University of Colorado Colorado Springs

Aging in Place in an Intergenerational Housing Community

White Paper for the Colorado Springs Community

2018-19

Clinical Geropsychology Team

JoAnna Dieker, MA

Katie Johanson, MA

Jennifer Roberts, MA

Lauren Schneider, MA

Katie Stypulkowski, MA

Allison Walden, M.Ed

Robert Wickersham, MA

Department of Psychology

University of Colorado Colorado Springs

Table of Contents

Executive Summary

With the rise of the Baby Boom generation, the number of older adults in the United States is rapidly increasing. Between the years 2012-2060, the overall U.S. population is projected to grow from 314 million to 420 million (Colby & Ortman, 2014). By the year 2030, individuals aged 65 and older will account for 20 percent of the population, which represents a seven percent increase from the year 2010 (Colby & Ortman, 2014). This trend can be expected to continue given that the oldest Baby Boomers started turning 65 in 2011 and will peak in 2029. With an increase in older adults comes a unique set of needs to ensure that this age group is receiving proper care. Housing is one area of need that deserves attention so that older adults have safe, appropriate spaces in which to age in a healthy manner.

The state of Colorado is making strides to become more accommodating to the needs of older adults. On September 18, 2018, Colorado became the third state in the U.S. to receive the designation of "age-friendly state" from the American Association of Retired Persons (AARP; Snyder, 2018). This is important because Colorado's population is growing; 460,000 people are expected to move to the state by the year 2020 (Kuwik, 2018). Presently, one out of every four Coloradans classify as a Baby Boomer. Within the state of Colorado, certain communities have an age-friendly designation; Colorado Springs is one such community (Kuwik, 2018). Creating and promoting affordable housing options for older adults is one component of being age-friendly. Colorado's designation as an "age-friendly state" indicates an awareness that changes need to be made to accommodate older adult residents.

Affordable Housing in Colorado Springs

Despite the designation of Colorado Springs as age-friendly (Kuwik, 2018), certain personal and economic factors influence the extent to which older adults can age in age-friendly,

affordable housing communities. For example, a focus group discussion sponsored by Silver Key Senior Services (2018) of Colorado Springs, Colorado indicated that sudden personal changes, such as loss of a spouse or medical events, can have detrimental effects on housing stability and increase the odds of experiencing homelessness. This is particularly salient for older adults on a fixed income who struggle to keep up with annual rent increases or who do not receive monthly income in congruence with rent due dates. Moreover, there are limited options for affordable housing for older adults in Colorado Springs, which have long waitlists and no guarantee of permanent housing. As a result of these housing challenges, older adults are "taking what they can get" (Housing Focus Group, 2018), living in unsafe neighborhoods with low accessibility and finding roommates with whom to share rent costs, which increases the risk of financial exploitation. While Silver Key Housing Navigators offer assistance with rent to ease housing transitions and help identify affordable properties for older adults (Housing Focus Group, 2018), a more stable solution to the community's affordable housing problem is integral to meeting older adults' needs and supporting aging in place.

A potential solution to the affordable housing crisis involves the development of intergenerational housing communities – structures that support people of all ages, encourage aging in place, and accept tenants of mixed incomes to increase affordability. Property developers in Washington, D.C. recently embraced a similar concept and are developing apartment units for "grandfamilies," or low-income grandparents raising grandchildren whose parents are experiencing problems related to the opioid epidemic (Delgadillo, 2018). Each private-entrance unit will include two to three bedrooms, and families will have access to outdoor space, community and fitness rooms, and a library. The developers aim to become a representative housing model that addresses affordable housing problems and provides support

for the increasing number of grandparents raising grandchildren (Delgadillo, 2018). We propose that an intergenerational living community can offer the same support for older adults within the Colorado Springs community.

Purpose and Scope of the Paper

This paper represents a group effort among Geropsychology graduate students to summarize and present best-practice evidence for, and advise the design of, an affordable intergenerational housing community in Colorado Springs. While we prioritize inclusion of evidence-based recommendations, we also include recommendations rooted in social-psychological theory and past successes of other intergenerational housing or programming projects. Social science research has not yet evaluated every element of an intergenerational housing community that impacts the well-being and positive affect of older adults, and the gold standard of research – the randomized controlled trial – is oftentimes unamenable to implementation in such settings. Thus, our recommendations are based on empirical literature when possible and on theory or findings from existing models when relevant.

As behavioral health consultants with specialty training and understanding of older adult mental health, we review and summarize evidence for the design of an intergenerational housing and neighborhood community with a specific focus on the factors that influence older adult well-being. We do not discuss in depth the affordability or financing of the community, instead focusing our review on best practices. The paper concludes with recommendations regarding internal and external architectural design; neighborhood design; the linkage of housing and social services; activities and programming; and staffing, governance, and structures. These recommendations are included throughout each chapter and again in Appendix A.

References

Colby, S. L., & Ortman, J. M. (2014, May). The baby boom cohort in the United States: 2012-2060. *Current Popular Reports*. Retrieved from U.S. Census Bureau: www.census.gov/prod/2014pubs/p25-1141.pdf

Delgadillo, N. (2018, September). D.C. Opens up an Affordable Housing Complex with Apartments for 'Grandfamilies.' Retrieved December 1, 2018 from https://dcist.com/story/18/09/14/dc-opens-up-an-affordable-housing-c/?cmp=EMC-DSM-NLC-LC-HOMFAM-20181003_LivableCommunities_SC4N_336300_485003-100318-F3-Grandfamilies-Text-CTRL-3267865&mi_u=19598610&mi_ecmp=20181003_LivableCommunities_SC4N_336300_485003&encparam=8Y%2fViifFyfow0yeKksecp7bisaaGt7qR0WJGAbkMjAY%3d.

Housing Focus Group. (2018, August). Housing Focus Group - Silver Key Senior Services. [PDF file].

Kuwik, A. (2018, October). Colorado's commitment to older adults. Retrieved from http://www.bellpolicy.org/2018/10/08/colorado-older-adults/.

Snyder, A. (2018, September 18). Governor Hickenlooper announces "Lifelong Colorado," designates Colorado as an AARP Age-Friendly State. Retrieved from https://states.aarp.org/governor-hickenlooper-announces-lifelong-colorado-designates-colorado-as-an-aarp-age-friendly-state/

CHAPTER I: THEORETICAL FOUNDATIONS

The purpose of this chapter is to summarize theories used throughout this white paper. These theoretical frameworks inform the recommendations and conclusions contained in this paper that are intended to support older adults' ability to age in place. When considering housing for older adults, it is important to create age-friendly spaces that allow for lifespan development and support healthy aging at all life stages. Age-friendly spaces meet the physical, social, and individual needs of older adults by allowing this population to age in place in their own respective communities (AARP, 2005; Snyder, 2018; Thomas & Blanchard, 2009). Factors that influence the ability to age in place include architectural structure; type of housing; neighborhood accessibility, inclusiveness, and reciprocity; social and physical sustainability; spaces for social connection and opportunities for active involvement in neighborhood events; access to social services; and meaningful community programs, all of which are informed by theory.

Aging in Place

Aging in place allows older adults to continue residing in their homes and communities of choice with some degree of personal independence rather than living in residential care communities (Rooney et al., 2016). Aging in place has been defined as the ability to stay in one's home or community as long as desired, even in the presence of age-related changes in health, social connections, and for many older adults, reduced financial resources (Ahn, Kwon, & Kang, 2017; Scharlach & Lehning, 2015). According to research conducted by the AARP (2005), 74 percent of adults over 50 years old report a desire or need to age in place. Consistent with the previous statistic, despite the increasing size of the older adult population, the percentage of older adults who live in long-term care communities and skilled nursing facilities

has remained stable since the 1970s (Scharlach & Lehning, 2015). The benefits of aging in place include maintaining a sense of attachment and identity that come from living in a familiar home and community where meaning has been created. Aging in place has the added benefit of lower cost when compared to living in long-term care (Lehning, Smith, & Dunkle, 2015).

One's ability to age in place requires adequate housing, which involves age-friendly design, as well as having a strong sense of attachment to one's home. It also involves having reasonable expectations that one will have the physical, cognitive, and mental health to continue home maintenance independently, through support from one's social network, or with the financial means to pay someone else to do the work (Ahn et al., 2017).

Another factor related to aging in place is the quality of community, to include availability of local services, social connections (e.g., support of family and friends), and one's sense of personal safety. As the population ages, the United States will experience a greater need for housing and community support that allows for aging in place, to include universal design features, building design that accommodates age-related change, safe environments, and community spaces that promote social connection. Age-friendly, livable spaces allow for lifespan development and support healthy aging at all ages (Pynoos, Caraviello, & Cicero, 2009). Further, meeting the living needs of older adults has the potential to meet the needs of all age groups, abilities, races, and ethnic backgrounds (see Biggs & Carr, 2015; Sharlach & Lehning, 2015).

Maslow's Hierarchy of Needs

A helpful model to guide the understanding of older adults' needs – including the need for affordable housing which supports aging in place – is Abraham Maslow's hierarchy of needs (1943). Maslow's hierarchy of needs comprises five areas of needs (physiological safety,

love/belonging, self-esteem, and self-actualization) that humans meet in ascending order to obtain a higher quality of life (1943). Being mindful of this model can have important implications for older adults. From a medical model perspective, the focus is on longevity rather than quality of life (McCarthy, 2013). However, a majority of older adults only want a long life if their quality of life is maintained. A study by Wang, Chen, and Chen (2016) with a Taiwanese sample indicated that older adults receiving home care services value physiological needs followed by security, self-esteem, love/belonging, and self-actualization. Understanding how older adults prioritize their needs is important for individuals working with this population and designing age-friendly living environments.

The ways in which older adults conceptualize each of Maslow's need areas is different from other age groups. McCarthy (2013) outlines how each of Maslow's needs relate to the experiences of older adults. Physiological needs are often the focus of caregivers; ensuring that a care recipient is fed and has shelter is the most basic level of need. While essential for survival, physiological needs alone are not enough to ensure a high quality of life. Security becomes increasingly important as older adults become more vulnerable from the aging process and health problems. Feeling connected to society (love/belonging) and having hobbies that increase self-esteem are key contributors to quality of life. Bearing in mind Maslow's (1943) hierarchy creates a balance between the medical model and psychological components that create a healthy environment for older adults. Truly, this framework highlights the importance of understanding the biopsychosocial needs of older adults, particularly in the context of how they relate to the environment.

Ecological Models

Now that the importance of aging in place has been clarified, the next appropriate step is to consider how the environment can facilitate or hinder this process. Much work has been done surrounding the importance of environmental factors on older adults' well-being, resulting in several different theoretical understandings of this relationship. These theoretical frameworks seek to understand the relationship between the environment, the individual, and their behavior, as well as the unique interaction between the person within their environment. Lawton (1975) created a representation of this relationship through the equation B = f(P, E, (PxE)), such that behavior is understood as a function of personal factors, environmental factors, and their interaction. This framework provides a useful base for conceptualizing further theories in this area.

In addition to this equation, Lawton and Simon (1968) proposed the environmental docility hypothesis. This framework posits that both the behavior and psychological well-being of an older adult changes over time. Specifically, as personal competence declines with age, the individual becomes more reliant on environmental factors to support daily functioning. Lawton (1999) illustrated this concept through the example of a two-story home with a single bathroom. An older adult may choose to spend time on the upper floor with the bathroom in order to have those facilities be accessible without necessitating the use of stairs. However, doing so may cause them to miss out on the enriching environment of downstairs, which contains the kitchen, dining room, living room, and front door. While someone who is fully mobile may not notice this impediment, adding a second bathroom on the first floor would likely have a large impact on the older adult's ability to enjoy these features and be engaged throughout the day. Thus, the environmental docility hypothesis encourages that behavior and well-being be addressed through environmental interventions in order to counteract older adults' disability (Lawton, 1999).

Another useful theoretical framework for understanding the intersections between person, environment, and behavior is the person environment congruence model put forth by Kahana (1982). This model proposes that the match between a person and an environment impacts well-being. Specifically, when the needs and capabilities of an individual fit well with the environment, less energy must be expended physically and emotionally to survive. The benefit of this congruence is that when energy for survival is conserved, it can then be allocated elsewhere to enhance well-being, such as in social relationships, hobbies, and health maintenance (Lawton, 1999). This congruence tends to fluctuate over time, with mild incongruence offering potential benefits for older adults when it is slightly above or slightly below the equilibrium (Lawton and Nahemow, 1973). When demands of the environment slightly exceed the competence of the individual, the individual experiences stimulation and is provided with opportunities for growth. This is known as the "range of maximum performance potential" (Lawton and Nahemow, 1973). Additionally, when the incongruence manifests such that demands are slightly below level of competence, the individual is provided with a chance for respite and mild relaxation within the "zone of maximum comfort" (Lawton and Nahemow, 1973).

