

Evaluating the Impact of Social Conurbation on Older Adults' Public Health

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Biography

Mehran Madani is currently a Doctor of Design Candidate (ABD) at Washington State University – IDI (Interdisciplinary Design Institute). He holds a Master's Degree in Landscape Architecture from University of Toronto where he received the 2002 UTAPS Award (a Scholarship from the Department of Architecture, Landscape and Design – University of Toronto). He also was honored to receive the prestigious ASLA 2006 research award, for his study which conducted an interdisciplinary approach demonstrating a link between the invitation quality of built environment and older adults' outdoor social activities. Mehran has also published several articles in Urban Land Magazine, Landscape Architecture Magazine, Research Book of the Danish Design School, Common Ground Publisher, and the Environmental Design Research Association (EDRA) emphasizing the influence of built environment affordances on the public life and public health of older adults.

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Abstract

The current lack of literature on older adults' public health related to the socio-spatial geography, and social activity suggests more research is needed to understand the complex set of factors that impact how different aging population groups react to various spatial aspects of their surrounding environments (spatial geography), and social environment settings (social geography) in regard to their public health. Accordingly, the intention of this research is to review the current literature about human geographical location, built environment facets, social geography, social activity characteristics, and health geography to determine, first, how different urban forms (urban and Suburban) affect the frequency of older adults' social activities as a form of physical daily activity, and , second, how older adults' social activity arrangements (daily public life) might be important for improving their public health and well-being, third, how the public health considerations in this research might reorient policy makers thinking toward the realization of a supportive urban form to contemplate possible improvements of current urban planning and design guidelines.

Significance of Study

Suburbanization and urban sprawl generally refer to automobile-dependent communities on the outer reaches of metropolitan areas characterized by homogeneous land uses, less physical activity, the absence of walk-able environments, and the risk of pedestrian fatalities. Although suburban life is seen by many observers as the antithesis of community and residing in a neighborhood, there is more chance for addressing social components of a community when conurbation happens for those suburbs. Consequently, this type of suburbanization produces new environments, new types of people and new ways of life; however, there is little research assessing how these new environments will affect the social activities of older adults.

The term "conurbation" was coined in 1915 by Patrick Geddes in his book "Cities In Evolution." By this term, he drew attention to the ability of the new technology to allow the cities to spread and agglomerate together. Relatively, the author in this current study has coined the term "social conurbation" which refers to a phenomenon, occurring in the juncture of suburban communities' social geography in metropolitan area through a shift of geographical population from urban area to the suburb. So, by the growth and expansion of the physical

infrastructures and change in spatial geography, the socio-behavioral settings and social network of those communities are also merged to form a continuous social geography. In most cases, social conurbation is polycentric social networks, in which infrastructure has been developed and has the capability to link suburban communities, sprawled neighborhood public life, or dispersed shopping centers social activities. In this research the author studies the social conurbation phenomenon to explore the relationships between the built environment attributes, social activity, and social network of older adults, residing in assisted living facilities, in communities located in the juncture of suburban neighborhoods to find out if we can call them community.

The intellectual merit of the research lies in evaluating the impact of social conurbation on older adults' social interactions and transactions in their immediate community, in spite of, living in their own residence (age in place) or relocating into the institutions (care facilities). Therefore, the author tries to form the theory of social conurbation for older adults, encompassing an interdisciplinary study, to determine how older adults' built environment can maximize opportunities for positive experience of social activities and public health as consequences.

- *Research Background*

1) Fast growing population of older adults as a significant population cluster in contemporary society: Since the transition from an industrial society to today's information age, there has been significant world-wide progress in enhancing both personal and public health resulting in increased longevity and a greater life expectancy (Hodge, 2008). Demographers predict that by the mid twenty-first century people age 65 and over will compose about 15 percent of the world's population, twice what it is currently (Abbott, 2009). This aging cohort has a faster growth in developed countries such as Japan, Italy, Sweden, Canada, and the United States. "The United States aging population, age 65 and over, will be around 72 million in 2030, twice the number of 2000" (Abbott, 2009, p.23). While the aging population will face physical and mental challenges that may restrict activities by limiting mobility, agility, hearing, seeing, and speaking (Birren, 1991), Weiss and Bass (2002) believe that aging in society is a dynamic and adaptive phenomenon best understood as an outcome of ongoing interactions and transactions among a complex set of interdependent public health factors that include physical environments, socio-behavioral characteristics, and emotional wellbeing. This study offers an opportunity to assess the reciprocal relationships among these factors on independent and semi-independent older adults.

