Four types of predictors of satisfaction were studied, most measured with a single item: (1) aspects of the physical environment that provide supports for activities (conversions or remodeling inside the home; distance from services; distance from green areas); (2) social environment (frequency of visits by others; frequency of pleasure outings); (3) psycho-social well-being variables, including participants' reported general well-being, financial well-being, perceived health, and perception of oneself as active; and lastly, (4) demographic variables such as age, sex, marital status, length of residence in the neighborhood, owner or not of the dwelling (flat or house). Note that years in the home and neighborhood correlated highly, and we retained only years in the neighborhood because more measures asked about the neighborhood than the home.

5. Method

5.1. Participants

The sample included one hundred and three participants ranging from 72 to 86 years of age ($M = 79.8$; SD = 6.6) and living at home in three semi-rural communities in the central France. The communities were chosen because all have had similar development over the past 40 years and are currently similar in composition and urban form. Each has approximately 6000–7000 residents, comprises 26–27 square kilometers, and has low to moderate densities (230–270 residents per square kilometer). All participants are native born French citizens. When they were young, these towns were villages surrounded by farmland and their related farm houses. People worked on the farms or in the local shops. As time passed, the village transitioned away from farming towards urban housing and commercial development. The farmers retired and sold their farmland for development. Presently, the towns consist of a center with a church, city services, and local grocery stores and other commercial developments. Nearby there are private houses (old farmhouses), which are a bit distant from each other because they were surrounded by cultivated fields a few decades ago. Gradually the fields have turned into "lotissements" or "suburbs" (private houses with green spaces). Visually, the developed areas contain a mix of two-story commercial buildings, old farmhouses (single story), "lotissements," and two-story apartment houses intermixed with farmland, parks, and natural areas. Thus, there are green spaces, bus services and amenities as in a larger town, but land and housing prices are lower and more affordable than larger cities.

The participants were a mix of people who grew old in the villages and newcomers who have retired from larger cities. Many are original residents who still live in the homes they occupied in their youth and middle age; other long-term residents have moved from farms to apartments and "foyers-logements." Foyers-logements are private dwellings within a single, larger residence and can be rented or owned. Much like "graduated assisted living" in the U.S., each dwelling has complete amenities (kitchen, bath, living room, etc.), allowing independent living, but residents have access to social activities in common rooms, craft centers, and dining areas as well as medical services on site. Drawing a sample at the senior center resulted in a group of participants living in old farmhouses or the newer foyers-logements. Relatively few participants lived in the suburbs or apartment buildings.

Participants were recruited as in previous research (Rioux, 2005), through local agencies that provide services to facilitate aging in place (deliver meals, help with light housework), or through groups that organize activities for elders. Sixty-two percent are women; 57% are married or cohabiting with a partner, friend or family member; 34% are widowers and 19% were never married; 49% own their lodgings; 48% live in flats or in *foyer logements*, and 52% live in individual houses. Most (81.3%) have been living in their homes for more than 20 years, 13.5% between 10 and 20 years, and 5.2% for less than 10 years. Almost all (98.5%) have been living in their neighborhood for more than 10 years.

5.2. Materials

The questionnaire contained sections measuring participants' perceptions of the physical environment, the social environment, aspects of residential and neighborhood satisfaction, their self-ratings on the four psycho-social variables, and the set of demographic questions. Some items had been used previously (Rioux, 2005) and others were developed for this sample based on interviews with a separate sample of elderly individuals. The interviews were exploratory, designed to understand residential satisfaction from the elders' perspective. Interview questions were guided by Apparicio's (2006) framework of residential environments: human relationships, spatial layout and design, daily functioning, broader physical context, and private interior aspects.

The potential predictors of satisfaction were perceptions of the physical and social environment which had been developed for previous research (Rioux, 2005); they included 3 questions about physical support in the home and neighborhood and 2 questions about the frequency of social contacts (see Table 1). With respect to support for activities, participants were asked to report conversions (remodeling) inside the home, For conversions, participants chose from a list of three types of remodeling most frequently mentioned by elderly people in previous research (Rioux, 2005). The 3 are "toilet and bathroom conversions", "floor covering" and "ramps or banisters." None were linked with a specific pathology, although ramps and banisters might reflect a general need for assistance accompanying the increasing frailty of aging. One point was given

Table 1
Potential predictors: Percentages selecting each category for variables related to physical environment and social activity.

Physical environment	
Conversions inside the home	
None	64.08%
Toilet and bathroom conversions	10.68%
Floor covering	13.59%
Ramps or banisters	11.65%
Distance from shops and services	
More than 5 km (over 3 miles)	13.59%
Between 2 km and 5 km (1.5 and 3 miles)	12.52%
Between 500 m and 2 km (1/4 mile and 1.5 mile)	44.66%
Less than 500 m (a quarter of a mile)	29.13%
Distance from green areas	
More than 5 km (over 3 miles)	4.85%
Between 2 km and 5 km (1.5 and 3 miles)	8.74%
Between 500 m and 2 km (1/4 mile and 1.5 mile)	41.75%
Less than 500 m (a quarter of a mile)	44.66%
Social activities	
Frequency of visitors	
Never	8.74%
Less than once a month	20.39%
Between once a month and once a week	45.63%
More than one a week	25.24%
Frequency of outings or pleasure trips in neighborhood	
Never	4.85%
Less than once a month	9.71%
Between once a month and once a week	13.39%
More than one a week	71.85%

for each reported conversion, so that the highest possible score of 3 indicated all conversions had been made.

The two remaining potential predictors of satisfaction assessed the physical environment with estimates of proximity to green areas (parks and open space) and proximity to services such as shops, professional services, and government buildings. Both of these categories had emerged in the pilot interviews described next. In asking the question of proximity to services, the interviewer suggested a few destinations, but encouraged the respondent to think of his/her own favorite destinations and to estimate their general proximity.