Individually and cohesively, these theoretical understandings provide insight into the importance of considering environmental design for the well-being of older adults. Particularly as one ages in place, the environment becomes more likely to become a source of dependence, restricting or enabling certain behaviors. It also can affect well-being by serving as a drain on energy or facilitating its use in other life-enriching areas. Understanding the importance of these interactions will provide a foundation for interpreting the remainder of this report and how neighborhood design affects the well-being of older adults.

The Integrated Developmental Model of Aging

The Integrated Developmental Model of Aging (Scharlach & Lehning, 2015; Scharlach & Moore, 2016) expands on theories of person environment congruence (Kahana, 1982) using six related constructs: continuity, compensation, control, connection, contribution, and challenge/comfort. Specific to the well-being of older adults' housing, each of the six constructs helps older adults age in place by maximizing their use of the built environment and social opportunities.

Continuity

Older adults are often focused on maintaining their sense of self in spite of changes often beyond their control (e.g., physical and cognitive decline, diminished social network, etc.). With age-related decline, it becomes more important to create living environments that allow older adults to maintain their sense of continuity (e.g., familiar living spaces that feel like "home"). Research has shown that maintaining continuity is associated with greater life satisfaction (Scharlach & Moore, 2016).

Compensation

With increasing age, it is often necessary to adapt to age-related biopsychosocial changes by selecting activities consistent with one's goals and values and optimizing or adapting to current limitations in order to meet those goals (see Selection, Optimization and Compensation, Baltes & Baltes, 1990). Communities that support biopsychosocial compensation are associated with greater well-being in older age, especially in the presence of age-related decline (Romo et al., 2013; Trachtman et al., 2000).

Control

As physical and social environments become more difficult to navigate with age, older adults may actively engage in adaptations that provide greater control over their living

environments (Scharlach & Moore, 2016; see Schulz & Heckhausen, 1996). Primary control is based on changing the external environment to better achieve one's goals (i.e., goal striving; Shulz & Heckhausen, 1996). Older adults who are given control, especially in their housing environments (primary control) report greater levels of life satisfaction (Quadros-Wander, McGillivray, & Broadbent, 2014).

Connection

Meaningful relationships become increasingly important with age. However, with increasing physical and cognitive disability, meaningful social connection may become more difficult (Scharlach & Moore, 2016; see Socioemotional Selectivity Theory, Carstensen, 1993). Communities that facilitate more effective connectivity promote greater life satisfaction (Dumitrache, Rubio, & Rubio-Herrera, 2018).

Contribution

Older adulthood is associated with a reduction in opportunities to contribute economically (e.g., retirement, limited access to financial resources). Opportunities to contribute prosocially to one's community are associated with greater well-being (Scharlach & Moore, 2016). The Hope Meadows, Illinois project is one example of maximizing older adult community contributions (see https://hopemeadows.org). In the Hope Meadows community, older adults volunteer time mentoring foster children in exchange for reduced rent. The intent of Hope Meadows founders was to provide support for foster children; the project provided the added benefit of improving emotional well-being for older adults as well (National Public Radio, 2015)

Challenge versus Comfort

Optimal levels of environmental press, or the ideal level of challenge provided by the environment, have the potential to promote resilience and coping skills (Scharlach & Moore, 2016). Stark et al. (2009) evaluated the impact of environmental press on activities of daily living in older adults. They found that a small amount of environmental support (e.g., through minor home modifications), in contrast to the day-to-day challenges caused by environmental press, improved participants' ability to engage in activities of daily living for two years after home modifications were installed. Their findings suggests an appropriate balance between environmental support and stress can optimize older adults' ability to age in place.

Conclusion

The theories summarized in this chapter have been used to inform recommendations in the following chapters that facilitate aging in place for older adults. In considering housing options for older adults, it is universally beneficial to employ architectural structures, neighborhood design, and community systems that promote aging in place. The following chapters contain research and recommendations for creating an age-friendly community that supports aging in place for older adults. Topics include 1) internal living spaces that utilize universal design, 2) external spaces that promote health, privacy, and safety, 3) building and neighborhood design that promotes intergenerational social connection, 4) social and supportive services, 5) activities and programming that increase intergenerational contact and boost well-being, and 6) staffing, governance, and structures that meet older adults' biopsychosocial needs, maximize involvement in the community, and enhance residents' sense of purpose.

References

AARP (2005). Beyond 50.05: A report to the nation on livable communities creating environments for successful aging. Retrieved from https://assets.aarp.org/rgcenter/il/beyond_50_communities.pdf

Ahn, M., Kwon, H. J., & Kang, J. (2017). Supporting aging-in-place well: Findings from a cluster analysis of the reasons for aging-in-place and perceptions of well-being. *Journal of Applied Gerontology*. doi:10.1177/0733464817748779

Baltes, P. B., & Baltes, M. M. (1990). Psychological perspectives on successful aging: The model of selective optimization with compensation. In P. B. Baltes & M. M. Baltes (Eds.), *Successful aging: Perspectives from the behavioral sciences* (pp. 1-34). New York, NY: Cambridge University Press.

Biggs, S., & Carr, A. (2015). Age- and child-friendly cities and the promise of intergenerational space. *Journal of Social Work Practice, 29*, 99-112. doi: 10.1080/02650533.2014.993942

Carstensen, L. L. (1993). Motivation for social contact across the life span: A theory of socioemotional selectivity. In J. E. Jacobs (Ed.), *Developmental perspectives on motivation* (Vol. 40, pp. 209-254). Lincoln, NE: University of Nebraska Press.

Dumitrache, C. G., Rubio, L., & Rubio-Herrera, R. (2018). Extroversion, social support and life satisfaction in old age: A mediation model. *Aging & Mental Health, 22*, 1063-1071. doi:10.1080/13607863.2017.1330869

Kahana, E. (1982). A congruence model of person-environment interaction. In M.P. Lawton, P.G. Windley, & T.O. Byerts (Eds.), *Aging and the environment: Theoretical approaches* (pp. 97-121). New York, NY: Springer.

Lawton, M.P. (1975). Competence, environmental press, and the adaptation of older people. In P.G. Windley and G. Ernst (Eds.) *Theory development in environment and aging* (pp. 33–59). Washington, DC: Gerontological Society of America.

Lawton, M.P. (1999). Environmental Design Theories and the Well-Being of Older Persons. In M. Duffy (Ed.) *Handbook of counseling and psychotherapy with older adults* (pp. 350-363). New York, NY: Wiley.

Lawton, M.P., & Nahemow, L. (1973). Ecology and the aging process. In C. Eisdorfer & M.P Lawton (Eds.), *Psychology of adult development and aging* (pp. 619-674). Washington, DC: American Psychological Association.

Lawton, M.P., & Simon, B. (1968). The ecology of social relationships in housing for the elderly. *Gerontologist, 8*, 108-115

Lehning, A. J., Smith, R. J., & Dunkle, R. E. (2015). Do age-friendly characteristics influence the expectation to age in place? A comparison of low-income and higher income Detroit elders. *Journal of Applied Gerontology, 34*, 158-180. doi:10.1177/0733464813483210

Maslow, A. (1943). A theory of human motivation. *Psychological Review, 50*: 370-396.

McCarthy, K. (2013, Month). Hierarchy of needs for today's elderly. Retrieved from https://www.homeaidhealthcare.com/html/seniortopics.html

National Public Radio. (2015). A community built around older adults caring for adoptive families. Retrieved from https://www.npr.org/2015/08/04/429219678/at-hope-meadows-in-illinois-older-adults-help-families-care-for-foster-children

Pynoos, J., Caraviello, R., & Cicero, C. (2009). Lifelong housing: The anchor in aging-friendly communities. *Generations, 33*, 26-32.

Quadros-Wander, S. d., McGillivray, J., & Broadbent, J. (2014). The influence of perceived control on subjective wellbeing in later life. *Social Indicators Research, 115*, 999-1010. doi:10.1007/s11205-013-0243-9

Romo, R. D., Wallhagen, M. I., Yourman, L., Yeung, C. C., Eng, C., Micco, G., & Smith, A. K. (2013). Perceptions of successful aging among diverse elders with late-life disability. *The Gerontologist, 53*, 939-949. doi:10.1093/geront/gns160

Rooney, C., Hadjri, K., Rooney, M., Faith, V., McAllister, K., & Craig, C. (2016). Meeting the needs of visually impaired people living in lifetime homes. *Journal of Housing for the Elderly, 30*, 123-140. doi: 10.1080/02763893.2016.1162251

Scharlach, A. E., & Lehning, A. J. (2015). *Creating aging-friendly communities.* New York, NY: Oxford University Press

Scharlach, A. E. & Moore, K. D. (2016). Aging in place. In V. L. Bengtson & R. A. Settersten (Eds.), *Handbook of theories of aging* (3rd ed; pp. 407-425). NY: Springer.

Schulz, R., & Heckhausen, J. (1996). A life-span model of successful aging. *The American Psychologist, 51*, 702-714.

Snyder, A. (2018, September 18). Governor Hickenlooper announces "Lifelong Colorado," designates Colorado as an AARP Age-Friendly State. Retrieved from https://states.aarp.org/governor-hickenlooper-announces-lifelong-colorado-designates-colorado-as-an-aarp-age-friendly-state/

Stark, S., Landsbaum, A., Palmer, J. L., Somerville, E. K., Morris, J. C., Harvey, A., & Friedman, D. H. (2009). Client-centered home modifications improve daily activity performance of older adults. *Canadian Journal of Occupational Therapy, 76*, 235-245. doi:10.1177/000841740907600s09

Thomas, W. H., & Blanchard, J. M. (2009). Moving beyond place: Aging in community. *Generations, 33,* 12-17.

Trachtman, L. H., Mace, R. L., Young, L. C., & Pace, R. J. (2000). The universal design home. *Physical and Occupational Therapy in Geriatrics, 16,* 1-18, doi: 10.1080/J148v16n03_1

Wang, K. H., Chen, H. G., Chen, G. (2016). On the priority of needs for home care services of older adults in Taiwan, as based on Maslow's hierarchy of needs. *International Society for Gerotechnology, 14*, 239-243. doi: 10.4017/gt.2016.14.4.006.00

CHAPTER II: TARGET POPULATIONS AND INTERGENERATIONAL COMMUNITIES

The target populations for the living community reviewed in this paper include people across the lifespan and of varying socioeconomic statuses (SES), races, and ethnicities. Developing a living community for a multicultural population with diverse characteristics comes with both challenges and benefits that may affect older adults' biopsychosocial well-being. In this chapter, we review the benefits and shortcomings of age-segregated and intergenerational living communities and conclude that intergenerational communities confer more benefits to older adults. We also review literature pertaining to the relationship between SES, race, and ethnicity and older adult well-being. Each age cohort in this community will have unique needs; however, as this paper is focused on the needs of older adults, the reader is referred to additional material for life course considerations relevant to younger age groups (e.g., Biggs & Carr, 2015).

Age-Segregated Communities

Benefits

Although great heterogeneity exists among age-segregated communities, certain benefits are evident among them. For example, older adults enjoy age-segregated communities for the greater number of same-aged people, socialization opportunities, and better understanding of the aging process (Edwards, 2006; Sergeant & Ekerdt, 2008). Further, older adults may seek out age-segregated communities as a means of separating themselves from larger society and avoiding criticism for engaging in more leisure than work activities. With regard to security, residents of retirement or independent living communities may feel safer, both in terms of safety from intruders and from knowing that others are readily available should they have physical or

cognitive concerns. Lastly, older adults may choose to live in age-segregated communities for greater access to care and long-term housing options (Edwards, 2006).

