



Physical and emotional support of the neighborhood for older adults: A comparison of the United States and Germany



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ABSTRACT

The living environment plays a critical role in healthy aging. As older adults' physical abilities decrease, they are less likely to compensate for physical barriers and their action radius decreases. Therefore, older adults strongly depend on the neighborhood to meet their needs. The neighborhood environment also has a role to play in the fulfillment of older adults' emotional needs, which are key to successful aging in place. Further, historical differences in the built environment in the United States vs. Europe may lead to different expectations of need-fulfillment in different countries. The aim of this study was to shed light on older adults' ($N = 577$, ages 70+) living situations and their demands on the neighborhood in two countries, the United States ($n = 350$) and Germany ($n = 227$). Differences between countries were more pronounced than differences between age groups or living areas, indicating that cultural influence is a key aspect of needs assessment for neighborhood design. In line with the literature in environmental gerontology, participants' needs spanned across various dimensions related to the physical, social and psychological environment, which we categorized into global, local, and social needs. As opposed to Americans, Germans had higher expectations of their immediate neighborhood to fulfill their local (e.g., public transportation) and social needs (e.g., family nearby), but countries did not differ regarding global needs such as safety. Our findings suggest that successful aging in place can be supported by a neighborhood that takes people's cultural backgrounds into consideration when defining and meeting their needs.

1. Introduction

The majority of older adults wishes to age in place and stay in their homes. In Germany, for instance, about 93% of people ages 65 and older live in their own residence and prefer to remain independently in their homes for as long as possible (Deutscher Bundestag, 2016). This trend is also true in the United States (Gillsjö, Schwartz-Barcott, & Post, 2011), which highlights the importance of supporting aging in place and staying healthy in later life. Research has shown that the neighborhood plays a key role in healthy aging (for an overview see Yen, Michael, & Perdue, 2009) as this is the area where older adults spend most of their time and do most of their errands. Neighborhood design can support an active lifestyle, which plays an important role in maintaining health and well-being, especially in later life (Frank & Engelke, 2001; Montero-Odasso et al., 2005). For example, the availability of public transportation, services and amenities, cultural and educational opportunities, and also security shape neighborhoods and contribute to accommodating an aging population (Peace, Wahl,

Mollenkopf, & Oswald, 2007). Research in urban planning, transportation and public health has shown that the physical attributes of the neighborhood (e.g., sidewalks, cross-walks, and pedestrian-friendly destinations) can promote physical activity and, in turn, a healthier lifestyle (Chudyk et al., 2015; Giles-Corti et al., 2005). Physical barriers, on the other hand, can create feelings of insecurity and fears of falling as well as reduce older adults' overall out-of-home mobility overall (Foster, Giles-Corti, & Knuiman, 2014; Rantakokko, Iwarsson, Mänty, Leinonen, & Rantanen, 2012).

1.1. Environmental gerontology

Because every person perceives the environment differently with reference to his or her own physical abilities, plans, experiences and capacities to adapt (Horgas, Wilms, & Baltes, 1998; Rantanen et al., 2012), it is not sufficient to evaluate only the physical features and characteristics of the neighborhood. Even objectively similar places may generate very different physical challenges, feelings and social

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interpretations, especially among older adults (Golant, 2015). Clarifying the interrelations between the objective environment and subjective dimensions has been identified as one of the key research questions in environmental gerontology (Wahl & Oswald, 2010).

One of the first models that addressed the person-environment fit is Lawton's *environmental press model* (Lawton, 1982). This model focuses on the need to balance the characteristics of the environment with people's competencies to deal with the demands and opportunities in that context. The environment includes housing, neighborhoods, out-of-home areas, transportation (Lawton, 1977), and technology (Lawton, 1998). As physical abilities are likely to decline with age, most older adults are less able to compensate for any challenges in their environment such as physical barriers. More challenges in the environment lead to increased stress and a reduction of action range. Thus, the physical design of the neighborhood has a significant effect on older adults' ability to stay active and meet their needs (Oswald, Jopp, Rott, & Wahl, 2011). Lawton also stressed the importance of *environmental proactivity* in order to live a good life in older age (e.g., Lawton, 1989). Environmental proactivity includes actively searching the environment for resources to satisfy one's needs such as using local amenities and services. Thus, the person-environment fit for older adults is not only determined by a supportive environment, but also by the nature and capabilities of the individual (Lawton, 1998; Slangen-de Kort, 1999).

Building on the environmental press model, Wahl and Oswald (2010) developed a framework of the person-environment interchange as people age, which identifies two key processes: *agency* and *belonging*. Agency is behavior-based and can be defined as the active process of adapting to the environment, which includes control beliefs and environmental proactivity. The process of agency regulates the person-environment fit and is essential for older adults to maintain their independence. Belonging is experience-based and described as the cognitive and emotional evaluation of the physical environment – a subjective evaluation and interpretation of space – which includes attachment to places over time and meaning of the home. As people grow older, the importance of belonging increases while agency decreases (Wahl, Iwarsson, & Oswald, 2012). Consistent with the increasing value of belonging, the *socioemotional selectivity theory of aging* (Carstensen, Isaacowitz, & Charles, 1999; Carstensen & Mikels, 2005) emphasizes the growing importance of emotionally significant activities and goals among older adults.

The role of positive emotional experiences in order to create a good person-environment fit among older adults is also stressed in the *residential normalcy model* (Golant, 2015). According to this model, positive emotional experience in residential arrangements can be categorized as *residential comfort emotional experiences* and *residential mastery emotional experiences*. The first category includes feelings of pleasure, comfort and freedom from hassles, while the second category includes feelings of competency, control and autonomy. Only if people experience satisfaction in both categories is the environment congruent with their individual needs and can residential normalcy be achieved. In many cases, the feeling of competency results in feeling more comfortable. As physical abilities decline with age, however, feelings of competency (i.e., residential mastery) may be affected. For example, an environment that has uneven sidewalks or a lack of places to rest may increase feelings of incompetency among older adults. Feeling competent and in control of one's life are associated with happiness, satisfaction and a greater sense of self-worth (Filipe, 1996; Schulz & Heckhausen, 1996). Thus, for older adults, a neighborhood that supports their residential mastery is especially important.

Golan's model is not a "one size fits all" kind of model in that it also stresses the weight of different emotional experiences. For example, living close to family may be the most important aspect for one person, resulting in feelings of comfort, while for another person silence and a place to retreat to may be more important. Therefore, individual appraisals of these aspects of the environment are another valuable source of information when designing a neighborhood. In sum, neighborhoods

need to be defined and evaluated not only by their physical features and boundaries, but also by their personal meanings for older adults (Wahl & Oswald, 2010; Yen et al., 2009). It is essential, therefore, to evaluate older adults' needs around their living situations in order to design neighborhoods that support them in their everyday life and help them to retain their independence.

1.2. Cross-cultural comparison

Studies in environmental gerontology have typically focused primarily on single countries, with most studies conducted in the United States, Australia and Europe (Wallmann, Bucksch, & Froboese, 2012; Wendel Vos, Droomers, Kremers, Brug, & Van Lenthe, 2007). As outlined above, however, successful aging cannot be separated from one's physical environment, therefore we propose that the specific country and culture one lives in play a major role when studying environmental fit. In line with this, researchers have called for more cross-cultural studies to better inform national and regional policies and interventions to support the person-environment fit and healthy aging (Rodriguez-Rodriguez & Sanchez-Gonzalez, 2016; Van Dyck et al., 2013). Although the number of cross-cultural studies in environmental gerontology has grown in the last few years, more research is needed to understand differences between countries on micro- and macro levels, based on their culture, history or population density (Adams et al., 2013; Bonaiuto et al., 2015; Cerin et al., 2013; Peace et al., 2007). Cross-cultural studies offer opportunities to systematically compare and identify how key features of the built environment as well as environmental cultures may affect older adults' emotional needs, well-being and health, and ability to maintain their independence. Based on the added value to be gained by conducting the study in two different countries, we compared Germany and the United States.