The two proximity questions were measured on 4-point Likert-type scales ranging from inaccessible, or high distance (1) "*More than 5 km (over 3 miles)*" to accessible (4) "*Less than 500 m (a quarter of a mile)*". The highest possible score was 4 for each destination and indicated closer access to green spaces and services. Thus we explicitly focused on objective access rather than perceived access in order to relate mobility to a common standard. Examination of these data indicated that participants in the 3 sampled neighborhoods did not differ in distances to services, $F(2, 100) = .76$, $p = .47$, or green areas, $F(2, 100) = .89$, $p = .41$.

Two variables assessed the Social Environment, one measuring the frequency of social visitors to the home and the other the frequency of pleasure trips or outings. Response options for these items ranged from (1) "*Never*" to (4) "*More than one a week*". The highest score of 4 indicates more frequent visitors and more outings.

Another section contained the satisfaction items specifically developed for this line of research. This 23-item questionnaire was developed in two steps, beginning with semi-structured interviews of 10 elderly residents living in the central France and ranging from 63 to 76 years of age. Five of them were living in flats and five were in individual houses; five were renting and five were owners. Each of them was personally interviewed in her home by the first author. They were asked: "*Could you tell me about your everyday life in your neighborhood?*" Participants were probed for information about issues pertaining to the aspects of residential satisfaction and attachment that guided this project (human relationships, urban design and architecture, and so on).

A thematic categories analysis (content analysis) of their responses yielded a 31-item satisfaction questionnaire, and this version was successfully tested on twelve additional elderly persons; these respondents were sampled using the same criteria as used for those who participated in the semi-structured interviews. The twelve pilot participants responded on 5-point scales which ranged from *(1) "Total disagreement"* to *(5) "Total agreement"*; approximately one-third of the items were worded negatively to reduce response biases. Participants had no difficulty responding, and the items were included in the present study. A Principal Components Analysis was used to reduce the 31 items to meaningful subsets; results are presented in Table 2.

Another section of the questionnaire contained a General Well-being measure, adapted for elderly participants. The "échelle de satisfaction de vie" (ESV: Blais, Vallerand, Pelletier, & Brière, 1989) is a French adaptation of the Satisfaction With Life Scale (SWLS), developed by Diener, Emmons, Larsen, & Griffin, (1985). This five-item, one-dimension scale measures a variety of aspects related to quality of life (see Table 3). This tool can be used with different age groups but has proved particularly useful with elderly people as it takes very little time to answer. The ESV offers good psychometric characteristics very similar to the original SWLS. In terms of reliability, Blais et al. reported the ESV has excellent internal coherence, including when used by a sample of elderly (Cronbach's alpha = .82), and its test-retest reliability is satisfactory (reliability $r = .64$). Response options range from (1) "*Total disagreement*" to (7) "*Total agreement*" on Likert-type response scales.

The scale might be used as an outcome to ask what aspects of the home and neighborhood predict general satisfaction with life.

Table 2
Means, standard deviations, and principal component loadings for each item of the 23-item questionnaire on aspects of residential satisfaction.

Item number	M (SD)	Components			
		(1)	(2)	(3)	(4)
		Loadings			
7. The traffic is light in my area	2.56 (.99)*	**.82**	−.01	−.05	.15
21. I live in an aesthetically pleasant area	2.46 (.78)*	**.80**	.08	.06	−.02
1. I live in a calm area	3.72 (.67)	**.75**	.13	−.01	.46
12. The noise in my area rarely disturbs me	2.46 (.89)*	**.73**	.02	.09	−.004
17. Buildings are a good distance apart	2.52 (82)*	**.72**	.11	.09	.03
6. It is a roomy area	3.42 (.74)	**.63**	.12	.01	.05
5. There is little vandalism in my area	3.26 (1.08)	**.57**	.02	−.26	.12
18. I feel safe in my area	2.29 (.47)	**.48**	−.18	.12	.02
14. I am satisfied with the existing transport service in my area	2.42 (.64)	.07	**.87**	.04	.06
8. The distance to the local shops is not far and I do not hesitate before going there	3.96 (.52)*	.13	**.83**	−.04	−.03
11. The area development allows me to walk	2.11 (.91)	.06	**.82**	.005	−.04
20. I can move around in my area without any feeling of threat	2.38 (1.06)	−.01	**.72**	.02	−.06
2. In this area, I feel close to everything	2.55 (.94)*	.13	**.63**	.24	.07
9. My neighbours rarely interfere with my private life	2.11 (.83)*	−.14	.01	**.84**	.03
22. I get along rather well with my neighbours	4.34 (.64)	.02	−.09	**.80**	.14
3. If I have a problem, I know that I can count on my neighbours	3.81 (.68)	.06	.06	**.80**	.02
19. I am satisfied with the relations I have with my neighbours	4.15 (.69)	−.06	.17	**.53**	−.01
16. My neighbours know they can call on me if necessary	3.85 (.79)	.08	.10	**.52**	−.11
23. I rarely find it difficult or constraining to live in this house or flat	2.11 (.68)*	.23	−.03	−.12	**.84**
13. My home is adapted to my needs	3.65 (.69)	−.08	.07	.0006	**.81**
4. I have chosen to live in this place and it would be difficult for me to live elsewhere	2.96 (.79)*	.20	.10	−.09	**.81**
10. I enjoy living in this house or flat	4.22 (.64)	.32	.03	−.08	**.75**
15. My house or flat is cosy	3.99 (.83)	.40	.03	.01	**.43**
Scale mean		3.23	2.45	4.14	3.75

Component Labels (derived with varimax rotation): (1) LAS: Local Area Satisfaction: (2) SAS: Satisfaction with Access to Services in the local area: (3) SRN: Satisfaction with Relationships with Neighbours: (4) HS: Home Satisfaction. Component loadings greater than .39 are in bold font.