Limitations

Despite the benefits conferred by age-segregated communities, notable shortcomings also exist. For example, age-segregation reduces intergenerational contact, severs social connections, and contributes to ageist beliefs (Ball, Whittington, Perkins, Patterson, Hollingsworth, & King, 2000; Henkin, Patterson, Stone, & Butts, 2017). Further, relative to those living in intergenerational neighborhoods, older adults living in senior affordable housing units tend to live alone, feel more isolated and lonely, and have less social support and more chronic conditions, all of which contribute to lower life satisfaction (US Department of Health & Human Services, 2014; Ball et al., 2000; Hawes, Phillips, & Rose, 2000). Thus, while many older adults seek out age-segregated living spaces for the aforementioned benefits, many others will experience adverse consequences of living with a similar age cohort.

Recent research has extracted reasons why older adults relocate from conventional housing to senior housing. Understanding these factors can assist in developing intergenerational living communities that confer similar benefits that older adults value in senior housing. Portacolone and Halpern (2016) conducted ethnographic interviews with 47 older adults, half of whom lived in senior housing residences and half of whom lived in conventional settings, to better understand the factors that affect relocation to senior housing. They found that older adults moved primarily as a function of affordability, service availability, company, and a sense of safety – factors which many older adults struggle to find living alone in conventional housing. These results indicate that intergenerational living communities that are affordable, offer services relevant to older adults, foster a sense of safety, and provide opportunities for

camaraderie across age groups may be an attractive housing option for older adults that also increases contact between age cohorts.

Intergenerational Living Communities

Benefits to Older Adults

Research on the benefits to older adults of living in intergenerational communities is overwhelmingly positive. Based on their research and evaluations of the Communities for All Ages (CFAA) model of intergenerational living at 23 sites, Brown and Henkin (2014) reported diverse benefits of cross-cohort contact. For example, through supporting intergenerational contact among residents and the use of each other as resources, the researchers observed increased trust and strengthened relationships between people of diverse ages, races, and ethnicities. They also observed multiple positive outcomes for older adults, including less isolation and more engagement in the community following engagement in volunteerism and mentoring; a stronger sense of purpose; improved social capital across age cohorts, races, and social classes through the development of multidimensional and trusting relationships; and increased opportunities for older adults to assume leadership positions in their respective communities.

Other researchers have demonstrated complementary benefits to Brown and Henkin (2014). For example, Thang (2001) found improved health among older adults who have contact with younger generations, and Henkin et al. (2017) argued that intergenerational contact decreases isolation and improves well-being and self-esteem. Xaverius and Mathews (2004) observed more expressiveness and engagement in older adults with and without dementia during intergenerational activities with second-grade children, and Tabuchi and Miura (2018) found

greater innovation and creativity in a sample of older adults working with young adults on a creative task.

Benefits to Others

Thus far, the literature suggests multifaceted benefits to older adults living in intergenerational communities. In addition to benefiting older adults, scholars argue that age-diverse communities benefit people of all ages. In their analysis of age- and child-friendly cities, Biggs and Carr (2015) argued that increased contact with other cohorts increases empathy for others, resulting in reduced ageism across groups. Others have demonstrated improved cognition among older adults and improved task performance among younger adults following interactions during a mutual task (Kessler & Staudinger, 2007). With regard to safety, Engwicht (2005) suggested that older adults' presence and alertness to neighborhood activity may confer a sense of safety to a community (e.g., watchfulness over playing children). Indeed, the benefits of intergenerational contact are multidimensional.

In addition to benefiting well-being, intergenerational integration strengthens economic, social, and cognitive resources (van Vliet, 2011). Older adult involvement in the lives of the young represents a salient social and economic resource that is often left untapped outside of intergenerational communities (van Vliet, 2011). Two U.S. programs that demonstrate the value of older adults to the community are Experience Corps and Respect Ability (van Vliet, 2011). To overcome barriers created by physical mobility impairment among older adults, programs like these utilize Internet technology to allow older adults to share their knowledge through tutoring or consultation without leaving their homes (van Vliet, 2011). Further, calculations of the annual value of volunteer activities performed by adults over the age of 60 in Colorado estimated a per-person contribution value of $3,000 dollars, which would be focused toward

other community members within an intergenerational community context (van Vliet, 2011). Intergenerational community members also benefit from economic savings stemming from efficient use of shared facilities and the ability to rely on informal community support, rather than relying on hired formal support outside the community. Community support in intergenerational communities not only influences people economically, but also helps all members of the community to feel safe, increases social activity, and contributes to positive health outcomes (van Vliet, 2011). Finally, the possibility for exchange between people of different social classes and stages of life allows communities to share resources while reducing burden, especially for economically vulnerable members (van Vliet, 2011).

Generations of Hope, a non-profit organization founded by Dr. Brenda Krause Eheart and Martha Bauman Power, has been a representative example of intergenerational communities since 1982. Eheart and Power hoped to connect foster families with aging adults in a collaborative effort to support the development of foster children, a model which they refer to as "intentional neighboring." The model has been adapted to provide community support to veterans through the Wounded Warrior program, single mothers, and adults who have developmental disabilities (Generations of Hope, 2016). The model includes eight core components, each of which are critical in developing successful intergenerational communities (Generations of Hope, 2016b):

1.) *Embracing the power of relationships.* Generations of Hope leaders believe that all people have the potential to create caring relationships, which increases well-being for all. They assert that change comes from people in relationships rather than agency programs.

2.) *Reframing vulnerability.* In an intentional neighborhood, those with vulnerability risk are viewed as contributing community members, rather than problems to be controlled.

3.) *Engagement of older adults.* Older adults in intentional communities are encouraged to engage in the support of younger generations (e.g., through mentoring, tutoring, and so on).

4.) *A key focus on vulnerability.* Supporting people with higher risk of vulnerability is the purpose of intentional communities. This is more than neighbors keeping an eye on each other, rather it is neighbors working together to reduce risk factors of community members.

5.) *Three or more generations:* The design of an intentional neighborhood accommodates function over three generational spans in order to foster more frequent intergenerational interaction.

6.) *Embracing diversity:* Intentional neighborhoods deliberately encourage diversity in order to reduce stigma.

7.) *Physical design facilitates relationships:* The housing development is not the defining factor of an intentional neighborhood; rather, spaces that encourage development of relationships is the driving force behind the design of physical spaces.

8.) *Transformational leadership:* Within intentional neighborhoods, the leaders are social service community partners, who are situated in ways that provide support to those who are at greater risk of vulnerability.

The Generations of Hope organization has supported the development of neighborhoods across the United States, including Hope Meadows, Illinois; Bridge Meadows in Oregon; and Genesis in Washington, D.C. (Generations of Hope, 2016). With an emphasis on developing close

relationships within such neighborhoods, the fruits of this organization demonstrate multifaceted benefits of promoting intergenerational communities.

Limitations

Just as age-segregated communities have limitations, so too do intergenerational living communities. Logeland (2016) reported that issues of privacy and personal space are main concerns of older adults living with others in cohousing communities. Further, communication difficulties between residents can create conflict among residents. While the present intergenerational living community is comprised of independent dwellings, not cohousing models, these concerns may still be relevant to older adults.

Based on this literature review, it is clear that intergenerational communities confer significant benefits and proffer opportunities for cross-cohort contact that engenders increased understanding, respect, and well-being (Portacolone & Halpern, 2016). Despite many older adults' preferences for age-segregated living, we contend that the limitations conferred by age-segregation are far outweighed by the benefits of intergenerational living communities, which create a sense of kinship and belonging to people of all ages, thus benefiting the entire neighborhood (Nichols & Adams, 2013).

Socioeconomic Status & Older Adult Well-Being

Despite the positive outcomes associated with intergenerational living and cross-cohort contact, little research has investigated specific aspects of intergenerational living that may affect older adult well-being. For example, scant research exists that has investigated older adults' preferences for living in socioeconomically homogenous vs. diverse communities. From a practical standpoint, recruiting residents of diverse socioeconomic backgrounds to live in mixed-rental housing (which includes both market-rate and affordable housing units) is beneficial

inasmuch as it provides housing for multiple sections of the population (Bigonnesse, Beaulieu, & Garon, 2014). Further, the neighborhood stress process model (Aneshensel, Harig, & Wight, 2016) offers a means of understanding the benefits of socioeconomically diverse living communities. According to this model, health is influenced by the interaction of individual factors (e.g., SES or race) and neighborhood factors (e.g., availability of resources) that can compound and create area-wide health disparities and socioeconomic disadvantages for low-SES and minority groups. Thus, highly segregated or stratified neighborhoods confer disadvantages that ultimately affect health. Through the creation of socioeconomically diverse living communities, however, these disadvantages are dispersed and less likely to negatively impact health outcomes.

Race, Ethnicity, & Older Adult Well-Being

The demographic makeup of the U.S. is changing to become increasingly multicultural and racially diverse and shows no signs of deviation from this trend (Perez & Hirschman, 2009). It is important to note that structuring intergenerational housing for a multicultural population carries with it salient benefits for all residents. There is strong empirical evidence to suggest that even fleeting multicultural contact can have a positive influence on residential harmony and quality of life (Peterson, 2017). Facilitating opportunities for multicultural contact can potentially help residents to reform prejudicial attitudes and challenge racial stereotypes (Peterson, 2017). As noted in the neighborhood stress process model, neighborhoods segregated by race or ethnicity generate health disparities and socioeconomic disadvantages that far outweigh any benefits inherent to mono-cultural living (Aneshensel et al., 2016). Further, multicultural communities can draw on each culture's strengths, for example, the high level of social cohesion commonly found in Mexican American cultural communities (Aneshensel et al.,

2016). That is not to say that multicultural communities do not require attention to cultural differences and careful planning to ensure social harmony (Shin, 2018). However, research suggests that the invested effort in culturally sensitive design considerations produces highly salient benefits that justify the effort (Shin, 2018). Although multicultural living requires attention to factors like trust, communication, and tolerance, this paradigm is one that is both realistic and highly rewarding for older adults within intergenerational communities (Perez & Hirschman, 2009).

Conclusion

Age-segregated communities confer both benefits and limitations to older adults. While intergenerational living communities also have limitations, it is evident that such communities afford multidimensional benefits to older adults and well-being. Any research comparison? With regard to SES, race, and ethnicity, there is a paucity of empirical research examining the influence of these factors on older adult well-being. However, the neighborhood stress process model offers a lens through which to view the benefits of mixed-income and multiethnic living communities, which we hope informs the development of the present intergenerational housing community.

In the following two sections of the paper, we present information relevant to the architectural, neighborhood, programming, and staffing needs of the present intergenerational community. In Section I, we review and summarize empirical literature on the architectural elements and neighborhood design factors that positively impact older adults' well-being (Chapter III: Interior Living Spaces; Chapter IV: Exterior Architectural Elements; Chapter V: Neighborhood Design). In Section II, we review and summarize findings on the community services, programs and activities, and staffing models that benefit the well-being of older adults

(Chapter VI: Linkage of Housing and Services to Promote Aging in Place; Chapter VII: Programs and Activities for Residents; Chapter VIII: Staffing and Governance).

References

Aneshensel, C. S., Harig, F., & Wight, R. G. (2016). Aging, neighborhoods and the built environment. In L. K. George & K. F. Ferraro (Eds.), *Handbook of aging and the social sciences* (8th ed., pp. 315-335). New York: Elsevier.

Ball, M. B., Whittington, F. J., Perkins, M. M., Patterson, V. L., Hollingsworth, C., & King, S. V. (2000). Quality of life in assisted living facilities: Viewpoints of residents. *Journal of Applied Gerontology, 19,* 304-325. doi: 10.1177/073346480001900304

Biggs, S., & Carr, A. (2015). Age- and child-friendly cities and the promise of intergenerational space. *Journal of Social Work Practice, 29,* 99-112. doi: 10.1080/02650533.2014.993942

Bigonnesse, C., Beaulieu, M., & Garon, S. (2014). Meaning of home in later life as a concept to understand older adults' housing needs: Results from the 7 age-friendly cities pilot project in Québec. *Journal of Housing for the Elderly, 28,* 357-382. doi: 10.1080/02763893.2014.930367

Brown, C., & Henkin, N. (2014). Building communities for all ages: Lessons learned from an intergenerational community-building initiative. *Journal of Community & Applied Social Psychology, 24,* 63-68. doi: 10.1002/casp.2172

Edwards, J. (2006, January 15). *Caring for our generations.* Retrieved November 24, 2018 from https://caringforourgenerations.org/2016/11/08/the-pros-and-cons-of-age-segregation/.

Engwicht, D. (2005). *Mental speed bumps: The smarter way to Tame Traffick.* Annandale, Australia: Envirobooks.