Previous work done in the United States and in Europe has found, for example, that a higher population density, living in walking distance to shops and amenities, and accessibility of senior services are indicators of walk-friendly environments (Chudyk et al., 2015; Yen et al., 2009). The United States and Europe, however, differ concerning the way their cities are laid out. Historically, the built environment developed differently in the United States relative to Europe and may therefore serve people's needs in different ways. North America was designed with automobile traffic in mind rather than walkability (Frank & Engelke, 2001). In contrast, a walk-friendly environment has been promoted in European cities since the 1950s (Gehl & Svarre, 2013). Both the United States and Europe also differ in their population density; in Germany, for example, there are 234 inhabitants per square kilometer compared to 35 in the United States (The World Bank, 2015). Results from a large cross-cultural study suggest that the environment in the United States is less encouraging and supportive of older adults' physical activity than in European countries (Adams et al., 2013). For instance, European countries often have better access to public transportation and a closer proximity to shops, recreation facilities and services.

In addition, the environmental cultures in which people have grown up and lived the majority of their lives may affect their demands on or preferences for a neighborhood (World Health Organization, 2002). Cross-cultural studies that focused on emotional needs of older adults have found some similarities across countries. For example, in both the United States and Germany, the most important reason to move in later life was to live closer to family and friends in order to get more support in everyday life (Serow, Friedrich, & Haas, 1996). However, Wahl and Oswald (2010) have pointed out the especially strong ties of Germans - who tend to live in the same place and often the same house for the majority of their lives - to their homes. At the same time, only about half of Germans over the age of 65 (48%) own the place they live in (Statistisches Bundesamt, 2015), while around 80% of Americans ages 65 and older are homeowners (U.S. Census Bureau, 2018). Although Americans are more likely to own a house as opposed to Germans, who

often rent (e.g., Blanchflower & Oswald, 2013), Americans tend to be more willing to move (Serow et al., 1996). As a result, Germans may be more attached to their places than Americans, and aspects of belonging may be more important in Germany than the United States. In general, more cross-cultural research is needed to understand how cultural backgrounds affect emotional needs around the living situation and, in turn, well-being and health among older adults.

1.3. Research aims

Future challenges for environmental gerontology include a better integration of local and global levels of analyses and ongoing cohort dynamics (Peace et al., 2007). To address some of these challenges, we included the comparison of two countries, and analyzed data from rural, suburban and urban areas within these countries, using two age groups (young-olds and old-olds). The purpose of this study was to evaluate the relationship between current neighborhood characteristics, physical and emotional demands and needs of older adults as well as their out-of-home behavior. We expected differences between the United States and Germany regarding the physical condition of neighborhoods (e.g., walkability), as well as differences within countries regarding urban, suburban and rural areas. Due to residential dispersion in rural areas, we expected fewer local services and amenities in rural areas in comparison to urban or suburban regions, especially in the United States, and therefore, less time out of the home in rural areas and in the United States in general. While we were interested in whether individual needs differ between countries, we also aimed to understand to what extent potential differences in needs are based on physical conditions in the current living situations.

Drawing on Lawton's environmental press model (Lawton, 1982), Wahl and Oswald's (2010) framework of agency and belonging and Golant's (2015) residential normalcy model, we focused on both the physical environment and the person. We thereby considered older adults' physical abilities as well as their physical and emotional needs. More specifically, we explored potential differences between countries regarding older adults' physical needs (e.g., shopping destinations close by or access to amenities), which include the processes of agency and residential mastery. We did expect to find an increase in physical needs with age, because older adults' physical abilities are likely to decrease as they age, as does their ability to compensate for environmental challenges (Wahl et al., 2012). Beyond individual functioning in everyday life, perceptions of the neighborhood and residential normalcy are influenced by individual experiences, emotional needs, feelings of belonging and residential comfort (Golant, 2015; Golant, 2015; Wahl et al., 2012). Thus, in addition to physical needs, we also explored potential differences between countries regarding older adults' emotional needs, belonging and residential comfort. While the United States and Germany may be similar regarding their mainstream Western culture in the sense of values and norms, we assumed that differences in the built environment that evolved historically may affect people's expectations around needs fulfillment in the immediate neighborhood.

2. Materials & method

This study was reviewed and approved by the Committee on the Use of Humans as Experimental Subjects (COUHES) at the Massachusetts Institute of Technology. Informed consent was obtained from all participants. We recruited 577 participants through Qualtrics, an online marketing company, to complete a one-time survey. Sample size was determined by ensuring sufficient numbers of participants in each condition to enable category comparison and was also limited by available resources. Participants were randomly selected from Qualtrics panels across Germany and the United States. Quotas were determined for country, age group (70–80 and 81+) and gender. As a default by Qualtrics, those who finished the survey in less than one third of the median time were automatically excluded from the study

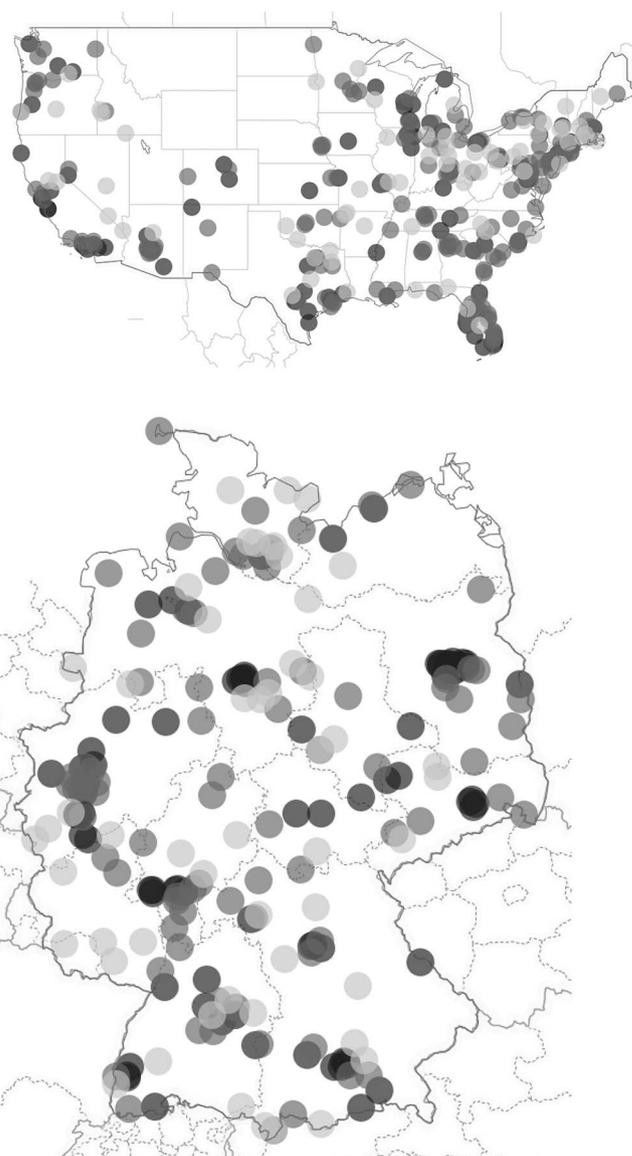


Fig. 1. Sample distribution across the US and Germany. Black: rural; dark grey: suburban; light grey: urban.