Note. Responses were made on 5-point scales, with 5 = strongly agree. Items marked with an * were negatively worded to reduce response bias. For clarity these item wordings and their means have been reversed so that a high score indicates a positive response. Original wordings are available from the first author.

Table 3
Means and standard deviations for each item of the psychosocial well-being variables.

	M (SD)	Loading
General well-being (7-pt scale)	4.40 (1.56)	
In most ways my life is close to my ideal	4.21 (1.49)	.71
The conditions of my life are excellent	4.18 (1.45)	.57
I am satisfied with my life	4.74 (1.47)	.81
So far I have gotten the important things I want in life	4.55 (1.61)	.50
If I could live my life over I would change almost nothing	4.30 (1.76)	.62
Financial well-being (5-pt scale)	2.24 (1.54)	
Perceived health (5-pt scale)	3.99 (1.18)	
Perception of oneself as active (5-pt scale)	2.95 (1.71)	

However, 3 of the five items ask respondents to reflect on their lives (e.g., "I am satisfied with my life"; "… I would change almost nothing"; "So far, I have gotten the important things I want in life"). By asking participants to look back at their history (at earlier points in time) as well as the present, the scale includes the respondents' past, reducing its appropriateness as an outcome measure. Instead, we use it as a potential predictor of home and neighborhood satisfaction (i.e., how prior experiences and current satisfactions contribute to current home and neighborhood satisfactions).

In another section of the questionnaire, three additional psychosocial well-being variables were measured, each with a single question developed for this project. These assessed perceived financial well-being (*"My income enables me to live decently"*), perceived health (*"I think I am in good health"*) and perception of oneself as physically active (*"I consider myself an active person"*). Respondents answered using 5-point Likert-type scales, with response options ranging from (1) "*Total disagreement*" to (5) "*Total agreement*," with high scores indicating, respectively, high perceived financial well-being, high perceived health, and high perception of oneself as active.

Finally, participants completed questions about demographic characteristics (age; sex; living status, alone or with other(s); housing type, house or flat; owner or renter; length of residence in the neighborhood; and length of residence in the home, omitted from regressions because of overlap with years in the neighborhood). Living status, housing type, and owner/renter were all coded dichotomously.

5.3. Procedure

Participants were initially contacted as they attended an annual "lunch for the elderly" organized by several local associations during the Christmas holiday period. After being introduced by the group leader, the first author visited individual tables and answered questions for prospective volunteers. These interactions provided an opportunity to identify elderly persons who met the sampling criteria (no serious physical, cognitive, or psychological problems, although minor problems were acceptable), and to propose an appointment for an interview. Individuals were free to refuse to participate. Two individuals with severely impaired mobility were interviewed; however their data were omitted lest their mobility problems affect their responses. The remaining participants were able to leave their residences and walk at least a few blocks (200–300 m, or about .2 mile), though most could walk further. Several said they tired rapidly and would stop and rest.

Each participant received a visit from the interviewer at home, at a prearranged time. After a brief introduction to the project, the following instructions were read: "*I am going to ask you questions about your everyday life and I will ask you to respond by choosing one of the possible answers*". Each questionnaire item was presented orally. In front of him/her, the participant had a sheet of paper presenting the response scales, and his/her choice was then recorded by the interviewer. The interview began with the satisfaction items. The same procedure was then applied to the ESV general well-being scale. Next, the interviewer asked the three simple psycho-social questions (financial well-being, health, and activity level), the nature of any interior conversions, and the respondent's socio-demographic qualities. Finally, she asked about the physical environment (proximity to services and proximity to green areas) and the social environment (frequency of outings, frequency of visitors). On 10 occasions, the interviewer felt there might be errors in respondents' estimates of distances or in their reports of visitors and outings. She evaluated their information by observing the physical environment, by consulting with the respondent's caretaker, or by driving or walking the route and verifying the distance on the automobile's odometer or with a pedometer. Based on this information, four participants erred on both physical and social estimates and were omitted from the sample; the remaining six were retained and their distance estimates were corrected.

6. Results

6.1. Environmental quality questionnaire

With respect to physical environmental variables, approximately one-third (36%) of respondents reported they had modified their homes to accommodate their advancing age (see Table 1). Among those who had remodeled their homes, more than 80% had made all three conversions (bathroom, floor covering, and ramps or banisters) and only a few (about 8%) had made only one kind of conversion.

Approximately 70% of the participants lived close to (less than 2 km/1.2 miles from) essential services (shops, town-council services, doctors and other professionals), including 29% who lived within 500 m (1/3 mile) of services. In contrast, only 55% lived within 2 km of a park, garden, forest or some other green area, including 45% who lived within 500 m.

Relating to the social environment of visitors and outings, the results show that nearly 70% of the elderly people had received visitors at least once a month, although more than 8% of the participants received no visitors at home. As to outings, approximately 72% of the participants had gone outside of their homes (necessary outings, leisure outings) more than once a week, although almost 5% reported never leaving their homes. Not shown in the table is the unexpected finding that 4% of these elderly people had never had visitors or taken outings. Their only social contacts were those they maintained with persons living in their home. Thus, the results show that, on the whole, opportunities for social contacts were relatively frequent, although a very small percentage experienced neither outings nor visitors.

6.2. Satisfaction questionnaire

Table 2 presents the means, standard deviations, and factor loadings for the 23 items retained in the final satisfaction questionnaire. An exploratory factor analysis was conducted on the 31 items identified in the pilot sample, using Principal Components Extraction followed by Varimax rotation on components with eigenvalues greater than 1. This yielded the 4 components shown in Table 2.