Generations of Hope. (2016). *History and Timeline*. Retrieved from: http://ghdc.generationsofhope.org/about-us/about-history/

Generations of Hope. (2016b). *Connecting generations to address social needs.* Retrieved from: http://ghdc.generationsofhope.org/components/

Generations of Hope. (2016c). *Core Components of Intentional Neighboring*. Retrieved from: http://ghdc.generationsofhope.org/wp-content/uploads/2015/04/Intentional-Neighboring.pdf

Hawes, C., Phillips, C. D., & Rose, M. (2000). High service or high privacy assisted living facilities, their residents and staff: Results from a national survey (p. 43). Washington, DC: US Department of Health and Human Services.

Henkin, N. Z., Patterson, T., Stone, R., & Butts, D. (2017). Intergenerational Programming in Senior Housing: From Promise to Practice. Retrieved October 27, 2018 from http://leadingage.org/sites/default/files/Intergenerational_Programming_in_Senior_Housing_Full_Report.pdf.

Kessler, E. M., & Staudinger, U. M. (2007). Intergenerational potential: Effects of social interaction between older adults and adolescents. *Psychology & Aging*, *22*, 690-704. doi: 10.1037/0882-7974.22.4.690

Logeland, D. (2016, April 29). *The pros and cons of living with friends in older age.* Retrieved November 24, 2018 from https://www.nextavenue.org/pros-cons-living-with-friends-older-age/.

Nichols, J. L., & Adams, E. (2013). The flex-next: The accessory dwelling unit as adaptable housing for the life span. *Interiors, 4*, 31-52.

Perez, A.D., & Hirschman, C. (2009). The changing racial and ethnic composition of the US population: Emerging American identities. *Population and Development Review, 35,* 1-51.

Peterson, M. (2017). Living with difference in hyper-diverse areas: How important are encounters in semi-public spaces? *Social & Cultural Geography, 18*(8), 1067-1085. doi:10.1080/14649365.2016.121066

Portacolone, E., & Halpern, J. (2016). "Move or suffer": Is age-segregation the new norm for older Americans living alone? *Journal of Applied Gerontology, 35*(8), 836-856. doi: 10.1177/0733464814538118

Sergeant, J. F., & Ekerdt, D. J. (2008). Motives for residential mobility in later life: Post-move perspectives of elders and family members. *International Journal of Aging and Human Development, 66*(2), 131-154. doi: 10.2190/AG.66.2.c

Shin, J. (2018). Listen to the elders: Design guidelines for affordable multifamily housing for the elderly based on their experiences. *Journal of Housing for the Elderly, 32*, 211-240. doi: 10.1080/02763893.2018.1331585

Tabuchi, M., & Miura, A. (2018). Intergenerational interaction between old and young in creative task. *Journal of Intergenerational Relationships, 16*(3), 275-286. doi: 10.1080/15350770.2018.1477421

Thang, L. L. (2001). *Generations in touch: Linking the old and young in a Tokyo neighborhood.* Ithaca, NY: Cornell University Press.

US Department of Health and Human Services, Assistant Secretary for Planning and Evaluation, and Office of Disability, Aging, and Long-term Care Policy (2014). Picture of housing and health: Medicare and Medicaid use among older adults in HUD-assisted housing. By the Lewin Group, Washington, DC: US Office of Health and Human Services.

van Vliet, W. (2011). Intergenerational cities: A framework for policies and programs. *Journal of Intergenerational Relationships, 9*, 348-365. doi: 10.1080/15350770.2011.619920

Xaverius, P. K., & Mathews, R. M. (2004). Evaluating the impact of intergenerational activities on elders' engagement and expressiveness levels in two settings. *Journal of Intergenerational Relationships, 1*(4), 53-69. doi: 10.1300/J194v01n04_05

SECTION I: ARCHITECTURAL ELEMENTS AND NEIGHBORHOOD DESIGN

Chapter III: Interior Living Spaces

Chapter IV: Exterior Architectural Elements

Chapter V: Neighborhood Design

CHAPTER III: INTERIOR LIVING SPACES

The purpose of this chapter is to evaluate and synthesize the literature involving interior living spaces, specifically as it relates to aging in place for older adults. Age-related biological, social, and psychological changes are inevitable components of becoming older and can pose limitations associated with poor biopsychosocial well-being (Collins, Goldman, & Rodríguez 2008; Smith, Rayer, & Smith, 2008). Components of universal design create inclusive livable spaces for people at all levels of ability across the lifespan, enhance person-environment congruence (Kahana, 1982), increase feelings of continuity, and promote greater ability to compensate for limitations imposed by age-related decline, such as impaired vision, mobility difficulty, and increased fall risk (Iwarsson, 2009). Indeed, living spaces that support aging in place provide older adults with a greater sense of control and choice in their housing options because they are not forced to move as the result of inadequate support in the housing environment. Recommendations for universal design are incorporated throughout this chapter. It should also be noted that the recommendations for interior housing spaces also apply to the interior areas of common-use spaces.

Universal Design and Visitability

Aging in place becomes a feasible option for older adults when they are able to modify their living spaces to better compensate for age-related decline (e.g., mobility limitations and visual impairment; Bigonnesse, Beaulieu, & Garon, 2014). Researchers have projected that by the year 2050, 21 percent of homes will house a person with a disability (Smith et al., 2008). Specific to older adults, the U.S. Census Bureau (2014) reported that approximately 25 percent of people over 65 years of age with a disability live at home. However, it has been estimated that approximately 90 percent of housing in the United States is built to general construction

standards and is not accommodating to those who have a biological, psychological, or cognitive disability (Smith et al., 2008).

Living in an inaccessible home decreases mobility support, increases the risk of fall-related injuries, and is associated with poor life satisfaction (e.g., due to increased social isolation; Smith et al., 2008). Using data from the Health and Retirement Study (HRS; N = 11,689; M_{age} = 66.17, SD_{age} = 8.75), Wahrendorf, Reinhardt, and Siegrist (2013) found that participants reported an average of 2.39 mobility limitations (e.g., difficulty with mobility, limb movement, or fine motor ability). Consistently, the U.S. Census Bureau (2014) reported that limited mobility is the most common disability in older adults; approximately 40 percent have at least one mobility related disability. For older adults, mobility limitations are associated with poor life satisfaction and negative view of the future (Collins et al., 2008). Based on the volume of people with disabilities, it is clear that many people in the U.S., including older adults, would receive physical and emotional benefits from housing built to accommodate age-related decline and disability.

Universal Design

The ability to adapt one's home environment to better support age-related decline improves individual task performance, reduces in-home accidents, and increases the likelihood of independent living (Pynoos, Caraviello, & Cicero, 2009). One way to create adaptable environments that support aging in place for those with a disability is to incorporate the "universal design" concept into interior spaces of homes. The universal design concept goes beyond the basics of creating adaptable, barrier free homes and is intended to create inclusive livable spaces for people at all levels of ability across the lifespan (Trachtman, Mace, Young, & Pace, 2000). Universal design surpasses minimal federal Fair Housing Act standards to

eliminate barriers that separate and stigmatize those who need extra support in their environments (Trachtman et al., 2000).

Scholars have identified several benefits of universal design. Trachtman et al. (2000) reported that homes built with universal design principles were more desirable for consumers, less stigmatizing for both residents and visitors, and allowed for greater independence with age. Pynoos et al. (2009) reported that universal design creates living environments wherein older adults and people with disabilities can remain socially connected to others, which is accomplished by creating visitable spaces accessible by all (Pynoos et al., 2009).

Rather than providing multiple options for people of different ages and ability levels, universal design is intended to create spaces that are inclusive and useful for all people and is thus more economical than traditional home design (Trachtman et al., 2000). Nasar and Elmer (2016) conducted a study in Ohio evaluating homeowner (n = 96) and homebuyer (n = 107) perceptions of visitability features, which are components of universal design. The researchers reported that 46.3 percent of homebuyer participants preferred to purchase a home with universal design elements (compared to 32.4 percent who preferred to purchase a standard home). Additionally, they reported that 42.2 percent of homeowner participants believed that a home with universal design elements would sell for more money than a standard home (compared to 21.8 percent who believed a standard home would sell for more). Results suggest that universal design is generally valued among both homeowners and homebuyers.

Though much of the research relating to universal design is positive, some disadvantages have been reported. Because the restrictions imposed by a standard home environment may not be salient for those who are younger or do not have a disability, universal design may not be valued by this population. One way to overcome this limitation is to use effective marketing

strategies that emphasize the value of aging in place in a universally designed housing environment, which allows for long-term lifespan continuity and stability (Trachtman et al., 2000). Another disadvantage to universal design relates to lack of clearly defined industry standards, which leaves many recommendations open to builder interpretation (AARP, 2005). This limitation can be overcome through the liberal implementation of universal design to create more inclusive home environments. Though some disadvantages have been proposed, minor implementation of universal design elements can improve biological, psychological, and social well-being for older adults. Visitability, which is the minimal standard for universal design, is one example of how small improvements in inclusive design can positively impact well-being.

Visitability

Universal design creates home environments that are accessible to visitors as well as the resident, which increases opportunities for social connection (Pynoos et al., 2009). The concept of visitability is a scaled-down version of universal design originally created by Concrete Change in Georgia (National Council on Independent Living, 2018). Visitable homes utilize universal design concepts on the main floor of homes and reduce environmental barriers for those with a disability (AARP, 2005). Consistent with the environmental docility hypothesis (Lawton and Simon, 1968), accessible main floors allow residents to fully participate in day-to-day activities with fewer limitations. Visitable homes include three primary recommendations: at least one zero-step entrance, main floor doors and hallways at least 32 inches wide, and an accessible first floor bedroom and bathroom (AARP, 2005; Bigonnesse et al., 2014; National Council on Independent Living, 2005; Nasar & Elmer, 2016; Pynoos et al., 2009; Rogers, Rogers, Takeshima, & Islam 2004; Rooney et al., 2016).

Some researchers have suggested additional modifications that meet the minimum standard of visitability (see Bigonnesse et al., 2014; Rooney et al., 2016; Shin, 2018). Open living spaces, to include the kitchen, allow for variety in furniture arrangement to better meet individual mobility-related needs, which improves social connection between homeowners and guests (Rooney et al., 2016; Shin, 2018). It is recommended that bedrooms contain walk-in closets to allow for adequate storage space and mobility support for both residents and guests (Bigonesse et al., 2014; Shin, 2018).

Many government and community organizations have advocated for visitable homes. One example of visitable design is the EasyLiving Home, created by a group of homebuilders in Georgia (AARP, 2005). In 2005, the EasyLiving Home builders built over 130 homes marketed at low-cost and which utilized universal and visitable design features. Pima County, Arizona and Bolingbrook, Illinois have implemented laws for visibility building in all new construction (AARP, 2005). In Georgia and Virginia, tax credits are offered to assist people with disabilities to modify new and existing homes for adaptability (AARP, 2005). Considering it has been 14 years since the AARP (2005) document was created, it is safe to assume many more visitable, age-friendly communities have been implemented to date. Communities are gradually realizing the benefit of creating living environments that allow older adults and people with disabilities to age in place.

Universal Design Recommendations

The use of universal design features provides a sense of continuity by allowing older adults to more effectively age in place. Additionally, universal design allows older adults to compensate for the experience of age-related decline through adaptation of their living spaces. Finally, creating living spaces that support aging in place provides older adults with a

greater sense of control and choice in their housing options because they are not forced to move as the result of inadequate support in the housing environment. Recommendations for universal design in regard to specific areas of age-related decline are included in the following sections. It should also be noted that housing design which is accommodating for older adults with age-related decline will also be accommodating at other life stages and across all ability levels.

Mobility and Activities of Daily Living

Universal design consists of internal structural components that allow for greater mobility and support activities of daily living for older adults. Because many older adults want or need to age in their existing homes (AARP, 2005), inaccessible environmental features may be present that restrict mobility present with age-related decline (Scharlach & Lehning, 2015). Limited mobility is associated with poor life satisfaction and negative view of the future (Collins et al., 2008), which may be influenced by lack of social connection imposed by inaccessible living spaces.