($M = 18.42$ min., $SD = 9.25$ min.), because it was unlikely that serious answers to the questionnaire could be provided in such a short amount of time. Participants were between 70 and 100 years of age (45% female) and lived either in the United States ($n = 350$; 50% female) or in Germany ($n = 227$; 37% female). The survey was conducted in English in the United States and in German in Germany. All participants indicated which of five age groups (70–75, 76–80, 81–85, 86–90, 90+) they belonged to. To create larger sample sizes and based on similar approaches in earlier studies (e.g., Oswald et al., 2011), these age groups were grouped into young-old (70–80) and old-old (81+) for analyses. We aimed to recruit an equal number of participants in each of four groups: young-olds and old-olds in the US and in Germany. Each group consisted of 175 participants, except the old-old group in Germany ($n = 54$), for which we were not able to recruit more participants. Living area (urban vs. suburban vs. rural) served as a control variable (see Fig. 1).

The questionnaire consisted of two main blocks: demands on the neighborhood and current living situation. The section on demands on the neighborhood included items on people's physical and emotional needs. Participants rated the importance of 17 aspects when choosing a neighborhood that they wanted to live in (from 1 = *not at all important*

to 5 = *very important*). This list included physical, social and emotional aspects: access to public transportation, shopping destinations within walking distance, parks and green spaces nearby, cultural activities, easy to get around on foot, access to amenities and services for seniors (e.g., senior centers), places to rest/sit down, life-long learning/classes available, perceived neighborhood safety, affordability, cleanliness of the streets and squares, positive atmosphere/good ‘vibe’, medical/health services convenient to reach, close to family, close to friends, parking available, and places of worship nearby.

Questions about the current living situation included information on living area (urban, suburban or rural), perceived safety during the day and during the night (from 1 = *very unsafe* to 5 = *very safe*), primary mode of transportation for grocery shopping (walking, driving, getting a ride, public transportation, biking, or other) and distance to preferred grocery store (in miles/kilometers). More detailed questions were asked about awareness and use of services available in their neighborhood to meet their social and emotional needs. Services included senior centers, cultural events (e.g., theater, movies), lectures and classes (life-long learning), exercise groups, shopping services, and excursions (e.g., museums). Participants also reported their habits around leaving the house and spending time outside (days and hours spent outside).

In order to incorporate participants’ physical capabilities as an essential aspect of the person-environment fit (e.g., Lawton, 1982, 1989), we included the 12 item – WHO Disability Assessment Schedule 2.0 (WHODAS; Üstün, Kostanjsek, Chatterji, & Rhem, 2010) to measure participants’ level of disability within the preceding 30 days (from 0 = *no disability* to 100 = *full disability*). The WHODAS 2.0 exists in both English and German, is validated, and has been used in numerous countries.

3. Results

Except for old-old participants in Germany, our sample was representative concerning disability status when compared with data collected in other studies (e.g., Andrews, Kemp, Sunderland, Korff, & Ustun, 2009). However, the US sample was better educated on average than the US population (Ryan & Bauman, 2016; see Table 1 for sample characteristics). Similarly, a comparison with German statistical data also shows the educational level of the German sample to be slightly above the population average (Haustein, Mischke, Schönfeld, & Willand, 2016).

Table 1
Sample Characteristics.

	Total (N = 577)	US (n = 350)	GER (n = 227)	Significant country differences
	M (SD) or n (%)	M (SD) or n (%)	M (SD) or n (%)	ANOVA, t-test or χ^2
Living alone	218 (37.8)	137 (39.1)	81 (35.7)	$\chi^2 (2, N = 577) = 16.56, p < .001$
Education				$\chi^2 (4, N = 577) = 110.23, p < .001$
Some high school	46 (8.0)	4 (1.1)	42 (18.5)	
High school graduate	160 (27.7)	79 (22.6)	81 (35.7)	
Some college	143 (24.8)	114 (32.6)	29 (12.8)	
College graduated	152 (26.3)	85 (24.3)	67 (29.5)	
Completed graduate	76 (13.2)	68 (19.4)	8 (3.5)	
Years lived in current neighborhood, M (SD)	25.37 (17.88)	24.23 (17.13)	27.14 (18.87)	$t (574) = -1.92, p = .056$ $\chi^2 (2, N = 577) = 16.87, p < .001$
Living area				
Rural	119 (20.6)	67 (19.1)	52 (22.9)	
Suburban	273 (47.3)	189 (54.0)	84 (37.0)	
Urban	185 (32.1)	94 (26.9)	91 (40.1)	
Hours out of home (per day), M (SD)	2.77 (1.68)	3.03 (1.87)	2.37 (1.23)	$F (1, 565) = 18.98, p < .001, \eta_p^2 = .032$
Days out of home last week, M (SD)	5.24 (1.91)	4.99 (2.00)	5.62 (1.70)	$F (1, 570) = 18.90, p < .001, \eta_p^2 = .032$
Days home last month, M (SD)	8.21 (8.10)	9.20 (8.41)	6.68 (7.36)	$F (1, 566) = 16.65, p < .001, \eta_p^2 = .029$
WHODAS 2.0 ($\alpha = .80$), M (SD)	13.37 (14.01)	12.04 (12.37)	15.44 (16.03)	$F (1,573) = 25.59, p < .001, \eta_p^2 = .043$

Note: Unless otherwise indicated, table entries in columns two through four are the sample count with percentage in parentheses

3.1. Demands on the neighborhood and needs

Safety, affordability, and proximity to medical or health services were the most highly rated aspects of a neighborhood overall (see Fig. 2). Twelve of the 17 aspects were rated as more important in Germany than the United States ($p < .02$, independent t -tests). Safety, parking and places of worship nearby were rated as more important in the United States ($p < .002$); the rating of affordability and cleanliness did not differ significantly between countries. We then asked participants to imagine that they were planning to move and to select their top three neighborhood features of the 17. In the United States, proximity to health care (54.4%), safety (47.8%) and being close to family (38.8%) were most often ranked among the top three. In Germany, health was also among the top three (57%), but having shopping nearby (51.1%) and public transportation (37%) were more often among the top three than safety (26.4%) and proximity to family (33%) were.

We conducted an exploratory factor analysis for the 17 aspects to investigate whether they would reflect the categories described in the environmental gerontology models. Principal factor extraction and varimax rotation were carried out for the 17 aspects. The KMO (Keiser-Meyer-Olkin) value was checked for the adequacy of the sample (KMO = 0.87) and Bartlett’s Test of Sphericity was checked for collinearity ($\chi^2 (136) = 3068.05, p < .001$); both were found satisfactory. Extraction of initial Eigenvalues greater than one revealed four factors that explained 55.6% (31.18%, 10.88%, 6.80%, 6.74% for each factor) of the cumulative variance. The scree plot analysis suggested two main components, but we included all four factors to encompass all of the items (see Fig. 2). We named the first component “global needs” ($\alpha = 0.84$) because it reflects global and more abstract concepts such as safety and security (e.g., around finances and health), but also general values around being in a clean and positive environment, which may contribute to feelings of safety as well. We named the second component “local needs” ($\alpha = 0.74$) because it includes more specific demands on the neighborhood regarding the built environment as well as services and amenities. The remaining four items loaded on two additional factors. One factor included social needs, specifically being close to family and friends, which may have several facets such as companionship, support and safety. The last factor, which we named “other,” included the items parking and places of worship, which we did not further analyze.