2) Change in the household organization of American families: Cantor (1991) argues that the structure of the American family has become more "vertical" as family size decreases, adult children leave the home, and grandparents become more independent from younger family members (as cited in Knox, 1995). As horizontal relationships that form strong interpersonal ties are weakened, older adults rely more on extra-familial social and health services, thus forming relationships with caregivers rather than depending on their family members. Knox (1995) asserts that these changes in family structure increase the socio-spatial differentiation between older and younger members of the family. Changes in family structure, therefore, create a seemingly paradoxical situation for independent elders in which independence is an indicator of both wellbeing and social isolation. Empirical data are needed to unravel this paradox so that reasonable solutions to maximize adult public health can be identified.

3) Social and physical dynamics of urban form: Urban form is a general term that refers to the amalgamation of towns and cities. Urban form is defined by such terms characteristics as density, concentration, levels of connectivity, centrality, diversity, mixed uses, and proximity (Frank and Engelke, 2009). Thus different manifestations of urban form will vary in the degree to which they reflect these characteristics. Suburbanization as an aspect of urban form describes the

growth of areas on the fringes of major cities. Currently more than half of the US population lives in “the suburbs” (Palen 2008). A consequence of continued suburbanization, however, is “urban sprawl” (Frumkin, Frank, and Jackson, 2004). “Sprawl” refers to automobile-dependent communities on the outer reaches of metropolitan areas characterized by homogeneous land uses, less physical activity, the absence of walk-able environments, and the risk of pedestrian fatalities (Frumkin, 2004). According to Knox (1995) the creation and reshaping of the physical fabric of the urban form (morphogenesis) leads to a change in the context of urban social geography. The relationship between spatial aspects of urban form and the social wellbeing of older adults has not been adequately explored.

4) Spatial impacts of urban form and the built environment on the capacity of older adults’ social capital: An integral element in all urban forms is the built environment. In this project we propose to study the built environment as a medium of communication for older adults. According to Schneider (2010), physical geography of neighborhoods impacts the people who live there and fundamentally affects their perceptions of the built environment. The built environment is an expression of not only human attempts to fulfill personal and societal needs and wants, but also personal and collective values and aspirations. Schneider’s (2010) work identifies the social dynamics of a neighborhood’s capacity to create social capital. It is important, therefore, to examine the relationship between the built environments that reflect urban form and their capacity to enable the development of social networks that enhance access to resources that increase wellbeing of older adults.

5) Change in the physical geography of older adults: According to Hodge (2008), Americans 65 and older living in urban areas were evenly distributed between the city core and suburban areas as recently as 1977. Current data, however, reveal that the number of older adults living in the suburbs of metropolitan areas now exceeds the number living within the city (Census, 2000), consistent with the geographical redistribution of the general population.

- *Improvement in scientific knowledge*

1) Assessing public health of older adults from a socio-spatial perspective: Dummer (2008) argues that the location and nature of environmental features, lifestyle, functional interaction with the social, built and natural environments, and the arrangement of health services are crucial in assessing the interrelations inherent in many health-related risk exposures. He also emphasizes that the growth of cities causes significant changes in the built environment and continues to have a profound effect on health and well-being of its citizens. There is evidence that policy decisions and spatial factors influence the structure of built environments and reinforce the shift to suburban areas which leads to socio-cultural shifts that affect physical, social, and health geographies (Dummer, 2008; Frumkin, Frank, and Jackson, 2004). Dummer (2008) asserts public health and health policy is best informed by understanding the linkages among place, well-being and disease. In a similar definition, Clarke & Nieuwenhuijsen (2009) believe public health is shaped by complex interactions between individuals and the environments in which they live, work and play. Clarke & Nieuwenhuijsen (2009) also emphasize that environments embrace urban physical settings (physical environment), attitudes and relationships with others (social environment), as well as political systems and policies. Yet, the majority of studies in this area do not focus on older adults, even though older adults are particularly susceptible to the characteristics of their local environments.