Wheelchair clearance. As reported by the U.S. Census Bureau (2014), approximately 40 percent of age-related disabilities involve problems with mobility and may require use of assistive devices such as a wheelchair. Most homes do not provide adequate clearance and turn radius for a wheelchair (Smith et al., 2008). In order to accommodate wheelchair access for residents and visitors, it is recommended that doors and hallways be at least 36 inches wide (AARP, 2005; Pynoos et al., 2009; Shin, 2018; Trachtman et al., 2000), which is four inches wider than the minimum recommendation for visitable homes (AARP, 2005). All rooms, especially the bathroom and kitchen, should have a minimum 84-inch diameter for accessible wheelchair clearance as well as a minimum of 5’ x 5’ open maneuvering space (AARP, 2005; Pynoos et al., 2009; Trachtman et al., 2000). It should be noted that, though wider doors,

hallways, and open spaces are accommodating for people requiring wheelchair assistance, they could be disadvantageous for those with balance problems who require closer surfaces for stability (Sharlach & Lehning, 2015). Recommendations for reducing fall risk are included later in this chapter.

Because it can be difficult for people in wheelchairs to reach standard height counter surfaces, a variety of counter heights are recommended, ranging from 28 inches to 45 inches (AARP, 2005; Pynoos et al., 2009, Trachtman et al., 2000). Additionally, open knee space under sinks, cooktops, and at least one counter space is recommended in order to provide closer access for people in wheelchairs (AARP, 2005; Trachtman et al., 2000). To make open knee spaces aesthetically appealing, universal design advocates suggest that retractable doors can be used which open to reveal knee space when needed (Trachtman et al., 2000).

Bathrooms. Bathroom spaces require a substantial number of modifications to support mobility and activities of daily living. The ability to maintain good personal hygiene requires an adequate bathing area. Advocates of universal design recommend providing a variety of bathing options in the home, including a bathtub, benches, and walk-in showers with no or low thresholds (AARP, 2005; Shin, 2018). Detachable shower heads for use while sitting and grab bars for balance while standing create opportunities for flexible use based on individual need (Rogers et al., 2004; Trachtman et al., 2000). To increase safety when transferring from a wheelchair, raised toilet seats are recommended (AARP, 2005; Shin, 2018) as well as substantial framing with blocking in the ceiling for installation of hoists (Rooney et al., 2016).

Other areas. When stairs are present, we recommend they be built wide enough for the addition of a stair lift, which also requires an electrical outlet at the top or bottom of the stairwell (Trachtman et al., 2000). Additionally, in all areas of the home, universal design advocates

recommend home controls, such as the thermostat or alarm system keypads, be placed at a level easily reached from varying heights, ideally no higher than 48 inches from the floor (AARP, 2005; Pynoos et al., 2009; Shin, 2018; Trachtman et al., 2000). To allow for ease of access, adjustable height for closet rods and shelves are also recommended (Trachtman et al., 2000).

Fine motor support. Many older adults experience diminished dexterity due to diseases such as arthritis (for a review see Farage, Miller, Ajayi, & Hutchins, 2012). Universal design components that accommodate fine motor needs include lever door handles (AARP, 2005; Shin, 2018; Trachtman et al., 2000), single lever faucets mounted at the side of basins to minimize reach distance (Trachtman et al., 2000), and cabinet hardware with open loop handles (Trachtman et al., 2000).

Reduced Fall Risk

Falling is among the leading causes of injury for older adults (Centers for Disease Control and Prevention, 2017). According to the Centers for Disease Control and Prevention (2017), one quarter of adults over 65 years of age fall each year, 20 percent of whom are seriously injured. Further, falling one time increases the risk of additional falls (Centers for Disease Control and Prevention, 2017). Implementation of universal design features that reduce fall risk in the home has the potential to enhance the well-being of all residents, not just older adults.

Flooring. A primary area in which fall risk can be reduced is in flooring. Level entrances from the exterior to interior of the home are recommended as well as zero step thresholds, no steps or ridges throughout the first floor, and smooth transitions between flooring types and from room to room (Pynoos et al., 2009; Shin, 2018; Trachtman et al., 2000). Because carpeting increases resistance and increases the likelihood of falls (Shin, 2018), non-skid flooring is

recommended (AARP, 2005; Pynoos et al., 2009; Shin, 2018). However, reducing soft flooring surfaces increases the risk of fall-related injuries when a person does fall. Thus, impact-absorbing flooring is also recommended. Researchers have reported that impact-absorbing flooring has the potential to significantly reduce the likelihood of injury after a fall (Gustavsson et al., 2017).

Bathrooms, kitchens, and stairs. Fall risk is higher in bathrooms, kitchens, and stairs (Pynoos et al., 2009). Areas that contain water, such as bathrooms and kitchens, can have slippery and unstable floor surfaces. As previously mentioned, we recommend that bathrooms include substantial framing with blocking for current or future installation of grab bars to provide stability (AARP, 2005; Pynoos et al., 2009). Adding non-slip textured surfaces in bathtubs and showers also reduces the risk of falls in bathroom areas (Rogers et al., 2004). In the kitchen, elevating the dishwasher several inches off the floor reduces the need to bend down to load and unload dishes, which reduces one's center of gravity (Trachtman et al., 2000). When stairs are present in the home, low angle gradients with deep step surfaces are recommended (Rogers et al., 2004), as well as handrails on both sides of the stairwell (AARP, 2005). Another way to reduce the need to bend down is to place electrical outlets no lower than 15 to 18 inches from the floor (AARP, 2005; Trachtman et al, 2000). In addition to the recommendations already listed, adequate lighting has the potential to reduce fall risk, especially for those with visual impairment (Rogers et al., 2004).

Support for Visual Impairment

Vision impairment is a common aspect of age-related physical decline. According to the American Foundation for the Blind (2018), approximately 6.5 million adults over 65 years of age in the United States have visual impairment. Specific to older adults, visual impairment is

associated with lower day-to-day function (Burmedi, Becker, Heyl, Wahl, & Himmelsbach, 2002), increased fall risk (American Foundation for the Blind, 2018), and lower emotional well-being (American Foundation for the Blind, 2018; Horowitz & Reinhardt, 2000) compared to age-matched peers. Implementation of universal design features that support visual impairment has the potential to enhance the well-being of older adult residents and others with visual challenges.

Adequate lighting. A primary area of concern for those with visual impairment relates to inadequate lighting. Researchers recommend adjustable, glare free lights with a minimum of 100-watt bulb capacity (Rogers et al., 2004; Trachtman et al., 2000). When vision impairment is present, indirect light is better than direct light (Trachtman et al., 2000). Additionally, for ease of access, two-way rocker panel light switches are recommended at each room entrance as well as at the top and bottom of stairs (Pynoos et al., 2009; Rogers et al., 2004, Shin, 2018; Trachtman et al., 2000). Some researchers have suggested that motion activated sensors are ideal for ease of light activation for people with vision impairment (Rogers et al., 2004; Shin, 2018). Windows, as discussed in-depth in Chapter IV (Exterior Architectural Elements), are also important for adequate lighting. Additionally, window treatments provide control of sunlight levels as well as increased privacy. In order for window treatments to meet universal design requirements, they must have mechanisms for opening and closing that are accessible for all, such as long pull cords (Shin, 2018).

Color contrast. Some forms of visual impairment are more common among older adults, such as macular degeneration, cataracts, and glaucoma (American Optometric Association, 2018). Age-related visual decline makes it difficult to see fine detail, color, and distinct edges (American Optometric Association, 2018). Adding contrast in living spaces makes it easier for people with visual impairment to see edges (see Farage et al., 2012). For example, researchers

recommend contrasting colors on counter edges and between countertops and sinks (Trachtman et al., 2000). To reduce risk of falls related to poor vision, contrasting colors are also recommended between flooring types (e.g., solid surfaces to carpet; AARP, 2005) and when stairs are present, between risers and steps (Trachtman et al., 2000).

Control of the Environment

Control is one of the six components of the Integrated Developmental Model of Aging (Scharlach & Lehning, 2015; Scharlach & Moore, 2016). As age-related decline occurs, it becomes more difficult for older adults to navigate standard living spaces. Residents who feel they have control over their living environments, either through housing choice or through control of the internal spaces of their homes, experience life satisfaction and a strong sense of independence (Oswald et al., 2007). Areas of the home where personal control can be enhanced include wall color choice (Bigonnesse et al., 2014), freedom to hang wall decorations (Bigonnesse et al., 2014), and by providing windowsills large enough to place decorations without impeding safe egress if needed (Shin, 2018). Additionally, residents with lower socioeconomic status may not have the funds to purchase laundry machines. As such, a sense of control is created by installing a clothesline over the bathtub area to allow for hand-washing of laundry (Shin, 2018).

Conclusion

The purpose of this chapter was to provide recommendations for interior spaces of homes and common community areas. Interior spaces that utilize universal design guidelines provide lifespan continuity by allowing older adults to age in place. Universal design also allows residents to compensate for age-related decline, such as visual and mobility impairment, through modification of the environment. At a minimum, homes should include visitable components,

which involve accessible living on the main floor. However, broader use of universal design components provides aging adults with a sense of control and choice.

References

AARP. (2005). *Beyond 50.05: A report to the nation on livable communities creating environments for successful aging*. Retrieved from https://assets.aarp.org/rgcenter/il/beyond_50_communities.pdf

American Foundation for the Blind. (2018). *Aging and vision loss fact sheet*. Retrieved from http://www.afb.org/section.aspx?SectionID=68&TopicID=320&DocumentID=3374&rewrite=0

American Optometric Association. (2018). *Adult Vision: Over 60 years of age*. Retrieved from https://www.aoa.org/patients-and-public/good-vision-throughout-life/adult-vision-19-to-40-years-of-age/adult-vision-over-60-years-of-age

Bigonnesse, C., Beaulieu, M., & Garon, S. (2014). Meaning of home in later life as a concept to understand older adults' housing needs: Results from the 7 age-friendly cities pilot project in Québec. *Journal of Housing for the Elderly, 28*, 357-382. doi: 10.1080/02763893.2014.930367

Burmedi, D., Becker, S., Heyl, V., Wahl, H.-W., & Himmelsbach, I. (2002). Behavioral consequences of age-related low vision: A narrative review. *Visual Impairment Research, 4*, 15-45. doi: 10.1076/vimr.4.1.15.15633

Centers for Disease Control and Prevention. (2017). *Important facts about falls*. Retrieved from https://www.cdc.gov/homeandrecreationalsafety/falls/adultfalls.html

Collins, A. L., Goldman, N., & Rodríguez, G. (2008). Is positive well-being protective of mobility limitations among older adults? *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences, 63*, P321-P327. doi:10.1093/geronb/63.6.P321

Cornwell, B., & Laumann, E. O. (2015). The health benefits of network growth: New evidence from a national survey of older adults. *Social Science & Medicine, 125*, 94-106. doi:10.1016/j.socscimed.2013.09.011

Farage, M. A., Miller, K. W., Ajayi, F., & Hutchins, D. (2012). Design principles to accommodate older adults. *Global Journal of Health Science, 4*, 2-25. doi:10.5539/gjhs.v4n2p2

Gustavsson, J., Rahm, G. B., Jernbro, C., & Nilson, F. (2017). Effects of impact-absorbing flooring in residential care from the perspectives of enrolled nurses. *Journal of Housing for the Elderly, 31*, 367-381. doi: 10.1080/02763893.2017.1335670

Horowitz, A., & Reinhardt, J. P. (2000). Depression among low vision elders. In C. Stuen, A. Arditi, A. Horowitz, M. A. Lang, B. Rosenthal, & K. Seidman (Eds.), *Vision rehabilitation: Assessment, intervention and outcomes* (pp. 655-658). Lisse, The Netherlands, Swets & Zeitlinger Publishers

Iwarsson, S., Horstmann, V., Carlsson, G., Oswald, F., & Wahl, H. W. (2009). Person—environment fit predicts falls in older adults better than the consideration of environmental hazards only. *Clinical Rehabilitation, 23,* 558-567. doi:10.1177/0269215508101740

Lawton, M.P., & Simon, B. (1968). The ecology of social relationships in housing for the elderly. *Gerontologist, 8*, 108-115.

Nasar, J. L., & Elmer, J. R. (2016). Homeowner and homebuyer impressions of visitable features. *Disability and Health Journal, 9*, 108-117. doi:10.1016/j.dhjo.2015.08.012

National Council on Independent Living. (2018). *About Concrete Change*. Retrieved from https://visitability.org/about-concrete-change/

Oswald, F., Wahl, H.-W., Schilling, O., Nygren, C., Fänge, A., Sixsmith, A., & Iwarsson, S. (2007). Relationships between housing and healthy aging in very old age. *The Gerontologist, 47,* 96-107. doi: 10.1093/geront/47.1.96

Pynoos, J., Caraviello, R., & Cicero, C. (2009). Lifelong housing: The anchor in aging-friendly communities. *Generations, 33,* 26-32.