We conducted univariate ANOVAS with the factors age group and country and the dependent variables global, local and social needs. The analysis for global needs revealed no significant effects of neither age group nor country, $F < 1, p > .49$. The analysis for local needs revealed

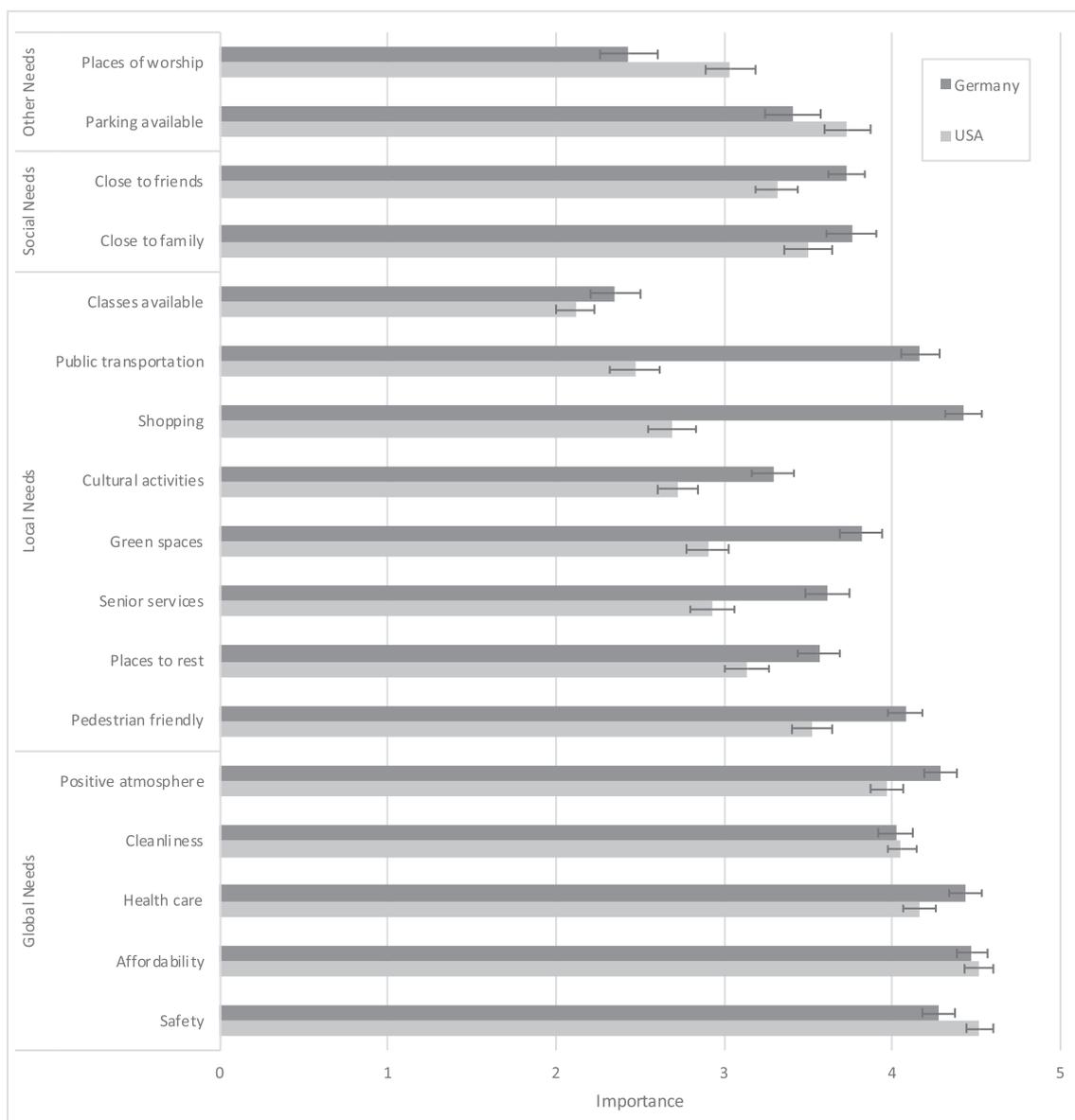


Fig. 2. Importance rating of 17 aspects for each country, grouped according to dimensions revealed by a factor analysis.

a main effect of country, $F(1,573) = 170.40, p < .001, \eta_p^2 = 0.229$, and an interaction of age group and country, $F(1,573) = 5.19, p = .023, \eta_p^2 = 0.009$, but no main effect of age group, $F < 1, p > .38$. Local needs were rated higher in Germany ($M = 3.73, SD = 0.61$) than in the United States ($M = 2.76, SD = 0.86$). Independent *t*-tests further indicated that within the US sample, old-olds rated local needs as more important ($M = 2.87, SD = 0.81$) than young-olds ($M = 2.64, SD = 0.88$), $p = .012$, but there was no age difference in Germany, $p = .29$. For social needs, we found a main effect of country, $F(1,573) = 15.45, p < .001, \eta_p^2 = 0.026$. Social needs were higher in Germany ($M = 3.75, SD = 1.01$) than in the United States ($M = 3.41, SD = 1.08$).

3.2. Neighborhood and out-of-home behavior

3.2.1. Perceived safety

In addition to participants' needs, we also analyzed their current living situation and their out-of-home behaviors. We conducted a univariate ANOVA with the factors country and age group to investigate how long participants had lived in their current neighborhoods and how safe they felt walking around there by themselves during the day

or at night. Participants in Germany had lived longer in their neighborhoods than participants in the US (see Table 1 for means), $F(1, 572) = 7.75, p = .006, \eta_p^2 = 0.013$, and old-olds had lived longer in their neighborhoods ($M = 28.67$ years, $SD = 18.78$) than young-olds ($M = 23.24$ years, $SD = 16.96$), $F(1, 572) = 15.66, p < .001, \eta_p^2 = 0.027$. There was no significant interaction effect, $p = .91$. Participants in the United States, however, felt safer during the day ($M = 4.75, SD = 0.53$) than participants in Germany ($M = 4.57, SD = 0.52$), $F(1, 573) = 18.59, p < .001, \eta_p^2 = 0.032$. Similarly, participants in the United States also felt safer during the night ($M = 4.17, SD = 1.01$) than participants in Germany ($M = 3.83, SD = 1.10$), $F(1, 573) = 14.40, p < .001, \eta_p^2 = 0.03$. Young olds felt safer than old-olds during both the day, $F(1, 573) = 4.23, p = .04, \eta_p^2 = 0.007$, and at night, $F(1, 573) = 13.94, p < .001, \eta_p^2 = 0.024$. There were no significant interaction effects.

3.2.2. Walkability and being out of home

We compared neighborhood characteristics in both countries (Germany vs. US) and in different living areas (urban, suburban, rural) using univariate ANOVAS (see Tables 1 and 2 for test results). Respondents in Germany rated sidewalk quality as better than those in the

Table 2
 Neighborhood Characteristics for the Overall Sample and by Country.