Eight items loaded on the first component and explained 16% of total variance. This component was named "local area satisfaction" (LAS) and included items about safety, noise, pace of life, and

aesthetics in the immediate neighborhood, Cronbach's alpha = .81. The second component contained 5 items and explained 16% of the variance. This component was named "satisfaction with access to services in the local area" (SAS) and included items about access to transit, shops and other services in the local neighborhood, Cronbach's alpha = .79. The third component contained 5 items and explained 14% of the variance. This component was named "satisfaction with relationships with the neighbors" (SRN) and included questions about respondents' relationships with neighbors and the extent to which they served as social and practical support for one another, Cronbach's alpha = .85. The fourth and final component contained 5 items and explained 15% of the variance. This component was named "home satisfaction" (HS), and measured to what extent the home itself provided a suitable, desirable, and pleasant place to live, Cronbach's alpha = .86. Together, these four components explained 61% of total variance.

Component scores were computed for a single overall scale as well as for each component (all items, weighted by their component loadings). The mean score for the single overall scale was 3.42 (SD = .95). When we analyzed the means for each component, we found that the mean for "local area satisfaction" was moderate but slightly above the midpoint of the scale ($M = 3.23$). The means for individual items ranged from 2.29 for "*I feel safe in my area*" to a high of 3.72 for "*I live in a calm area*". The mean for the component "*Access to services*" was slightly below the scale's midpoint ($M = 2.45$), with four individual item means below the midpoint (all related to mobility) and the remaining one – "close to local shops" being well above the midpoint ($M = 3.96$). Results for these two scales suggest that although aging people do not feel far from services, they still hesitate before going out, in part because of safety concerns but also because of a lack of physical access (low scores on being able to walk, quality of transport, and safety).

The overall mean for the component "*Relationships with the neighbors*" was 4.14, with most individual item means close to 4 (range from 2.11 to 4.34). The pattern of means suggests that people get along with and have satisfying relationships with their neighbors, and that neighbors provide social support for one another (can call on each other for assistance). The single mean below the midpoint suggests some neighbors intrude on respondents' privacy (mean for "interference with private life" = 2.11). Thus, on the whole, our sample is satisfied with the relations with their neighbors.

The final component "home satisfaction" also had a high overall mean score and moderate variability ($M = 3.75$, SD = .73), with most items in the positive range of the scale (home adapted to respondent's needs; enjoy living there; home is cozy) and only one item substantially below the scale's midpoint, indicating slight disagreement (i.e., slight difficulty or constraint: "home is rarely difficult or constraining to live in," $M = 2.11$).

Eight additional items did not coalesce with any of these scales and were omitted from the present analyses. Six items were similar to items loading on the Local Area Satisfaction scale: "This is a neighborhood with too much activity" (Negative Wording $M = 1.16$; SD = .49); "There is a peaceful rhythm to life in the neighborhood" ($M = 4.83$; SD = .33); "The trash collection service is efficient" ($M = 4.87$; SD = .52); "Street lighting is often insufficient" (Negative $M = 3.23$; SD = .81); "Many houses in the neighborhood are in poor condition" (Negative $M = 1.11$; SD = .43); and, "The streets and sidewalks of the neighborhood are clean enough" ($M = 4.78$; SD = .71). The remaining two omitted items addressed Satisfaction with Access to Local Services: "This neighborhood is only a bedroom community/dormitory" (i.e., lack of jobs and other opportunities) (Negative $M = 1.04$; SD = .24); and "It is a neighborhood with many points of interest" ($M = 2.89$; SD = 1.32). Note that for negatively worded items, a low rating indicates that participants disagreed with the statement, and held favorable views of their neighborhood.

7. Psycho-social variables

7.1. General well-being (ESV for elderly persons)

For the well-being scale, a confirmatory factor analysis was used to verify that our data replicated the uni-dimensional model obtained by Diener et al. (1985). The value of the GFI was .97 and that of the adjusted GFI (AGFI) was .90; $\chi 2(10) = 79.92$; all path coefficients were significant ($p < .05$). These indices show that our data provide an adequate fit to Diener et al.'s model (see Table 3).

Overall, the general well-being scores were moderate. Indeed, the mean on the 7-point scale was 4.40 with relatively high variability (SD = 1.56). This value is very similar to the mean obtained in a sample of elderly people living in their own homes ($M = 4.37$, Rioux, 2007), and in a sample of elderly persons living in a "foyer-logement" or "community home" ($M = 4.51$, Rioux, 2003), where a combination of separate apartments and common areas provides a mix of social arrangements for residents.

7.2. Financial, well-being

Perceived financial well-being was measured on a 5-point Likert-type scale, with a 5 indicating high financial well-being (Table 3). The mean of 2.24 (SD = 1.54) was below the midpoint of the scale, suggesting overall, the participants felt they did not have financial security. However, the relatively high standard deviation indicated considerable variability in the answers.

7.3. Perceived health

Perceived health was above the midpoint (3.99, SD = 1.18, with a 5 indicating high health; Table 3). Indeed, more than 65% of the participants said that their health was good or very good. This result is consistent with the findings of other authors such as Antonucci and Akiyama (1991) in an elderly American sample and Rojo-Perez et al. (2001) in a Spanish one. However, additional information from the interviews suggests a slightly less favorable explanation. Although they are faced with health problems, many respondents appeared to be reluctant to admit this because they were afraid they would be forced to go to an elder care home. This theme was also evident in their evaluations of access to services, described subsequently.

7.4. Physically active

Perceiving oneself as active was close to the midpoint on the 5-point scale, where 5 was the highest self-rating ($M = 2.95$; SD = 1.71, Table 3). The high standard deviation suggested a closer examination, and we observed a clear split between participants who reported feeling active and those who did not. Almost forty percent (38.8%) reported that they felt in "*Total disagreement*" with the item "*I consider myself an active person*" and a similar percent (36.9%) reported being in "*Total agreement*" with the item; only 24.3% of the participants used the middle of the scale. Not surprisingly, self-rated activity level correlated positively with perceived health $r(101) = .38$, $p < .05$ and general well-being $r(101) = .19$, $p < .05$, and correlated negatively with age, $r(101) = -.22$, $p < .05$, such that older people felt less active than younger (see Table 4). In addition to a gradual decline with age, a small number reported a sudden decline in activity, such as one woman who said "if you had asked me this question one year ago, I would have answered "yes," but since I had the flu last winter, it is no longer the case. I feel well, but I no longer have the same vigor as last year."