2) Research approaches: The case studies call for additional research to implement practical solutions to complex social problems. The results of our examination of older adults’ public health in both social and physical geographic contexts encourage the use of two research strategies with applied foci. The first is to utilize methodologies associated with the field of

health geography. According to Dummer (2008), “advances in multi-level modeling, geographic information systems and spatial analysis further supports research investigating the relative influence of individual and community level health risks within a unified framework” (p. 1179). The second in utilization of Health Impact Assessments, which provide data on the health impacts of proposed policies or programs. Linking these techniques to research studies such as mine Helps to bridge the gap between theory and practice.

3) Advantages to interdisciplinary approaches: This case study approach to assessing the environmental and social contexts of supportive facilities in which independent and semi-independent older adults reside enables a more holistic approach to the assessment of the relationships among space, place and the public health of older adults. It has the potential to contribute to multiple literatures that share similar goals to increase the functional capacity of older adults, but have approached the problem from a more discipline-specific perspective. Informed by studies from urban planning, urban design, public health, sociology, and gerontology, our proposed research suggests interdisciplinary approaches to understanding complex social phenomena provide a scholarly synergy not possible in more discipline specific studies. Past research has shown that there is a relationship among the health and wellbeing of older adults and their physical and social geographies. What this study offers is an assessment of the interactional and transactional processes that structure built environment affordances that acknowledge the role older adults play in maintaining social, physical and public health.

Innovation

- *Paradigm Shifts*

1) Re-conceptualizing the importance of place for older adults: Some scholars have initiated the notion of a paradigm shift in the contemporary theory of urbanization which encourages people to migrate back to the inner cities instead of fragmenting the population in outer urban areas. Frank and Engelke (2009) argue that modern exclusionary zoning regulations, requiring greater travel distances between where people live, work, and play, may counter the original health intent imbedded within the Zoning Enabling Act, which granted cities with the power to regulate the use, type, placement and density of structures within a given jurisdiction. Density and land use together determine the geographic proximity between activities, whereas street connectivity affects the ease of access between activities (Frumkin, Frank, and Jackson, 2004). However, it remains uncertain what geographic scale, density, and type of land use should be measured and what an “ideal” combination of uses would be maintained within differing urban forms (Frank & Engelke, 2009). This study is aligned with this shift and attempts to provide further support for the city as a more appropriate environment for the health of older adults.

- *Innovation and improvements on the application of theoretical concepts*

1) Convergent insights of design, public health and sociology: The interdisciplinary approach to examining the relationship between urban form and social wellbeing of older adults enables the emergence of convergent insights from three theoretical perspectives. For example public health theorizes the relationship between the design of the built environment and its positive or negative impact on physical activity and social integration of older adults in terms of population based outcomes – healthy communities, health promotion, disease prevention, cost containment. Urban design scholars contribute to the conceptualization of this relationship by contributing insights such as the role of affordances in enabling positive health outcomes of design decisions. Sociologists add their theoretical assumptions about the self as a social construct in relation to the individual and her/his social environment. By integrating the convergent insights of these approaches this study suggests a more comprehensive understanding of the interactional dynamics between older adults, urban form, and physical/social/health geographies.

Approach

- ***Research design***

1) **Embedded case study:** Yin (1994) argues that the case study allows an investigation to retain the holistic and meaningful characteristics of real-life events such as individual life cycles, organizational and managerial processes, neighborhood change, and national and international relations. As an empirical inquiry, case studies enable the investigation of contemporary phenomena within real-life context, especially when the boundaries between phenomena and context are not clearly evident (Yin, 1994). An embedded case study design was selected for use in this project. Embedded case studies enable researchers to capture the complexity of social interrelationships by allowing for multiple units of analysis (Yin, 1994; Caronna et al. 1997). In the proposed research older adults living in selected supportive facilities are identified as “cases” embedded in socio-spatial contexts.