	Total (N = 577)	US (n = 350)	Germany (n = 227)	
	M (SD) or n (%)	M (SD) or n (%)	M (SD) or n (%)	ANOVA or χ^2
Distance to preferred grocery store (miles in the US, km in Germany)				
Country	2.80 (1.15)	3.12 (1.08)	2.31 (1.09)	$F(1, 571) = 67.78, p < .001, \eta_p^2 = .106$
Living Area				
Rural	3.28 (1.06)	3.49 (1.02)	3.00 (1.05)	$F(1, 571) = 20.15, p < .001, \eta_p^2 = .066$
Suburban	2.80 (1.14)	3.04 (1.10)	2.26 (1.05)	
Urban	2.49 (1.12)	3.01 (1.02)	1.96 (.95)	
Country x Living Area				$F(1, 571) = 2.65, p = .071, \eta_p^2 = .009$
Public transportation within 1 mile of home				
Country	396 (68.6)	176 (50.3)	220 (96.9)	$\chi^2(1, N = 577) = 139.07, p < .001$
Living Area				
Rural	58 (48.7)	10 (14.9)	48 (92.3)	$\chi^2(1, N = 119) = 70.17, p < .001$
Suburban	175 (64.1)	93 (49.2)	82 (97.6)	$\chi^2(1, N = 273) = 59.23, p < .001$
Urban	163 (88.1)	73 (77.7)	90 (98.9)	$\chi^2(1, N = 185) = 19.91, p < .001$
Quality of sidewalks				
Country	3.60 (1.14)	3.49 (1.26)	3.76 (1.00)	$F(1, 571) = 14.45, p = .001, \eta_p^2 = .025$
Living Area				$F(2, 571) = 28.72, p = .001, \eta_p^2 = .091$
Rural	2.91 (1.32)	2.52 (1.25)	3.4 (1.26)	
Suburban	3.72 (1.07)	3.65 (1.16)	3.88 (.81)	
Urban	3.85 (.94)	3.86 (.93)	3.85 (.95)	
Country x Living Area				$F(2, 571) = 6.47, p = .002, \eta_p^2 = .022$
Inspired by neighborhood to leave house				
Country	3.16 (1.11)	3.00 (1.14)	3.41 (1.01)	$F(1, 565) = 11.32, p = .001, \eta_p^2 = .02$
Age Group				$F(1, 565) = 7.89, p < .005, \eta_p^2 = .014$
Young-Old	3.26 (1.07)	3.04 (1.09)	3.48 (1.01)	
Old-Old	3.01 (1.15)	2.95 (1.20)	3.19 (.97)	
Living Area				$F(2, 565) = 3.96, p < .02, \eta_p^2 = .014$
Rural	3.02 (1.24)	2.69 (1.21)	3.44 (1.15)	
Suburban	3.18 (1.11)	3.03 (1.11)	3.52 (1.02)	
Urban	3.23 (1.02)	3.16 (1.12)	3.30 (.90)	
Country x Age Group				$F(1, 565) = .321, p = .571, \eta_p^2 = .001$
Country x Living Area				$F(2, 565) = 2.71, p = .07, \eta_p^2 = .009$
Living Area x Age Group				$F(2, 565) = 3.96, p = .02, \eta_p^2 = .014$
Country x Age Group x Living Area				$F(2, 565) = .288, p = .02, \eta_p^2 = .014$
Days per week out of house (sample count)				
Country	5.24 (1.91)	4.99 (2.00)	5.62 (1.70)	$F(1, 564) = 13.38, p < .001, \eta_p^2 = .023$
Age Group				$F(1, 564) = 2.53, p = .12, \eta_p^2 = .004$
Young-Old	5.40 (1.79)	5.11 (1.87)	5.69 (1.67)	
Old-Old	4.99 (2.05)	4.88 (2.12)	5.37 (1.77)	
Living Area				$F(2, 564) = .51, p = .61, \eta_p^2 = .002$
Rural	5.24 (2.00)	4.67 (2.15)	5.96 (1.52)	
Suburban	5.17 (1.98)	5.11 (1.87)	5.31 (2.02)	
Urban	5.34 (1.74)	4.98 (1.95)	5.70 (1.41)	
Country x Age Group				$F(1, 564) = .260, p = .61, \eta_p^2 = .000$
Country x Living Area				$F(2, 564) = 4.05, p = .02, \eta_p^2 = .014$
Living Area x Age Group				$F(2, 564) = .002, p = 1.00, \eta_p^2 = .000$
Country x Age Group x Living Area				$F(2, 564) = 1.29, p = .28, \eta_p^2 = .005$
Hours per day out of house				
Country	2.77 (1.68)	3.03 (1.87)	2.37 (1.23)	$F(1, 559) = 13.69, p < .001, \eta_p^2 = .024$
Age Group				$F(1, 559) = .016, p = .90, \eta_p^2 = .000$
Young-Old	2.66 (1.65)	2.92 (1.93)	2.40 (1.25)	
Old-Old	2.95 (1.72)	3.15 (1.81)	2.26 (1.15)	
Living Area				$F(2, 559) = 1.69, p = .20, \eta_p^2 = .006$
Rural	2.52 (1.56)	2.65 (1.83)	2.38 (1.13)	
Suburban	2.78 (1.63)	2.97 (1.72)	2.32 (1.31)	
Urban	2.93 (1.81)	3.43 (2.12)	2.42 (2.21)	
Country x Age Group				$F(1, 559) = .033, p = .86, \eta_p^2 = .000$
Country x Living Area				$F(1, 559) = 2.39, p = .09, \eta_p^2 = .008$
Living Area x Age Group				$F(1, 559) = .10, p = .91, \eta_p^2 = .000$
Country x Age Group x Living Area				$F(1, 559) = 1.38, p = .25, \eta_p^2 = .005$
Days at home within last month				
Country	8.21 (8.10)	9.20 (8.41)	6.68 (7.36)	$F(1, 560) = 9.50, p = .002, \eta_p^2 = .017$
Age Group				$F(1, 560) = 5.54, p = .019, \eta_p^2 = .010$
Young-Old	7.43 (7.66)	8.45 (7.95)	6.40 (7.23)	
Old-Old	9.42 (8.61)	9.94 (8.80)	7.65 (7.79)	
Living Area				$F(2, 560) = .611, p = .543, \eta_p^2 = .002$
Rural	8.40 (8.46)	10.58 (8.92)	5.53 (6.90)	
Suburban	8.53 (8.24)	8.68 (8.11)	8.19 (8.56)	
Urban	7.60 (7.64)	9.24 (8.58)	5.93 (6.16)	
Country x Age Group				$F(1, 560) = .41, p = .52, \eta_p^2 = .001$
Country x Living Area				$F(2, 560) = 1.88, p = .15, \eta_p^2 = .007$
Living Area x Age Group				$F(2, 560) = 1.95, p = .14, \eta_p^2 = .007$
Country x Age Group x Living Area				$F(2, 560) = .113, p = .893, \eta_p^2 = .000$

(continued on next page)

Table 2 (continued)

	Total (N = 577)	US (n = 350)	Germany (n = 227)	
	M (SD) or n (%)	M (SD) or n (%)	M (SD) or n (%)	ANOVA or χ^2
Disability Score				
Country	13.37 (14.01)	12.04 (12.37)	15.44 (16.03)	$F(1, 573) = 25.95, p < .001, \eta_p^2 = .043$
Age Group				$F(1, 573) = 33.47, p < .001, \eta_p^2 = .055$
Young-Old	11.59 (13.08)	10.43 (12.51)	12.75 (13.56)	
Old-Old	16.13 (14.96)	13.64 (12.06)	24.48 (20.09)	
Country x Age Group				$F(1, 573) = 10.87, p = .001, \eta_p^2 = .019$

Note: Unless otherwise indicated, table entries in columns two through four are the sample mean with standard deviations in parentheses.

US, and sidewalk quality was rated better in urban and suburban than in rural areas, and worst in the rural US. German participants indicated that they were more inspired by their neighborhood to leave the house than participants in the US. We included age groups in analyses with behaviors as dependent variables. Old-olds were less inspired to leave the house than young-olds, especially those old-olds living in rural areas, regardless of country. German participants also reported that they left their home more days of the week on average than US participants. Those who lived in rural Germany left the house the most often, whereas those who lived in the rural US left the house the least often. Participants indicated on average that they had stayed at home about two days a week in the previous 30 days. Again, this average was greatest in the rural US and lowest in rural Germany. Americans, however, indicated that they spent more hours within a single day out of their home than Germans did. This did not differ by living area.