Rogers, M. E., Rogers, N. L., Takeshima, N., & Islam, M. M. (2004). Reducing the risk for falls in the homes of older adults. *Journal of Housing for the Elderly, 18,* 29-39. doi:10.1300/J081v18n02_04

Rooney, C., Hadjri, K., Rooney, M., Faith, V., McAllister, K., Craig, C. (2016). Meeting the needs of visually impaired people living in lifetime homes. *Journal of Housing for the Elderly, 30,* 123-140. doi: 10.1080/02763893.2016.1162251

Scharlach, A. E., & Lehning, A. J. (2015). *Creating aging-friendly communities.* New York, NY: Oxford University Press

Scharlach, A. E. & Moore, K. D. (2016). Aging in place. In V. L. Bengtson & R. A. Settersten (Eds.), *Handbook of theories of aging* (3rd ed; pp. 407-425). NY: Springer.

Shin, J. (2018). Listen to the elders: Design guidelines for affordable multifamily housing for the elderly based on their experiences. *Journal of Housing for the Elderly, 32,* 211-240. doi: 10.1080/02763893.2018.1331585

Smith, S. K., Rayer, S., & Smith, E. A. (2008). Aging and disability: Implications for the housing industry and housing policy in the United States. *Journal of the American Planning Association, 74,* 289. doi:10.1080/01944360802197132

Trachtman, L. H., Mace, R. L., Young, L. C., & Pace, R. J. (2000). The universal design home. *Physical and Occupational Therapy in Geriatrics, 16,* 1-18, doi: 10.1080/J148v16n03_1

U.S. Census Bureau (2014*). Mobility is most common disability among older Americans, Census Bureau Reports*. Retrieved from https://www.census.gov/newsroom/press-releases/2014/cb14-218.html

Wahrendorf, M., Reinhardt, J. D., & Siegrist, J. (2013). Relationships of disability with age among adults aged 50 to 85: Evidence from the United States, England and continental Europe. *PloS One, 8*, 1-10. doi:10.1371/journal.pone.0071893

CHAPTER IV: EXTERIOR ARCHITECTURAL ELEMENTS

The exterior architectural features of a home have important safety and functional implications for aging in place. Exterior home features are critical to the comfort level of the inhabitants when inside their homes. Comfort can take many forms including physiological and psychological comfort. This chapter focuses on ways in which to provide various forms of comfort for older adults through exterior elements, such as through the importance of thermoregulation and the roles of windows, walls, and roofs. A discussion of older adult well-being will follow outlining how light exposure, time outdoors, and having a sense of security, privacy, and safety can help with quality of life.

Thermoregulation

Regulating internal housing temperature is critical to the health and safety of older adults. As people age, core body temperature decreases (Blatteis, 2012) and heat is lost faster for older adults than younger adults (Cold Weather Safety for Older Adults, 2018). This makes older adults more vulnerable to hypothermia (Blatteis, 2012; Cold Weather Safety for Older Adults, 2018). In addition to a reduction in core temperature, thermosensitivity decreases with age, meaning that older adults have more difficulty discerning when they are too hot or too cold (Blatteis, 2012). When older adults live alone, they are at an increased risk of suffering from hypothermia because they are less able to accurately judge whether the house is at an appropriate temperature (Cold Weather Safety for Older Adults, 2018). Living in cold climates, such as Colorado, can increase the risk of hypothermia.

Cold body temperature carries other risks unique to older adults. Sartini et al. (2017) conducted a meta-analysis with 4,252 men (ages 60-79) and 5,804 women (ages 70-82). Colder outdoor climates increased the risk of cardiovascular disease due to negative impacts on

cholesterol and blood pressure (Sartini, 2017). With extreme drops in body temperature (below 95 degrees Fahrenheit), risk of heart attack increases as well as kidney and liver damage (Cold Weather Safety for Older Adults, 2018). While conditions such as hypothermia are usually associated with being exposed to cold temperatures while outdoors, it can also happen inside the home (Cold Weather Safety for Older Adults, 2018). If older adults want to age in place safely in the state of Colorado, efforts must be made to protect them from cold temperatures and help maintain an ideal internal temperature of 68-70 degrees Fahrenheit (Cold Weather Safety for Older Adults, 2018).

Although cold extremes are more likely in Colorado, heat waves can also occur, which can increase mortality risk for older adults (Blatteis, 2012; Lindemann et al., 2017). Warmer indoor temperatures had negative impacts on gait speed and balance in an older adult sample (Lindemann, 2017). As previously mentioned, falling is one of the leading causes of injury among older adults (Centers for Disease Control and Prevention, 2017). Poor balance can increase fall risk, potentially leading to injury. Protecting older adults from both hot and cold temperature extremes will increase their ability to safely age in place.

Thermal comfort can also impact sleep quality with older adults. Sleep complaints are common among older adults, with approximately half reporting sleep difficulties (National Institutes of Health, 2005). Sleep complaints increase with age, so precautions are necessary to ensure comfort in sleeping areas of a home. In accordance with sleep hygiene practices, exposure to natural light during the day and having a dark room at night can help with sleep (Sleep Hygiene, 2018). Additionally, keeping a sleeping area at an ideal temperature (60-67 degrees Fahrenheit) facilitates good quality sleep (Sleep Hygiene, 2018).

Exterior housing elements can have a major impact on internal housing comfort. When designing exterior housing properties in Colorado for older adults, it is essential that careful attention be given to thermoregulation. Keeping older adults safe and comfortable are key components to aging in place. Elements to consider include windows (ventilation), walls (insulation), and roofs. It is also critical to balance cost with comfort level. The most cost-effective way to achieve this is to use building design and materials to one's advantage.

Windows

Keeping a home well-ventilated is one way to provide thermal comfort to inhabitants. Windows ventilate a home by providing fresh air and removing excess heat (CIBSE, 1999). In climates where overheating is a concern, reducing window size, tinting windows, or using shading devices will help to regulate the amount of heat that can enter the home (CIBSE, 1999). Windows are an ideal way to keep a home ventilated because homeowners can control when they want their windows open/closed, allowing for maximum comfort (CIBSE, 1999). Window placement can also have a significant affect on house temperature. Windows that face west can result in hot temperatures in the summer and a lack of daylight year round (Shin, 2018). South-facing walls provide the maximum amount of sunlight (Shin, 2018). Window coverings are also needed to block excess sunlight during warm times of the year (CIBSE, 1999). Window placement and light regulation will help maintain a comfortable internal home temperature.

Walls

Walls are the largest exterior surface of any building and therefore have a major impact on thermal comfort (Walls, 2018). Factors to consider when constructing walls include sealing, sheathing, and insulating (Walls, 2018). These factors determine how much air passes in and out of the house, which in turn affects internal temperature. Insulation is a particularly important

factor because well-insulated walls reduce energy consumption, ultimately saving money (Ozel, 2013). Insulation material becomes especially important in climates with extreme weather changes because it can reduce large fluctuations in internal housing temperature (Ozel, 2013).

It is important to follow industry guidelines when determining appropriate insulation for walls in Colorado Springs. For example, thermal resistance for insulation is rated with an R-value (Insulation, 2018). R-values are determined based on insulation type, thickness, and density (Insulation, 2018). A higher R-value indicates greater insulation effectiveness (Insulation, 2018). In Colorado Springs, it is recommended that insulation have an R-value of R-18 for exterior walls (Weiner, 2013). Following this standard will help make the home energy-efficient and cost-effective (Weiner, 2013).

Green Roofs

Roofs have influential implications for home insulation and should be given careful consideration when building homes for older adults. Green roofs are a relatively new concept gaining popularity for their many benefits. As opposed to being built from shingles or other metal components, a green roof is comprised of soil and vegetation (Green Roofs, 2018). While less common in North America, green roof technology is being utilized more frequently in Europe, notably in Germany, France, Austria, and Switzerland (About Green Roofs, 2018). Green roofs preserve the life of housing heating systems because these homes do not require the frequency of use of heating systems as homes with traditional roofs (About Green Roofs, 2018). This has long-term financial benefits. For example, Clark, Adriaens, and Talbot (2008) compared the cost of a traditional roof with an identically-sized green roof and found that a green roof cost approximately $100,000 more to install but saved $200,000 over the course of the roof's

lifespan. Green roof's short-term expense is outweighed by the long-term savings. This may be helpful for older adults who are on a fixed income and/or a tight budget.

In addition to cost-effectiveness, green roofs confer other benefits such as better air quality, buffers to external noise, and aesthetic appeal (Sailor, Elley, & Gibson, 2011; About Green Roofs, 2018). In areas that get large amounts of rain, green roofs can reduce storm runoff by up to 50 percent (Sailor et al., 2011). The temperature of the roof's surface can be significantly lower than conventional roofs due to the shading effect provided by vegetation (Ganguly, Chowdhury, & Neogi, 2016). For example, Ganguly et al. (2016) found the temperature of green roofs to be 84 degrees Fahrenheit, compared to 87 degrees for a conventional roof. Sailor et al. (2011) conducted a study looking at green roofs in four different cities with differing climates (Houston, New York City, Phoenix, and Portland). In all four cities, green roofs led to a reduction in heating costs, with stronger results for residential versus larger buildings. Green roofs with greater soil depth had more gas savings due to the greater amount of insulation. The greatest savings in heating costs were in colder climates. Overall, green roofs are effective in reducing thermal fluctuations by keeping homes well-insulated.

Windows, walls, and roofs are all important components to regulating internal home temperature, which in turn keeps older adults safe and comfortable. Using cost-effective building materials is also useful for older adults with fixed incomes. Next, we discuss how external housing elements improve older adults' mental health.

Well-Being

Keeping older adults physically comfortable in their homes is only one piece of the puzzle. Bearing in mind Maslow's Hierarchy of Needs (1943), physiological safety and shelter comprise the base of the pyramid with other needs following. Other needs, such as a sense of

love/belonging and a sense of well-being, also require careful consideration. Exterior architectural elements can be used in such a way to increase inhabitants' quality of life. One reason why this is important is that depression can manifest for the first time in older adults due to risk factors such as age-related neurobiological changes, stressful life events (e.g., retirement), and sleep difficulties (Fiske, Wetherell, & Gatz, 2009). When depression remains untreated and becomes severe, thoughts of suicide can arise (Fiske et al., 2009). The following sections summarize ways in which external structures regulate mood and increase a sense of well-being.

Light and Windows

Light. Light has a positive effective on older adults' mood (Zhao, Ma, Wu, Chi, & Bai, 2018; CIBSE, 1999). One reason is that light helps stimulate activities by generating a sense of well-being (CIBSE, 1999). Increased light exposure can help alleviate depressive symptoms. Zhao et al. (2018) conducted a meta-analysis evaluating the role of light therapy on older adults with non-seasonal depression. Only studies with randomized controlled trials (RCTs) were included in the sample, resulting in the inclusion of six RCTs (N = 359). Participants ranged in age from 63-81. Results showed a significant decrease in depressive symptoms after two weeks of light therapy with a continued decrease at three weeks, showing that continued exposure had a beneficial effect. After four weeks, results plateaued but the benefits remained. Furthermore, a moderate intensity light (500 lux) was the most effective at reducing depressive symptoms. Daily exposure to light has significant implications for older adults with symptoms of depression.

While light can have a positive effect on mood, exposure to light during sleep hours can have the opposite effect (Obayashi, Saeki, Iwamoto, Ikada, and Kurumatani, 2013). Obayashi et al. (2013) assessed the effect of nighttime light exposure in an older adult sample (N = 516, M_{age} = 72.8). Controlling for the intensity of the light, the researchers found that greater nighttime

light intensity increased depressive symptoms as measured by the Geriatric Depression Scale. The authors hypothesized that exposure to nighttime light negatively impacted the circadian rhythm, leading to poor sleep quality and fewer hours spent sleeping. An association exists between poor sleep quality and symptoms of depression (Szklo-Coxe, Young, Peppard, Finn, & Benca, 2010). Finding ways to block light entering through windows at night with blinds, curtains, etc., can prevent light from the sun, streetlamps, or neighboring houses to enter while inhabitants are sleeping.