Table 4
Correlations among demographic, environmental, social, and psycho-social well-being predictors.

	Age	Household Size	Gender	Length in quarter	Length in home	Owner/ renter	Flat / house	Dist. Services	Dist. green areas	Cnvrsn	Visits	Out-ings	Gen. well-being	Prcvd health	Prcvd finance
Age	1.00														
house-hold size	−.06	1.00													
Sex	.05	.03	1.00												
Length in quarter	.16	.10	−.08	1.00											
Length in home	.11	.09	−.06	**.92****	1.00										
Owner/renter	.02	−.05	−.08	.08	.09	1.00									
Flat/house	−.12	.05	−.06	.19	.12	.01	100								
Distance to services	−.01	.02	.02	−.07	−.03	−.17	−.02	1.00							
Distance to green areas	−.14	**.23***	−.05	.11	.12	−.10	−.02	.17	1.00						
Conversions in home	.12	.05	**.25***	−.03	−.03	−.05	.01	.09	.13	1.00					
Visits	.16	−.00	−.13	−.18	**−.20***	−.09	.17	−.03	−.02	−.03	1.00				
Outings	−.09	−.11	.06	.01	−.03	.10	−.03	.13	−.08	−.08	.19	1.00			
General well-being	−.18	−.12	−.01	**−.20***	−.12	.10	−.02	.15	.08	−.08	.02	.05	1.00		
Perceived health	−.12	.05	−.16	.01	.05	−.03	.05	−.02	−.16	−.09	−.04	.14	**0.40****	1.00	
Perceived financial well-being	**−.42****	**.25****	−.04	−.01	.01	−.01	.15	.02	.11	−.08	−.03	.10	**0.27****	**.22***	1.00
Perceived activity level	**−.22***	.09	−.02	−.15	−.07	.14	.11	−.08	.13	−.18	.15	.07	**0.38****	**.19***	**.20***

* $p < .05$
** $p < .01$.

7.5. Correlations between demographics and the measures of well-being

Examination of correlations between demographic characteristics and the measures of well-being showed reasonable patterns (face validity) (Table 4). For example, perceived financial well-being was lower for respondents living alone (single or widowed) than those who were married or cohabiting, $r(101) = .25$, $p < .01$, possibly because living expenses were split in two for the latter participants. In addition, during the interviews, single dwellers were more likely to say they regretted they could not afford to do activities other than the free or inexpensive ones organized by their community.

Perceived financial well-being was also lower for older, $r(101) = -.42$, $p < .01$, than for younger participants. This relationship may reflect a real increase in expenses such as drugs and professional assistance at home with advancing years (meal delivery, help with light housework, etc.). It may also reflect their awareness that if their health deteriorates further, they may not be able to afford the private care necessary for aging in place.

The three simple well-being items were modestly but significantly correlated, r's(101) ranged from .19 to .22, p's < .05 (Table 4). As might be expected, there was a modest link between perceived health and perceiving oneself as active, $r(101) = .19$, $p < .05$. There is also a moderate correlation between perceived health and perceived financial well-being, $r(101) = .22$, $p < .05$, which may be related to the cost of medical expenses: The worse a person's health, the higher the medical expenses, and the lower the financial comfort. Supporting this idea that poor health undermines financial security, a moderate correlation between feeling active and perceived financial well-being, $r(101) = .20$, $p < .05$ is reduced to nonsignificance when health is covaried (partial $r = .16$, $p > .05$).

7.6. Predicting satisfaction

A primary purpose of this project was to identify the predictors of satisfaction and to ask whether the predictors were similar for the four satisfaction domains of home (HS), neighbors (SNR), local area (LAS), and access to services (SAS). Separate hierarchical regressions were run on each domain as well as on the single index of "overall satisfaction." In order to control for demographic characteristics known to be associated with residential and neighborhood satisfaction, those variables were entered in a first step. Thus, for each regression, demographic variables were entered in a first step, potential physical and social predictors were added in a second step (close to services, close to green areas, conversions in the home, frequency of visitors and frequency of outings), and the four well-being variables were added in the last step (general well-being, perceived health, perceived financial well-being, perception of oneself as active). These models were reviewed and nonsignificant variables trimmed, so that any variables that did not yield significant coefficients were removed and the final trimmed model was computed.

For the 23-item overall satisfaction scale (Table 5), the first step, demographics, was not significant, $F(6, 96) = .59$, n.s., adj. $R^2 = .01$, however, the second step accounted for a significant amount of variance, $F(2, 94) = 13.15$, $p < .001$, $R^2 = .19$; one coefficient reached significance and another was marginally significant. Outings, or having opportunities to go out into the community, achieved a B of .22, $t(94) = 4.61$, $p < .001$, and converting the home to accommodate aging yielded a B of .07, $t(94) = 1.90$, $p < .06$. The third step was marginally significant, $F(1, 93) = 2.99$, $p < .087$, $R^2 = .21$, with 3 significant or marginally significant coefficients. The results for outings ($B = .21$, $t(91) = 4.46$, $p < .001$) and conversions ($B = .02$, $t(91) = 1.86$, $p < .067$) did not change, and the well-being variable "finance" emerged as marginally significant $B = .05$, $t(91) = 1.73$, $p < .087$. This small number of significant or marginally significant coefficients may indicate that using the overall scale had obscured subtle differences among the different types of satisfaction, and that examining each domain separately might provide a more nuanced view of satisfaction. In fact, three of the satisfaction components yielded significant regressions, and each was predicted by a different set of variables, consistent with the idea that residents hold complex views of residential and neighborhood satisfaction.