Days spent out of home correlated weakly positively with perceived safety during the day ($r = 0.14$), walk-friendliness of the neighborhood ($r = 0.15$), sidewalk-quality ($r = 0.14$, in all cases $p < .05$), and the inspiration of the neighborhood to leave the house ($r = 0.22, p < .01$), and more strongly with the enjoyment in being outside ($r = 0.40, p < .001$). Hours spent out of the home, however, did not correlate with any of these aspects. Disability scores correlated negatively with days spent out of home ($r = -0.23, p < .01$), but not with hours spent out of home ($r = -0.02$).

We used linear regression to investigate how country, age group, living area, perceived safety, enjoyment in being outside, inspiration by the neighborhood to leave the house, and disability status predicted time spent out of the home. Participants who lived in Germany, who enjoyed being outside more, or who had a lower disability status, spent more days out of their homes, controlling for other factors. Those participants who lived in the US, in urban areas, who felt safer walking by themselves at night, or who were more inspired by their neighborhood to leave the house, spent more hours per day out of their homes. At the same time, respondents who lived in the US, who felt unsafe walking by themselves at night, or who had a higher disability status, were more likely to have stayed at home more days in the previous 30 days, controlling for other variables (see Table 3).

3.2.3. Transportation

In the United States, the most preferred mode of transportation for grocery shopping trips was overwhelmingly driving (85.4%), followed by getting a ride from someone (8.6%). Although driving was also Germans' top preference (55%), it was less strongly preferred relative to other modes, and walking was more highly ranked than in the United States (24.9% versus 2.6%). Biking was relatively popular in Germany (9.3%), only one participant in the United States indicated that they biked when shopping for groceries. Public transportation was the primary mode of transportation for only 1.4% in the United States and 2.6% in Germany. In both countries, preferences for driving decreased with age (US: from 89.7% to 81.1%; Germany: from 60.6% to 36.5%), while preferences for walking (US: from 1.7% to 3.4%; Germany: from 21.1% to 36.5%) and using public transport increased (US: from 1.1% to 1.7%; Germany: from 2.3% to 3.8%). Further, while old-olds in

Table 3

Linear Regression Analysis for Different Indicators of Time Spent Outside the Home.

	N = 577				
	b	SE	β	p	R ²
<i>Days out of home</i>					.181
Constant	2.851	.923		.002	
Country (1 = US, 2 = GER)	.588	.179	.157	.001	
Age Group (1 = Young-Old, 2 = Old-Old)	.19	.174	.05	.276	
Living Area (rural)	.114	.207	.026	.581	
Living Area (urban)	.135	.187	.034	.470	
Perceived Safety Day	-.123	.178	-.035	.491	
Perceived Safety Night	.173	.095	.096	.069	
Enjoyment in Being Outside	.328	.09	.182	< .001	
Inspiration by Neighborhood	.123	.085	.074	.147	
Disability Status	-.034	.006	-.256	< .001	
<i>Hours out of home</i>					.100
Constant	2.621	.885		.003	
Country (1 = US, 2 = GER)	-.675	.171	-.199	< .001	
Age Group (1 = Young-Old, 2 = Old-Old)	.185	.166	.054	.265	
Living Area (rural)	-.075	.196	-.019	.703	
Living Area (urban)	.506	.178	.14	.005	
Perceived Safety Day	-.265	.169	-.085	.118	
Perceived Safety Night	.24	.091	.148	.009	
Enjoyment in Being Outside	.073	.086	.045	.393	
Inspiration by Neighborhood	.222	.081	.149	.006	
Disability Status	-.002	.006	-.018	.719	
<i>Days at home within 30 days</i>					.162
Constant	17.415	3.927		< .001	
Country (1 = US, 2 = GER)	-2.608	.763	-.165	.001	
Age Group (1 = Young-Old, 2 = Old-Old)	-.853	.745	-.053	.253	
Living Area (rural)	.062	.881	.003	.944	
Living Area (urban)	-1.52	.8	-.09	.058	
Perceived Safety Day	.393	.762	.027	.606	
Perceived Safety Night	-1.062	.405	-.141	.009	
Enjoyment in Being Outside	-.893	.385	-.118	.021	
Inspiration by Neighborhood	-.173	.361	-.025	.631	
Disability Status	.152	.027	.273	< .001	

Note: Living area was represented as three dummy variables with suburban serving as the reference group.

Germany walked as much as they drove (36.5% for both), this was not the case in the United States (81.1% drove, 3.4% walked). For US residents, grocery stores were generally further away than for Germans (see Table 2). Similarly, more participants in Germany than in the United States reported that they had a public transportation stop within one mile of where they lived. This disparity was even greater among those living in rural areas.

3.2.4. Services and amenities

Services and amenities were generally more available in Germany than in the United States, especially in urban and suburban areas. Across all living areas, more participants in Germany than in the United States indicated that senior centers (67.4% vs. 60%, $\chi^2 = 24.31$,

$p < .001$), cultural events (54.6% vs. 46.6%, $\chi^2 = 135.14$, $p < .001$), lectures and classes (44.9% vs. 32.9%, $\chi^2 = 31.56$, $p < .001$), shopping services (52.9% vs. 39.4%, $\chi^2 = 12.88$, $p = .002$), and excursions (41% vs. 28%, $\chi^2 = 20.33$, $p < .001$) were available to them. There was no difference in availability of exercise groups overall, but more were accessible in rural Germany than the rural United States (63.5% vs. 37.3%, $\chi^2 = 8.01$, $p = .005$).² Among those who indicated that a service was available, Germans were more likely to go to cultural events (70.2% vs. 52.8%, $\chi^2 = 8.91$, $p = .003$), exercise groups (43.8% vs. 28.4%, $\chi^2 = 9.21$, $p = .002$), and excursions (57% vs. 30.6%, $\chi^2 = 13.51$, $p < .001$). Participants in rural areas of Germany were also more likely to use senior centers than in rural areas of the United States (47.1% vs. 20%, $\chi^2 = 5.68$, $p = .017$).

In Germany, old-old participants were more likely to use shopping services (42.3% vs. 18.5% in the US) than young-old participants (11.7% vs. 19.3% in the US), but shopping services were used the least overall (18.6%). This is consistent with our findings on online shopping. Most participants did not buy groceries online but instead bought them in stores (97.4% in the US, 98.7% in Germany) because many of them (45%) preferred to see or touch groceries, especially produce and meat. Nearly twenty percent (18.8%) preferred to go to the store by themselves, either to get out of the house or for social contact (see Appendix A for a complete overview of results related to services).

4. Discussion

The purpose of this study was to evaluate neighborhood characteristics and how these relate to physical and emotional needs as well as out-of-home behavior of older adults in two different countries. Our results add to the body of knowledge in environmental gerontology by not only providing empirical validation for theoretical models and assumptions, but also by adding a cross-cultural perspective. In general, our results show that differences between countries were more pronounced than differences between age groups or living areas, indicating that cultural influence is a key aspect of needs assessment for neighborhood design. In line with the literature (e.g., Golant, 2015; Wahl & Oswald, 2010), participants' needs spanned across various dimensions related to the physical, social and psychological environment, which we categorized into global, local, and social needs. The literature in environmental gerontology also points to the close links between physical, social, psychological and cultural environments (e.g., Peace et al., 2007), which we addressed in this study.