2) **Case selection:** **Urban form:** One of the goals of the study is to understand how the existing spatial distribution of the aging population impacts older adults’ public life, this study will select facility and individual cases from two distinct urban forms, inner city, inside growth development boundary; and, suburban area, from two major metropolitan areas in two West Coast States – Portland (OR) and Seattle (WA). **Facilities:** Eight facilities will be selected: four per metropolitan area – two located in the inner city and two in the suburban area. Facilities will be selected using geographic information system (GIS). Only facilities designed for functionally independent (use of outdoors without any assistance) or semi-dependent (use of outdoors with or without supervision and with some device like a cane, wheelchair, or walker) older adults will be selected, such as “assisted living” facilities that provide minimum support to accomplish activities of daily living. Although matched cases are not possible, facilities will be similar enough to collect appropriate comparative data. **Individuals:** Thirty individuals in each of the settings (total 240) will be selected to complete questionnaires using purposive and maximum variation sampling (Carbtree & Miller, 1999). An additional 40 individuals (five per setting) will be recruited for participation in photovoice. *Photovoice is a participatory action research tactic by which people creates and discusses photographs as a means of catalyzing personal and community change (Wang 1998). It is important to note that photovoice techniques produce qualitative data that rely on participants’ ratings of the built environment qualities to validate built environment measurements, which may not correspond to the visual preferences of professional observers.

3) **Data collection:** Washington State University Institutional Review Board approval will be obtained prior to the beginning of this research. Data will be collected from each of the cases and contexts identified above. Two general sets of data will be collected from each context: those measuring physical geography and those measuring social geography. Data measuring the physical geography of both urban form and their embedded facilities will be collected using GIS urban measures such as residential density, land use, street connectivity, proximity to physical activity resources, and public transit access (Papas et al., 2007). Data on social geography will be collected through the survey questionnaires, participant-observation, and photovoice* technique to verify the quality of spatial parameters, urban features, quality of the built environment affordances, the number of hours that residents spend outdoors, the types of outdoor activities, and the types and quality of older adults’ social transactions. Demographic data will be collected from both the participant and facility records.

4) **Data Analysis:** All quantitative data will be analyzed using GIS. All GIS measures will be constructed using ArcGIS 9.2 and ArcView 3.3. to provide diagrams of spatial features and to measure block face characteristics. Also, GIS provides visual definitions of the most commonly

used geometries such as streets and sidewalks lines, blocks, tax lots, block face lines, building footprints, and building frontage lines (Purciel et al., 2009). Use of GIS enables comparison of the associations between factors of physical geography, such as built environment affordances, and socio-behavioral activities of study participants. In the absence of GIS equivalents for some physical settings more context-dependent spatial data may be included and some organizational features which are not well-measured will be omitted (Holahan & Sorenson, 1985; Lynch, 1960). Text-based qualitative data will be managed with NVivo8 software to organize and analyze complex non-numerical information. Initial observational will be open coded to enable identification of common themes (Lincoln & Guba, 1985).

The association between each of the spatial geography variables and social and physical activity patterns will be tested after adjusting for individual-level correlates of older adults' self-reported health status indicators. Multilevel regression models will be used to test the association of urban form's level of social cohesion with physical activity applicable to the older adults' health quality. While this may be an optimal analytic strategy, its power may be limited by the small number of participant cases. The individual level of data such as age, sex, education, income, marital status, years of residence in the neighborhood, and self-reported health status are considered nested within social interactions and transactions as defined by census block groups, and models. The data are specified with a random selection for the heterogeneity in physical activities in various urban forms. In the process of data analysis, three-way interactions among the variables will be tested. The first is the correlation between physical geography and social activities; second will measure the relationship between social activity and physical activity; and third will analyze the association of social activity and public health (a composite variable of measures of social interaction, health status, and network ties) will be tested to retain the theoretical model for possible amendments to the future urban planning and design guidelines according to health considerations. The credibility and validity of the data will be established by peer debriefing, which presents analyses and conceptual abstractions of the data to other experts to explore the investigators biases and to clarify meanings and interpretations. Member checks which presents the analysis of data to selected participants for their confirmation or revision will be performed (Lincoln & Guba, 1985).

5) Research limitations: Because these data are cross-sectional, they cannot directly capture the time-space continuum inherent in the process of ongoing social transactions for which a longitudinal design is better suited. Giddens (1984) suggests, however, that although social research must be "sensitive to the time-space constitution of social life," attending to "the contextual features of locales through which actors move in their daily paths and the regionalization of locales stretching away across time-space" (p. 286) enables the analysis of social activities to occur. The embedded case study design that enables collection and analysis of data on multiple units of analysis from both cases and contexts is intended to provide the "sensitivity" Giddens (1984) finds necessary in conducting research on social life.

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