In the analysis of Satisfaction with the Home's Interior (HS) (Table 6), the most central kind of satisfaction, none of the demographic or physical/social variables was significant, resulting in a 2-step model, with only the second step yielding a significant F value and accounting for substantial variability, Step 1, $F(6, 96) = 1.10$, $p > .20$, adj. $R^2 = .01$; Step 2, $F(4, 92) = 46.65$, $p < .000$, adj. $R^2 = .66$. In this case, all four of the well-being variables yielded significant coefficients. Those who were most satisfied with their homes had higher Satisfaction with Life scores (ESV/SWLS), ($B = .49$, $t(92) = 6.84$, $p < .001$), and perceived themselves to be more

Table 5
Predictors of 'Overall Satisfaction' scale.

Predictors	*B*	*t* value	Probability	adj. R^2 (prob.)
Step 1. Demographic				n.s.
Age			n.s.	
house-hold size			n.s.	
Sex			n.s.	
Length in quarter			n.s.	
Length in home			n.s.	
Owner/renter			n.s.	
Step 2. Physical & social				adj. $R^2 = .19$ (.001)
Conversions in home	.07	1.90	.060	
Outings	.22	4.61	.000	
Step 3. Physical & social				adj. $R^2 = .21$ (.087)
Conversions in home	.07	1.86	.067	
Outings	.21	4.46	.000	
Well-being				
Financial	.05	1.73	.087	

healthy ($B = .19$, $t(92) = 3.42$, $p < .001$), more physically active, $B = .11$, $t(92) = 3.10$, $p < .003$, and more financially secure, $B = .19$, $t(92) = 4.21$, $p < .001$. Thus, these four kinds of personal vitality are important contributors to satisfaction with one's private residence.

Satisfaction with Neighbors (SNR) (Table 7) yielded two significant *F* values, one on Step 2, pertaining to physical and social variables, and the other on Step 3, which included the well-being scales, Step 1, $F(6, 96) = .07$, n.s.; Step 2, $F(1, 95) = 6.53$, $p < .01$, $R^2 = .00$; Step 3, $F(1, 94) = 22.83$, $p < .001$, adj. $R^2 = .19$. In Step 2, only being close to parks or green areas was a significant predictor, $B = .33$, $t(95) = 2.56$, $p < .02$. In Step 3, proximity to green areas retained significance ($B = .26$, $t(94) = 2.22$, $p < .03$) and Satisfaction With Life (ESV/SWLS) was added ($B = .45$, $t(94) = 4.78$, $p < .001$). The image for this pattern is of people who live close enough to green spaces that they spend time in the out of doors where they have opportunities to meet and interact with neighbors.

For the component Satisfaction with Access to Local Services (SAS) (Table 8), demographic variables were not significant, $F(6, 96) = .35$, n.s., adj. $R^2 = .01$, nor were any well-being variables, however, several of the physical and social variables accounted for significant unique variance, $F(3, 93) = 34.46$, $p < .001$, adj. $R^2 = .52$. Converting the home to accommodate aging, $B = .35$, $t(93) = 5.20$, $p < .001$, and leaving the home for outings, $B = .65$, $t(93) = 7.82$, $p < .000$, were reliable effects, whereas being close to services was a marginally significant predictor, but in an inverse direction, $B = -.14$, $t(93) = -1.90$, $p < .06$ Home conversions and outings might be indicative of people who were proactive and adequately mobile, providing them with access to area services. In contrast, the negative relationship between distance and access indicated the surprising pattern that people who lived farthest from services actually reported the greatest satisfaction with access. Examination of comments during the interviews suggests

Table 6
Predictors of 'Home Satisfaction' scale (HS).

Predictors	*B*	*t* value	Probability	adj. R^2 (prob.)
Step 1. Demographic				n.s.
Age			n.s.	
house-hold size			n.s.	
Sex			n.s.	
Length in quarter			n.s.	
Length in home			n.s.	
Owner/renter			n.s.	
Step 2. Well-being				adj. $R^2 = .66$ (.001)
Perceived well-being	.49	6.84	.001	
Perceived health	.19	3;42	.001	
Financial	.19	4.21	.001	
Perceived activity level	.11	3.10	.003	

Table 7
Predictors of 'Satisfaction with the Relationships with the Neighbours' scale (SRN).

Predictors	*B*	*t* value	Probability	adj. R^2 (prob.)
Step 1. Demographic				n.s.
Age			n.s.	
house-hold size			n.s.	
Sex			n.s.	
Length in quarter			n.s.	
Length in home			n.s.	
Owner/renter			n.s.	
Step 2. Physical & social				adj. $R^2 = .00$ (.012)
Distance to green areas	.33	2.56	.012	
Step 3. Physical & social				adj. $R^2 = .19$ (.001)
Distance to green areas	.26	2.22	.029	
Well-being				
Perceived well-being	.48	4.78	.001	

that this inverse relationship could occur for some participants because they were reluctant to admit that their increasing physical limitations might undermine their ability to live independently. That is, they may have exaggerated their access to services rather than admit that they lived too far to have easy access. This interpretation is supported by the lack of correlation between actual distance to services and the single item asking about transit services (the primary mode for reaching services); this suggests that these participants were not using transit to access distant services (item 14, Table 2, "satisfaction with transport services", $r = -.04$, $p < .20$).

The final kind of satisfaction, Satisfaction with the Local Area (traffic, aesthetics, quiet and calm, crime safety), did not yield a significant model and had no significant coefficients, Step 1, test of demographics, $F(6, 96) = .35$, n.s., adj. $R^2 = -.04$.