4.1. Needs and need fulfillment

There were no general differences between countries regarding *global needs* ratings, which included various aspects of safety (including health, finance, cleanliness and a positive atmosphere) and were rated as the most important overall. Feeling safe in one's environment is not only one of the most basic human needs (Maslow, 1943), but is also reflected in Golant's (2015) residential normalcy model, in the category of residential mastery emotional experiences (e.g., competency, control, autonomy). According to the literature (e.g., Peace et al., 2007), a person-environment misfit of basic needs may result in reduced behavioral autonomy. Feelings of residential mastery may directly influence feelings of residential comfort emotional experiences (e.g., pleasure, comfort, freedom of hassles) and some aspects of these global needs may be reflected in both categories of Golant's model. For example, affordability may result in feelings of control and autonomy, which then leads to a freedom of hassles. What we labeled as global needs includes rather abstract concepts, which underscores the importance of needs beyond the concrete physical aspects of the neighborhood.

Previous research in eastern and western European countries has highlighted that for older adults, the fulfillment of basic needs (i.e., food, health, savings) is essential, while the availability and proximity of bus or tram stops, for example, was less important overall (Mollenkopf, Marcellini, Ruoppila, Szeman, & Tacken, 2005). This was also reflected in our results, and while the need to fulfill global needs was equally important in both countries, we found differences for *local needs* related to the immediate neighborhood. Germans rated local needs, such as the built environment, services and amenities, and public transportation, as being more important than Americans. Those more concrete needs are mostly reflected in the process of agency (Wahl & Oswald, 2010), which is behavior-based and includes control beliefs as well as environmental proactivity. *Social needs* (being close to friends and family) were categorized as a separate dimension and were also rated as more important by Germans than Americans. At the same time, however, being closer to the family was among the top three reasons Americans gave for moving (in addition to health services being close by and safety of the neighborhood), while having shopping and public transportation close by (in addition to health services) were Germans' top three reasons to move. Social needs are reflected in the process of Belonging (Wahl & Oswald, 2010).

In sum, the distinction of needs we found cannot be directly mapped onto the environmental gerontology models introduced in the beginning, but we suggest that aspects of Golant's model include more abstract global needs, while Wahl and Oswald's model is more useful to represent concrete needs referring to the local environment and social connections. Beyond these models, Maslow's hierarchy of needs is also a useful approach to reflect our findings with the highest ranking of safety needs, followed by love and esteem (Maslow, 1943).

In general, Germans seemed to have higher expectations of their immediate living environment to fulfill their local needs. Most of the items in this category were also more available in the Germans' current living environments (as opposed to the Americans'), such as sidewalks, services (including senior services, cultural activities and classes), shopping destinations or a public transportation stop nearby. Thus, there seems to be a better match between local needs and actual living situation in Germany, but it is possible that participants wished for amenities they are already used to. Germans also showed more proactive behavior in using the services that were available. However, being more focused on driving, Americans may generally depend less on their immediate neighborhood to fulfill their needs, because they are used to traveling longer distances when running errands or meeting friends, for example. This is reflected in the finding that 85% of Americans in the sample drive to get groceries as opposed to 55% of Germans. At the same time, grocery stores and public transportation stops are closer and more accessible for Germans than Americans, especially in rural areas.

As people age, their physical abilities tend to decline. According to Lawton's (1982) environmental press model, aging is therefore likely to result in an increase of environmental stress due to a decrease in personal competence to compensate for environmental challenges. This is only partly reflected in our data. Local needs increased with age, but only among the US sample and not in the German sample. This may be due to the smaller sample size among the German old-olds. But it may also be possible that Americans, who were used to driving their car in order to fulfill their needs and are less able to do so when they get older, become more aware of the fact that their immediate neighborhood is not able to fulfill their needs. This is also reflected in our finding of less amenities and less access to public transportation in the United States. At the same time, Golant (2015) stresses that needs depend more on individual factors and experiences rather than age groups.

4.2. Living situation and physical activity

Engaging in physical activity, such as walking, is related to better health. Previous work has shown that a walk-friendly environment is supported by stores and services close by (Chudyk et al., 2015; for an

² Chi-square analyses for availability were based on a comparison between "yes, available" and "no, not available" + "not sure."

overview see Cunningham & Michael, 2004) and the quality of sidewalks (Michael et al., 2009). Having both more stores close by and a higher quality of sidewalks, almost 25% of German participants in our sample indicated that they walk to the grocery store as opposed to about 9% of US participants. In line with that, pedestrian friendliness was valued more highly in Germany than the United States, again this may stem from being more used to a walk-friendly environment.

Germans also reported spending more days out of their homes and indicated that they felt more inspired by their neighborhood to do so. In contrast, participants in the United States reported spending more hours per day outside. This could represent a different pattern of organizing everyday life activities. It may be possible that participants in the United States run more errands in one day, while Germans prefer to do those more often. This claim would be supported by the different infrastructures: While Germans often live in walking distance to grocery stores or are more likely to have access to public transportation, Americans drive to the store, which also tends to be further away. Rather than driving or having to find a ride multiple days of the week, Americans may attempt to make multiple trips in one day. This may result in fitting a week's worth of errands into one or two days.

We found that more days out of the home (but not hours per day out of the home) were associated with lower disability scores, greater enjoyment in being outside and more inspiration to leave the house. This is consistent with research suggesting that spending fewer days out of the home is related to less physical activity, more social isolation, and greater mental health problems like depression (Barnett & Gotlib, 1988). Our results underscore that healthy aging may be more related to the frequency rather than the length of being outdoors. This, in turn, calls for a neighborhood design that supports frequent trips outdoors, for example by placing stores, services and amenities in walking distance. This is reflected in the process of agency in Wahl and Oswald's (2010) model. However, while Germans in our sample were more environmentally proactive, which was also supported more by their neighborhood, Americans in the sample were not generally less healthy. Studies conducted in small towns in the United States have shown that residents there walk less for utilitarian purposes, but more for recreational purposes (Stewart et al., 2016; Van Dyck et al., 2013). Despite spending more days outside and a greater preference for walking and biking, disability scores were in fact higher among German old-old participants than their American counterparts. However, the subsample of German old-old participants was rather small, which could be a reason for this deviation and is also a reason why this result cannot be generalized. Disability scores generally increased with age – indicating greater problems in everyday functioning as people get older. We expected, in turn, greater environmental press with age, resulting in less time and fewer days out of the home, as suggested by environmental gerontology models (e.g., Golant, 2015; Wahl et al., 2012). However, while we did not find significant age differences regarding the time spent out of the house, old-olds were less likely to enjoy being outside and less inspired to leave the house than young-olds.

4.3. Limitations

While generalizations across countries cannot be made, we were interested in getting an idea of differences that should be further

Appendix A. Availability and Use of Services

Table 1
Availability and use of different services by country and living area

	Availability n (%)				Use n (%)				
	Overall	US	Germany	Chi ²	p-value	Overall	US	Germany	Chi ²

Rural

investigated in future studies. In addition, the old-old age group in Germany was smaller than in the United States, which undermines comparisons across age groups.

There are continuing questions about whether online data collected from older adults capture a representative sample. The number of older adults who use the internet in their daily life has greatly increased over the last years (Perrin, 2015; Statistisches Bundesamt, 2015). Nevertheless, internet use is not universal among those ages 70 and older due to both lack of access to the internet itself and necessary technology. Some studies stress benefits such as that home-bound older adults can be reached (Lieberman, 2008). Other research suggests that the technology is too much of a burden and excludes too many people, instead collecting data from “best-agers.” The overall theme is that the quality of the data strongly depends on the content, the geographic region, and the target group (Remillard, Mazor, Cutrona, Gurwitz, & Tjia, 2014). Thus, more data is needed to examine whether this sample mirrors the larger age group. We draw some support from the WHO disability questionnaire, as our data did not indicate that our sample only represents “best-agers.”