Windows. Windows are an exterior element that regulate the amount of light entering a home. Given the research on light and mood regulation with older adults, windows are an important architectural element to consider. Even though artificial light sources will be installed in the home, natural light is more cost-effective than paying for artificial lighting (CIBSE, 1999). According to results of a survey, 80 percent of respondents reported enjoying sitting next to an open window – another benefit of natural light (CIBSE, 1999). Universal design advocates recommend windows contain a maximum of 36-inch sill heights to allow for adequate viewing from sitting or for those who are shorter (Trachtman et al., 2000). To help with mood regulation, it is recommended that the number of windows installed in homes be maximized and that they be tinted to reduce the amount of glare (CIBSE, 1999). The windows also need to be large enough to reduce breaking up the outside view.

Outdoor views. In addition to having positive mood implications, outdoor views provided by windows can have important health implications. Ulrich (1984) studied the effects of natural views on patients recovering from surgery. Patient data was collected from a Pennsylvania hospital for patients who had undergone the same type of gall bladder surgery (*N*= 46), ranging in age from 20-69. The hospital rooms in which patients stayed were identical with

the exception that half the rooms' windows offered a view of tree grove while the other half displayed a view of a brick wall. Data showed that patients who had exposure to the nature view had a shorter recovery time (number of days in the hospital), requested less pain medication, and reported fewer postsurgical complications (although not statistically significant). This study shows that the quality of a view through a window can have implications for patients recovering in a hospital. Ulrich (1984) concluded that the stimulation provided by the nature scene had a therapeutic effect on the patients. As previously discussed, window placement is important to allow light to enter a home. Window placement should also allow for a stimulating, unobstructed view of the outside world, preferably with views of natural elements such as trees, gardens, etc. due to the potential for therapeutic effects for inhabitants.

Outdoor Sitting Area

Research shows that light and views provided by windows can help increase older adults' mood. Spending time outdoors is also vital due to growing evidence supporting a link between time outdoors and health benefits (Jacobs et al., 2008; Brown et al., 2008). A longitudinal study by Jacobs et al. (2008) examined the effects of spending time outdoors and health benefits with an older adult sample living independently. Participants (N = 343) were asked to track the frequency at which they went outdoors each week. They completed a health questionnaire, Activities of Daily Living/Instrumental Activities of Daily Living measure, a depression measure, and the Mini-Mental State Examination. Participants were tracked at age 70 and again at 77. Results showed that individuals who went outside their home on a daily basis had fewer musculoskeletal pain complaints, fewer sleep problems, and less decline in ADLs at age 77. The researchers explained that engagement with the outside world through meaningful activities and social outlets may account for the results.

Another study by Brown et al. (2008) examined the elements of the built environment on physical and social well-being in a sample of older Hispanics (N = 273). Researchers found that porches, stoops, windows, and being near sidewalks facilitated social interactions. Having a porch or stoop on the front of the house can lead to better physical functioning (Brown et al., 2008), perhaps because such structures encourage mobility of the homeowners and cause an increase in physical functioning as residents are more likely to walk between homes and visit neighbors. Providing an outdoor seating area within the individual home space has important implications for older adult well-being. The next chapter will expand further on outdoor spaces within the greater neighborhood environment.

Privacy Features

When considering the meaning of home, privacy is considered a social aspect (Bigonnesse et al., 2014). While having access to social outlets is critical to healthy aging, having a sense of privacy within one's home is essential as well. If one wants alone time, it is necessary to have a private space in order to separate oneself (Bigonnesse et al., 2014). One way in which exterior architectural elements can help provide a sense of privacy is through soundproofing. Soundproofing is an important concept because older adults can have reduced satisfaction levels when noise intrusions occur from neighboring units (James, 2007). Mindful design of windows, doors, and walls offer ways to minimize external sounds. Current research is evaluating the best ways to soundproof a home by studying homes affected by airplane noise. It is recommended that windows be either double or triple pane, as opposed to single pane, to reduce noise transmission (Soundproofing Your Home for Airplane Noise, 2018). Additionally, glazing can reduce sound transmission (Soundproofing Your Home for Airplane Noise, 2018). It is recommended that exterior doors have weather-tight seals and storm doors to further reduce

sound transmission (Soundproofing Your Home for Airplane Noise, 2018). Lastly, walls will be more soundproof if an additional layer of drywall is added (Soundproofing Your Home for Airplane Noise, 2018). Incorporating these recommendations to soundproof a home will allow older adults to have the privacy they need from neighbors.

Security Features

Older adults need to feel a sense of security within their home. Fear of victimization falls high on the list of concerns held by older adults (Clark, Adler, & Adler, 1983). Unfortunately, due to declining physical and cognitive health, older adults can be targeted for violent crimes (Clark et al., 1983). Even though violent crimes against older adults occur less frequently than other age groups, the health ramifications are significant (Crimes Against Older Adults, 2018). Approximately $5.3 billion is spent annually in medical care for injuries suffered by older adults (Crimes Against Older Adults, 2018). Taking strides to ensure home security may help provide peace of mind from fear of violent crimes that can occur within one's home.

Focusing on points of entry into a home can help older adults feel secure. Because doors and windows can be difficult for older adults to operate, user friendly options need to be available to encourage proper use (Garvin, 1998). As discussed in the previous chapter, lever door handles are easier to use for individuals with reduced dexterity. Exterior doors need to be airtight with secondary locks to keep inhabitants as safe as possible (Bigonnesse et al., 2014). Having peep holes at eye level and a chain lock on the door allows older adults to see who is at their door without having to open it fully (Tips to Provide Better Doors and Windows for the Elderly and Disabled, 2017). Using window glass that is 1/8 inch thick is considered double strength and is difficult to break (CIBSE, 1999). Giving attention to keeping the exterior of a

home secure may help reduce violent crimes against older adults and provide them with peace of mind.

Safety Features

It is critical to minimize safety risks both outside and inside one's home. Providing features such as ramps and fire escapes may help maximize the amount of time older adults can safely stay in their homes. Stairs introduce a fall risk to older adults (Hammarlund, Hagell, & Westergren, 2016), so other options for access to front porches and home entryways need to be considered. Ramps are a safer option for entry into one's home. If one elects to have stairs, fall risk can be minimized by having handrails on both sides of the stairs (AARP, 2005).

Fire Safety. Fire safety is another component to consider. The National Safety Council (2018) recommends that all bedrooms have a secondary escape route (e.g., windows) in case the primary route is blocked by fire or smoke (Fire Escape and Window Safety: A Balanced Approach, 2018). Certain types of windows are easier for older adults to use, such as windows that swing out to open versus single or double hung windows (Tips to Provide Better Doors and Windows for the Elderly and Disabled, 2017). Installing windows that are large enough and easy to operate can help ensure the safety of inhabitants in the event of a fire.

Navigation. As people age, the risk of dementia increases. Presently, 35 million individuals have a dementia diagnosis (Ballard & Corbett, 2013), which is expected to rise as the population continues to age. Wayfinding, the ability to effectively navigate one's environment, can become difficult with dementia. Six out of ten people diagnosed with Alzheimer's disease wander, which increases the chance of getting lost and poses a safety risk (Wandering, 2018). Providing salient cues is one way to help with navigation (Caduff & Timpf, 2008). Cues should be "distinct, prominent, or obvious…compared with other features" (Caduff & Timpf, 2008, p.

250). Color is an easily perceived, salient cue that can be used to help older adults effectively navigate their environment if they begin to experience memory decline (Caduff & Timpf, 2008). One way to accomplish this is with house color, as including differing colors between homes may cue an individual to remember their location. Another option is to vary the color of the front doors of houses. Using color as a salient cue on houses may help older adults who experience cognitive decline effectively navigate their environment.

Conclusion

When designing homes for older adults, it is essential to keep in mind how the inhabitants' comfort levels are affected. Exterior architectural elements such as windows, walls, and roofs have important implications for thermoregulation. These elements, as well as porches, ramps, fire escapes, and house color, all contribute to well-being by giving homeowners a sense of security, privacy, and safety. Following the recommendations offered in this chapter will ensure maximum comfort of older adults and support aging in place.

References

AARP. (2005). Beyond 50.05: A report to the nation on livable communities creating environments for successful aging. Retrieved from https://assets.aarp.org/rgcenter/il/beyond_50_communities.pdf

About Green Roofs (2018). *Green Roofs for Healthy Cities*. Retrieved from https://greenroofs.org/about-green-roofs/

Ballard, C., & Corbett, A. (2013). Agitation and aggression in people with Alzheimer's disease. *Current Opinion in Psychiatry, 26*(3), 252-259. doi:10.1097/YCO.0b013e32835f414b

Bigonnesse, C., Beaulieu, M., & Garon, S. (2014). Meaning of home in later life as a concept to understand older adults' housing needs: Results from the 7 age-friendly cities pilot project in Québec. *Journal of Housing for the Elderly, 28*, 357-382. doi: 10.1080/02763893.2014.930367

Blatteis, C. M. (2012). Age-dependent changes in temperature regulation—A mini review. *Gerontology, 58*, 289-295. doi: 10.1159/000333148

Brown, S.C., Mason, C.A., Perrino, T., Lombard, J. L., Martinez, F., Plater-Zyberk, E., Spokane, A.R., & Szapocznik, J. (2008). Built environment and physical functioning in Hispanic elders: The role of "Eyes on the Street." *Environmental Health Perspectives, 116*(10), 1300-1307. https://www.jstor.org/stable/25071179

Caduff, D. & Timpf, S. (2008). On the assessment of landmark salience for human navigation. *Cognitive Processing, 9*, 249-267. doi: 10.1007/s10339-007-0199-2

Centers for Disease Control and Prevention. (2017) *Important facts about falls*. Retrieved from https://www.cdc.gov/homeandrecreationalsafety/falls/adultfalls.html

CIBSE. (1999). Lighting guide 10 - Daylighting and window design. *CIBSE*. Retrieved from https://app.knovel.com/hotlink/toc/id:kpLGDWD002/lighting-guide-10-daylighting/lighting-guide-10-daylighting

Clark, C., Adriaens, P., & Talbot, F. B. (2008). Green roof valuation: A probabilistic economic analysis of environmental benefits. *Environmental Science & Technology, 42*(6), 2155-2161. doi: 10.1021/es0706652

Clark, S. P., Adler, L. L., & Adler, H. E. (1983). Urban crime and the elderly. *International Journal of Group Tensions, 13*, 76-83.

Cold Weather Safety for Older Adults (2018). National Institute on Aging. U.S. Department of Health & Human Services. Retrieved from: https://www.nia.nih.gov/health/cold-weather-safety-older-adults

Conwell, Y., & Brent, D. (1995). Suicide and Aging I: Patterns of psychiatric diagnosis. *International Psychogeriatrics, 7*(2), 149-164. doi: 10.1017/S1041610295001943

Crimes Against Older Adults (2018). *The National Center for Victims of Crime.* Retrieved from https://ovc.ncjrs.gov/ncvrw2018/info_flyers/fact_sheets/2018NCVRW_OlderAdults_508_QC.pdf

Fire Escape and Window Safety: A Balanced Approach (2018). *National Safety Council*. https://www.nsc.org/Portals/0/Documents/NSCDocuments_Advocacy/Fact%20Sheets/Window-Safety-Fire-Escape.pdf

Fiske, A., Wetherell, J. L., & Gatz, M. (2009). Depression in older adults. *Annual Review of Clinical Psychology, 5,* 363-89.doi:10.1146/annurev.clinpsy.032408.153621

Ganguly, A., Chowdhury, D., Neogi, S. (2016). Performance of building roofs on energy efficiency – A review. *Energy Procedia, 90,* 200-208. doi: 10.1016/j.egypro.2016.11.186

Garvin, S. L. (1998). Better doors and windows for the elderly and disabled. *Structural Survey, 16*(1), 23-24. doi: 10.1108/02630809810210884

Green Roofs (2018). *Cold Climate Housing Research Center*. Retrieved from http://www.cchrc.org/green-roof

Hammarlund, C.S., Hagell, P., & Westergren, A. (2016). Fall risk and its associated factors among older adults without home-help services in a Swedish municipality. *Journal of Community Health Nursing, 33(*4), 181-189. doi: 10.1080/07370016.2016.1227211

Insulation (2018). U.S. Department of Energy. Retrieved from: https://www.energy.gov/energysaver/weatherize/insulation

Jacobs, J. J., Cohen, A., Hammerman-Rozenberg, R., Azoulay, D., Maaravi, Y., & Stessman, J. (2008). Going outdoors daily predicts long-term functional and health benefits among ambulatory older persons. *Journal of Aging and Health, 20*(3), 259-272. doi: 10.1177/0898264308315427

Lindemann, U., Stotz, A., Beyer, N., Oksa, J., Skelton, D. A., Becker, C., Rapp, K., & Klenk, J. (2017). Effect of indoor temperature on physical performance in older adults during days with normal temperature and heat waves. *International Journal of Environmental Research and Public Health, 14*(2), 186-195. doi:10.3390/ijerph14020186

Martin, J. L., Song, Y., Hughes, J., Jouldjian, S., Dzierzewski, J. M., Fung, C. H., Rodriguez Tapia, J. C., Mitchell, M. N., & Alessi, C. A. (2017). A four-session sleep intervention program improves sleep for older adult day health care participants: Results of a randomized controlled trial. *Sleep, 40(*8), 1-12. doi: 10.1093/sleep/zsx079

National Institutes of Health State-of-the-Science Conference Statement on manifestations and management of chronic insomnia in adults. (2005). *Sleep*, *28,* 1049-1057.