8. Discussion

The purposes of the present research were 1) to understand how elderly residents viewed their homes and neighborhoods (i.e., the factor structure of items measuring various satisfactions with home and neighborhood), 2) to evaluate the levels of satisfaction in each domain, and 3) to ask if the regression models predicting each type of satisfaction were similar, or if they differed depending on each type or domain of satisfaction. Thus the third purpose addresses the complexity with which people view and engage their environments.

Interviews with a group of elderly informants provided 31 items to include in our measures of residential satisfaction. These informants were asked to talk about satisfactions and dissatisfactions in their home and community, and were probed for information about the domains identified as important in previous research on residential satisfaction. A factor analysis (PCA) using the present sample indicated that 23 items clustered into four components reflecting different aspects of the physical and social environments: local area satisfaction (LAS), satisfaction with access to the services in the local area (SAS), satisfaction with relationships with neighbors (SRN), and home satisfaction (HS). Together these four components explained 61% of total variance.

To us, the factor structure shows participants' mental representations of their environment. That is, the components are not simple reflections of the original dimensions we used in developing the

Table 8
Predictors of 'Satisfaction with access to services' scale (SAS).

Predictors	B	*t* value	Probability	adj. R^2 (prob.)
Step 1. Physical & social				adj. $R^2 = .52$ (.000)
Distance to services	−.14	−1.90	.061	
Conversions in home	.35	5.20	.000	
Outings	.65	7.82	.000.	

questionnaire (natural and built physical environment; social environment; and functionality). Instead, the components comprise clusters of questions related to particular settings or "ecological units" (aspects of home, neighborhood). Thus when people think about their environment, they think about the neighborhood as a unity – a place to visit, such that safety and pleasantness are salient characteristics ("local area satisfaction"); they think about services they need and whether the neighborhood provides access to those services ("access to services"); a third "ecological unit" is social – their neighbors and their relationships with them ("relations with neighbors"); and fourth they think about their home as a unity – how much they like it, are attached to it, and how well it supports their needs ("home satisfaction").

Eight items similar to those used in other research did not coalesce with our four components. All had fairly small variability (i.e., restricted range) indicating fairly uniform responses by participants. These are potentially useful items that tap important aspects of neighborhood safety and comfort. We recommend including them in future research where they may be more useful at differentiating among neighborhoods that are not so uniform in these characteristics, such as in larger cities with neighborhoods that vary more in age, construction, size, and so on.

The second purpose of this project was to ask how satisfied participants were in these domains. First, with respect to residential satisfaction, the results suggested that the general residential satisfaction of this sample of aging persons is good. On the overall satisfaction scale, the mean was 3.42, SD = .95, and means were similarly high when this scale was broken into subscales (2.45–4.14, Table 2). The results were consistent with Rojo-Perez' et al., (2000) research on an elderly Spanish sample and Rioux's (2007) study of an elderly French sample. For example, Rojo-Perez found that home satisfaction ratings averaged 3.19 on a 4-point scale, and satisfaction with relationships with the neighbors averaged 3.24. In Rioux's study using 5-point scales, overall residential satisfaction averaged 2.84; home satisfaction averaged 3.66; satisfaction with relationships with the neighbors averaged 4.01; satisfaction with the local area averaged 3.34; whereas satisfaction with access to the services in the local area were somewhat lower, averaging 2.84.

The third major purpose was to identify predictors of overall residential satisfaction as well as predictors of the four subscales. We found that the different subscales were predicted by different variables, supporting the idea that residents used different aspects of their environments differently, and hold nuanced and complex views of these domains and their satisfactions with them. In many ways, the items that formed the four subscales were related in sensible or valid (face validity) ways as indicated by the regression analyses. For example, the items measuring satisfaction with access to local services were primarily about physical access (safe to walk, good transport, close to services) and the strongest predictor was also related to access (going on outings or short pleasure trips).

The other significant predictor of satisfaction with access to services is the number of conversions in the respondent's home. This effect is difficult to interpret, and might indicate a third variable is operating, such as the respondent's efficacy and proactivity. A person who is able to negotiate home remodeling might be more efficacious than one who does not modify the home to support better functioning. Thus general competency (or a composite that measures various kinds of competency such as wayfinding ability, transit using ability) might be a stronger predictor of access to services because it identifies people who can achieve goals such as remodeling and getting to local services. Future research could collect additional measures to explore this relationship in more detail. Future research could also provide more information about neighborhood satisfaction by exploring the kinds of services available, the nature of satisfactions and dissatisfactions with them, and whether satisfaction is related to the sheer number of destinations or – alternatively – to having particular kinds of destinations (e.g., stores, clinics, restaurants, variety of opportunities, and so on). Our interview did not gather detailed information about these neighborhood services, and future research is needed to provide a more comprehensive understanding of what elders desire in their neighborhoods. In particular, it would be useful to distinguish between physical limitations and psychological limitations (such as fear of falling).

The 5 items comprising the measure of satisfaction with the home's interior reflected psychological attachment to the home (enjoy living here, would be difficult to live elsewhere) as well as a sense that the home suits one's needs (home is cozy, home adapted to needs, home does not constrain). This scale was predicted by all of the psycho-social variables (general well-being and favorable perceptions of physical health, activity level, and financial security). Thus participants who perceived themselves to be the most active and vital reported the greatest satisfaction with their home's interior. It was interesting that this scale was not predicted by several variables that we expected would be related to positive experiences in the home, such as number of conversions and number of visitors. Instead, the major predictors were participants' views of themselves as active, secure and vital.