5. Conclusion

The needs of older adults regarding their neighborhood are manifold and cannot be reduced to objective features. Models in environmental gerontology point to the importance of the feeling of being in control of one's life (i.e., agency and residential mastery) on the one hand, and experience belonging and place attachment (i.e., belonging and residential comfort) on the other hand, to support well-being in older age and aging-in-place. Research has also highlighted that residential normalcy may look very different for different people. Our data adds to this by suggesting to consider the cultural background of residents, especially differences in the built environment with which they are accustomed. Americans may reach residential mastery by having access to a car, ride-sharing or taxi services, while Germans may reach residential mastery by having shops and amenities in walking distance. And while neighborhoods should be designed in a way that encourages people of all ages to leave their house every day to promote physical activity and social interaction, this may be encouraged in very different ways in different countries. Americans may be encouraged by recreational opportunities, while Germans may prefer to be physically active when doing their grocery shopping. More cross-cultural studies are needed in order to formulate guidelines that help to design neighborhoods that support healthy aging. These aspects become increasingly important for an aging population that wishes to stay in their communities and age in place.

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Table 1 (continued)

	Availability n (%)					Use n (%)				
	Overall	US	Germany	Chi ²	p-value	Overall	US	Germany	Chi ²	p-value
Senior centers	69 (58.0)	35 (52.2)	34 (65.4)	2.08	.15	23 (33.3)	7 (20.0)	16 (47.1)	5.68	.017
Cultural events (e.g., theater, movies)	34 (28.6)	16 (23.9)	18 (34.6)	1.67	.199	21 (61.8)	10 (62.5)	11 (61.1)	0.01	.934
Lectures and classes (life-long learning)	28 (23.5)	10 (14.9)	18 (34.6)	6.31	.012	7 (25.0)	3 (30.0)	4 (22.2)	0.21	.649
Exercising groups	58 (48.7)	25 (37.3)	33 (63.5)	8.01	.005	21 (36.2)	5 (20.0)	16 (48.5)	5.00	.025
Shopping service	37 (31.1)	14 (20.9)	23 (44.2)	7.44	.006	5 (13.5)	1 (7.1)	4 (17.4)	0.78	.377
Excursions (e.g., museums)	28 (23.5)	8 (11.9)	20 (38.5)	11.45	.001	12 (42.9)	1 (12.5)	11 (55.0)	4.22	.04
Suburban										
Senior centers	182 (66.7)	116 (61.4)	66 (78.6)	7.74	.005	59 (32.4)	35 (30.2)	24 (36.4)	0.74	.391
Cultural events (e.g., theater, movies)	144 (52.7)	90 (47.6)	54 (64.3)	6.48	.011	86 (59.7)	46 (51.1)	40 (74.1)	7.40	.007
Lectures and classes (life-long learning)	112 (41.0)	73 (38.6)	39 (46.4)	1.46	.226	35 (31.3)	20 (27.4)	15 (38.5)	1.45	.229
Exercising groups	193 (70.7)	127 (67.2)	66 (78.6)	3.63	.057	72 (37.3)	44 (34.6)	28 (42.4)	1.12	.29
Shopping service	123 (45.1)	75 (39.7)	48 (57.1)	7.16	.007	19 (15.4)	11 (14.7)	8 (16.7)	0.09	.765
Excursions (e.g., museums)	96 (35.2)	57 (30.2)	39 (46.4)	6.75	.009	47 (49.0)	20 (35.1)	27 (69.2)	10.80	.001
Urban										
Senior centers	363 (62.9)	210 (62.8)	109 (58.2)	0.40	.529	27 (24.1)	14 (23.7)	13 (24.5)	0.01	.921
Cultural events (e.g., theater, movies)	109 (58.9)	57 (60.6)	52 (57.1)	0.23	.629	66 (60.6)	30 (52.6)	36 (69.2)	3.14	.077
Lectures and classes (life-long learning)	77 (41.6)	32 (34.0)	45 (49.5)	4.52	.034	23 (29.9)	11 (34.4)	12 (26.7)	0.53	.466
Exercising groups	113 (61.1)	59 (62.8)	54 (59.3)	0.22	.633	34 (30.1)	11 (18.6)	43 (42.6)	7.69	.006
Shopping service	98 (53.0)	49 (52.1)	49 (53.8)	0.06	.815	24 (24.5)	14 (28.6)	10 (20.4)	0.88	.347
Excursions (e.g., museums)	34 (37.4)	33 (35.1)	34 (37.4)	0.10	.75	24 (35.8)	9 (27.3)	15 (44.1)	2.07	.151
Overall										
Senior centers	363 (62.9)	210 (60.0)	153 (67.4)	24.31	< .001	109 (30.0)	56 (26.7)	53 (34.6)	2.68	.102
Cultural events (e.g., theater, movies)	287 (49.7)	163 (46.6)	124 (54.6)	135.14	< .001	173 (60.3)	86 (52.8)	87 (70.2)	8.91	.003
Lectures and classes (life-long learning)	217 (37.6)	115 (32.9)	102 (44.9)	31.56	< .001	65 (30.0)	34 (29.6)	31 (30.4)	0.02	.894
Exercising groups	364 (63.1)	211 (60.3)	153 (67.4)	3.36	.186	127 (34.9)	60 (28.4)	67 (43.8)	9.21	.002
Shopping service	258 (44.7)	138 (39.4)	120 (52.9)	12.88	.002	48 (18.6)	26 (18.8)	22 (18.3)	0.01	.917
Excursions (e.g., museums)	191 (33.1)	98 (28.0)	93 (41.0)	20.33	< .001	83 (43.5)	30 (30.6)	53 (57.0)	13.51	< .001

Notes: Entries in country columns and overall are number of cases, percentages are stated in parentheses. Chi-square analyses were based on US vs. Germany. Chi-square analyses for availability were based on a comparison between “yes, available” and “no, not available” + “not sure.”

Table 2
Use of services by country and age group

	Use of Services n (%)				
	Overall	US	Germany	Chi ²	p
<i>Young-Old</i>					
Senior centers	66 (30.3)	25 (25.8)	41 (33.9)	1.678	0.195
Cultural events (e.g., theater, movies)	114 (62.6)	41 (51.3)	73 (71.6)	7.909	0.005
Lectures and classes (life-long learning)	34 (24.8)	11 (20.0)	23 (28.0)	1.143	0.285
Exercising groups	83 (36.6)	26 (25.2)	57 (46.0)	10.419	0.001
Shopping service	22 (14.6)	11 (19.3)	11 (11.7)	1.645	0.2
Excursions (e.g., museums)	56 (46.7)	11 (25.0)	45 (59.2)	13.104	< .001
<i>Old-Old</i>					
Senior centers	43 (29.7)	31 (27.4)	12 (37.5)	1.211	0.271
Cultural events (e.g., theater, movies)	59 (56.2)	45 (54.2)	14 (63.6)	0.627	0.429
Lectures and classes (life-long learning)	31 (38.8)	23 (38.3)	8 (40.0)	0.018	0.895
Exercising groups	44 (32.1)	34 (31.5)	10 (34.5)	0.094	0.759
Shopping service	26 (24.3)	15 (18.5)	11 (42.3)	6.055	0.014
Excursions (e.g., museums)	27 (38.0)	19 (35.2)	8 (47.1)	0.773	0.379
Number of cases		577	350	227	

Notes: Entries in country columns and overall are number of cases, percentages are stated in parentheses. Chi-square analyses were based on US vs. Germany.

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