The 5 items measuring satisfaction with neighbors included two items reflecting mutual practical support (I can count on my neighbors; my neighbors can count on me) and 3 reflecting (mostly) positive social relations (satisfied with relations; get along with neighbors; neighbors somewhat intrusive). This scale was predicted by two variables, the psycho-social Satisfaction With Life Scale (ESV/SWLS), and the physical variable that asked participants to estimate how far they lived from green areas. The image portrayed by these results is that participants who had opportunities to get outside in parks and other green spaces had more opportunities to see and interact with neighbors. Contrary to our expectations, our measure of neighborly relations is not related to the social variables of visitors and pleasurable outings. This could be because residents do see their neighbors in adjacent parks but do not count these as "outings." It could also suggest that participants receive visits from, and go on short trips with, family and friends who live outside the neighborhood. Finally, the pattern might indicate that neighbors get along because they keep their distances and do not exchange visits. Future research can clarify these patterns of relationships.

The final kind of satisfaction, Satisfaction with the Local Area, contains many standard items that have been relevant in other research (traffic, aesthetics, quiet and calm, crime safety). The mean satisfaction rating was slightly above the midpoint of the scale (3.23), suggesting that overall, respondents were satisfied with their neighborhoods. However, this scale was not predicted by any of the variables. This is surprising because this scale is similar to the strongest component of Adriaanse's neighborhood satisfaction scale, and other research shows neighborhood safety to be important for satisfaction. It is possible that a lack of variability has limited our ability to identify predictors for this scale, and a sample from more varied neighborhoods might be needed. Unfortunately, because we used varimax rotation to create orthogonal components, we are not able to ask a question often asked in other research, can satisfaction with the local neighborhood predict housing satisfaction.

In initiating and developing this project, we adopted an "emic" point of view, and desired to understand these residents' from their perspective (in contrast to the etic approach that uses materials developed in other settings with other participants). That led us to conduct in-depth interviews with a small sample of elderly French people, learn their perceptions, concerns, and satisfactions, and

develop satisfaction questions specifically for this group. We were particularly interested in focusing on a small number of key issues that elders could answer with accuracy and without fatigue. Although an emic approach is valuable, it does not allow us to compare our results to other similar projects which used different questions, different emphases, and different kinds of details. Despite this difference, it is interesting that our four components are similar to dimensions obtained in other studies. Future research can begin to integrate the multiple questionnaire items and use the same measures in diverse samples of elderly. Complementary research is in progress to elaborate a multidimensional tool specifically adapted to aging people and short enough to be useful with elderly persons.

In addition to illuminating how elders think about their homes and neighborhoods, the present project raises additional questions that should be addressed in future research. For example, we used the ESV (a French version of Diener et al., 1985, scale) to measure participants' satisfaction with life because it is a standard and well-regarded scale. However, as we studied the items, they referred both to the past and the present, making it ambiguous as a measure of their current satisfaction. Future studies would need to word the items to clearly reflect current satisfactions.

Future studies could also provide further information about satisfactions in relation to how elderly decline. We found that participants tended to describe themselves as "active" or "inactive" and were intrigued by one participant's comment that she had been fine until a recent illness. We wondered whether this was common, and if she would ultimately recover her vitality, and how her changing mobility might relate to her satisfaction. In terms of walking, a recent study followed a small number of elders (69–90 years of age) to observe the relationship between functional decline and their decisions to adapt by using a walking aid. The decisions to use a walking aid was unrelated to whether the decline had been sudden or gradual, but did relate to self-concept and willingness to use an aid that might signal decline to themselves and others (Gooberman-Hill & Ebrahim, 2007).

This project examined predictors of four domains of residential and neighborhood satisfaction. We predicted each domain separately and did not ask whether the domains were interrelated. For example, we did not ask if neighborhood satisfaction predicted or "supported" residential satisfaction. Indeed, by using participants' subjective ratings (and a varimax rotation to create independent subscales), we were not able to ask how these variables were interrelated or if they operated as an interconnected system. As suggested by Galster (1987), research that uses objective ratings of different domains is able to estimate if and how environmental features are related to participants' subjectively measured satisfaction. Objective and subjective measures could be included in future research.

8.1. Implications for practice

In addition to contributing to theory and research on residential satisfaction, this research has practical implications. For example, participants reported some dissatisfaction with access to services, possibly services that were farther from their homes. The demographic information showed that many participants had lived in their homes for many years, and had grown old there. It is possible many had chosen those homes when they were more physically active and could ride their bikes or drive to the service centers. Their physical limitations had made them less mobile but they remained in a home that increasingly required mobility outside the home. One implication is a need for social service agencies to assess this situation and improve public transportation in general or provide targeted transit service for less mobile elderly (e.g., paratransit). Another implication is to consider how "walkable" the areas are (Brown & Werner, 2009): are the sidewalks complete with smooth pavement so that even elders with canes can walk safely?; are there traffic calming features to slow automobile traffic and provide lights for pedestrian crossings?; are there benches for resting? These and other "walkability" features could be addressed and improved to increase elders' mobility, autonomy, and access to needed services.

9. Conclusion

This research is consistent with other research showing that homes are embedded in their larger social and physical environments, and studies of residential satisfaction need to include these broader domains (Aragonés & Amérigo, 1987; Kahana et al., 2003; Rojo-Perez et al., 2001). Our measures showed that elders' residential satisfaction corresponded to a four-dimensional structure corresponding to four distinct ecological areas: local area satisfaction, satisfaction with accessibility to the services in the local area, satisfaction with relationships with the neighbors, and home satisfaction. Furthermore, we found that three domains could be predicted by behavioral and psycho-social variables, with each domain predicted by a different subset of predictors, supporting the idea that elders have complex understandings of their homes and neighborhoods.

Future research is needed to further develop the measures of satisfaction, such as adding items to clarify the domains. Research is also needed to compare the present component structure with structures obtained in other samples, especially among other age groups and other social and cultural groups. Although still at an early stage, the present results provide a preliminary set of items for each domain, and suggest the items that comprise a multifaceted residential satisfaction scale for elderly people aging in place.

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