Obayashi, K., Saeki, K., Iwamoto, J., Ikada, Y., & Kurumatani, N. (2013). Exposure to light at night and risk of depression in the elderly. *Journal of Affective Disorders, 151*, 331-336. doi: 10.1016/j.jad.2013.06.018

Ozel, M. (2013). Thermal, economical and environmental analysis of insulated building walls in a cold climate. *Energy Conversion and Management, 76*: 674-684. http://dx.doi.org/10.1016/j.enconman.2013.08.013

Sailor, D. J., Elley, T. B., & Gibson, M. (2011). Exploring the building energy impacts of green roof design decisions – A modeling study of buildings in four distinct climates. *Journal of Building Physics, 35*(4), 372-391. doi: 10.1177/17442591114200076

Sartini, C., Barry, S. J. E., Whincup, P. H., Wannamethee, S. G., Lowe, G. D. O., Jefferis, B. J., Lennon, L., Welsh, P., Ford, I., Sattar, N., and Morris, R. W. (2017). Relationship between outdoor temperature and cardiovascular disease risk factors in older people. *European Journal of Preventive Cardiology, 24*(4), 349-356. doi: 10.1177/2047487316682119

Shin, J. (2018). Listen to the elders: Design guidelines for affordable multifamily housing for the elderly based on their experiences. *Journal of Housing for the Elderly, 32*, 211-240. doi: 10.1080/02763893.2018.1331585

Sleep Hygiene (2018). What is sleep hygiene?. *National Sleep Foundation*. Retrieved from https://www.sleepfoundation.org/sleep-topics/sleep-hygiene

Soundproofing Your Home for Airplane Noise (2018). Soundproofing made simple. *Sonic-Shield.* Retrieved from https://www.sonic-shield.com/soundproofing-your-home-for-airplane-noise/

Szklo-Coxe, M.,Young, T.,Peppard, P. E., Finn, L. A., & Benca, R. M. (2010). Prospective associations of insomnia markers and symptoms with depression. *American Journal of Epidemiology, 171*, 709–720. doi: 10.1093/aje/kwp454

Tips to Provide Better Doors and Windows for the Elderly and Disabled (2017). Builder Max. Retrieved from https://buildermaxinc.com/tips-provide-better-doors-windows-elderly-disabled/

Ulrich, R. S. (1984). View through a window may influence recovery from surgery. *Science, 224*, 420-421.

Walls. (2018). *Cold Climate Housing Research Center*. Retrieved from http://www.cchrc.org/walls

Wandering (2018). *Alzheimer's Association*. Retrieved from https://www.alz.org/help-support/caregiving/stages-behaviors/wandering

Weiner, C. (2013). Insulating Colorado homes. *Colorado State University Extension*. Retrieved from: http://extension.colostate.edu/docs/pubs/consumer/10635.pdf

Zhao, X., Ma, J., Wu, S., Chi, I., & Bai Z. (2018). Light therapy for older patients with non-seasonal depression: A systematic review and meta-analysis. *Journal of Affective Disorders, 232*, 291-299. doi: 10.1016/j.jad.2018.02.041

CHAPTER V: NEIGHBORHOOD DESIGN

Neighborhood design is an important factor to consider in older adults' ability to age in place, as they are vulnerable to neighborhood design as health declines with age (Yen and Anderson, 2012). This trend is supported by the environmental docility hypothesis (Lawton & Simon, 1968), as discussed in Chapter I (Theoretical Foundations), which posits that as older adults decline in personal competence, the appropriate environmental infrastructure must be in place to support increasing dependence. In this chapter, we review evidence-based recommendations regarding how to accommodate increasing levels of dependence of aging adults through effective neighborhood design, allowing for a greater ability to age in place.

The person-environment congruence model (Kahana, 1982) also demonstrates the importance of match between an older adult's capabilities and surrounding environmental features. When this congruence is met, older adults have a greater capacity to "physically get out in one's neighborhood and maintain independence in daily activities" (Winters et al., 2015, p. 304). This capacity is called "mobility," and sustaining this ability is necessary for older adults' well-being and quality of life (Webber, Porter, & Menec, 2010). How the neighborhood is structured affects older adults' ability to be mobile and engaged in several ways. First, age-friendly neighborhood design allows older adults to engage in physical activity and social engagement through walking in the neighborhood. Second, neighborhood design increases opportunities for social behavior and one's ability to access needs outside of the neighborhood in the community at large via transportation options; and finally, through safety and comfort in their neighborhoods. These points are addressed in the first part of this chapter.

Neighborhood design not only facilitates mobility and related constructs. Through the use of successful intergenerational housing models, community members benefit by reducing

their cost of living by sharing property responsibilities, and through community collaboration and support (Meyer, 2018). Thus, these models have the potential to empower older adults to be able to age in place, an important need in a rapidly aging society (Aneshensel, Harig, & Wight, 2015; Meyer, 2018). The second portion of this chapter will include recommendations representing best-practice for intergenerational housing and urban design based on an integrative review and analysis of available research.

Overall Mobility Patterns

To begin the discussion of neighborhood effects on older adults' mobility, it is necessary to first examine the overall patterns of mobility typically exhibited by this group. Patterns of interest for older adults include frequency and duration of mobile behavior, typical modes of transportation, and purpose of the mobility (e.g. leisure, social engagement, resource attainment, etc.). Examining the patterns surrounding older adults' overall mobility will be useful scaffolding in understanding how to incorporate environmental factors to aid or adjust those patterns and promote an age-friendly neighborhood.

When compared with the general adult population, older adults tend to take fewer trips, travel shorter distances, and rely more heavily on personal vehicles (Shen et al., 2017; Scott et al., 2009). In fact, Ritter, Straight, and Evans (2002) found that driving was the typical mode of transport for 80 percent of Americans aged 50 and over in the United States. Several factors may contribute to this dependence on personal vehicles, including the Baby Boomers coming of age in the automobile era, the suburbanization and urban sprawl that continues throughout the country, and lack of adequate public transportation (Scott et al, 2017). However, living in an urban setting that is highly walkable, such as the proposed location of this project, may shift these patterns.

Winters et al. (2015) addressed this possibility by examining travel patterns in Vancouver, Canada. For those older adults living in the highly-walkable downtown area, only 22 percent of trips from the home were made by car, compared to the general regional population's average of 78 percent. Furthermore, activity increased in the walkable area, as 66 percent of trips were made by active modes (walking/bicycling) compared to the regional population's average of 11 percent. Though cars were still necessary for about one in five trips to health care appointments, full-service restaurants, or malls and other large marketplaces, living in a walkable area decreased the necessity for a personal vehicle in order to make trips from the home. Including these resources within a walkable area could potentially further decrease the need for personal vehicles and still promote well-being through providing adequate opportunities to procure resources, maintain social engagement, and monitor physical health.

Additional work has examined patterns of travel frequency for older adults, as well as common destinations that are visited. Winters et al. (2015) observed that those living in the walkable downtown Vancouver area left the house at about double the rate of others living elsewhere in the region (average of 4.6 trips vs. 2.4). Researchers observed the most frequently visited destination was the grocery store, followed by restaurants, malls or other large shopping centers, and other people's houses. Chudyk et al. (2015) found similar results in their study of low-income older adults. For these individuals, grocery stores, malls, and restaurants or cafes were the top-visited locations. Additionally, Chudyk et al. (2015) observed that participants completed an average of three trips per week with a total of six different destination types over those visits. This illustrates further important points; first, that older adults are likely to make multiple stops on a trip from the home; and second, that walkable neighborhoods can reduce mobility disparity that might otherwise be constrained by the cost of travel or gas.

With this information in mind, it is clear how the environmental design can play a role not only in how older adults choose to travel, but also how frequently they choose to leave the house. Winters et al. (2015) found compelling evidence that the more walkable an area, the more likely older adults were to choose active transportation and leave the house to engage in travel. The following are areas of consideration surrounding walkability and neighborhood factors that allow older adults to age in place while preserving this mobility.

Walkability

The infrastructure of a neighborhood can aid or impede an older adult's ability to comfortably and confidently choose walking as a mode of transport. First, the distance to be traveled is a factor. Prior work has estimated that a perceived walkable neighborhood distance for older adults is somewhere between 400-500 meters (0.25-0.31 miles; Smith et al, 2010; Moniruzzaman et al, 2013). Thus, increasing the amount of potential destinations within this walkable distance through mixed land use and diversity in the rise of buildings makes it more likely to be a highly-walked neighborhood (Moniruzzaman & Páez, 2016). The specific building infrastructure for accommodating this need will be discussed later, but the street layout is an important factor in facilitating this type of setting as well.

Street layout. For older adults, street connectivity is an important factor in increasing walking behavior. Streets that are laid out in a grid design with four way intersections on both ends of walking segments allow for greater potential destinations to be reached within the 400-500 meter window and tend to be more associated with walking behavior (Dix.Hite+Partners, 2017; Moniruzzaman & Páez, 2016). Areas with dead-ends, three-way intersections, and cul-de-sacs also tend to be less walked and should be avoided in neighborhood design (Dix.Hite+Partners, 2017; Moniruzzaman & Páez, 2016).

Pedestrian safety. Street layout can affect walkability through the perception of safety. Posted low-speed limits are important, but other factors such as narrow streets and roundabouts lessen drivers' speed and lead to fewer and less-severe accidents (Dix.Hite+Partners, 2017). Street crossings are an additional area of importance to older adult pedestrians. Low-volume streets that are typically associated with a stop sign are easier for older adults to cross than multi-lane roads with stop lights. Intersections with stop signs allow the individual as much time as needed to cross the road as compared to a timed-crossing at a stoplight (Moniruzzaman & Páez, 2016). Finally, the distance one must cross at one time can be reduced with the use of curb extensions, facilitating narrower roads and slower driver speeds, and crossing islands, providing walkers with a safe rest point while crossing the street (Dix.Hite+Partners, 2017). Crosswalks should also be easily visible and highly marked at both ends of the segment to facilitate pedestrian safety and walking behavior (Dix.Hite+Partners, 2017; Moniruzzaman & Páez, 2016).

Sidewalks. Although the layout and connectivity of streets are important, mobility is not supported without adequate attention to and maintenance of sidewalks. As with street connectivity, sidewalks that are highly-connected (i.e. four-way intersections, no dead ends) show increased walking behavior by older adults compared to areas with less connectivity (Moniruzzaman & Páez, 2016). However, the relationship between connectivity and older adult walking behavior also depends on the ease with which the sidewalks are traveled. Flat terrain tends to be more easily walked for older adults, whereas steep or slightly-hilled sidewalks pose a barrier to walkability (Moniruzzaman & Páez, 2016). For those areas where flat terrain may not be a possibility, ramps and hand rails should be included (Garvin, Nykiforuk, & Johnson, 2012). Additionally, the sidewalks must be well-paved, smooth, and wide in order to facilitate mobility and lessen the risk of falls for older adults (Shin, 2018). These qualities in a sidewalk not only

facilitate pedestrians, but also older adults in wheelchairs or who use walking aids that may require additional width and levelness in a useable sidewalk. It is encouraged that for sidewalks measuring less than five feet in width, passing spaces providing an additional five feet of space be constructed at intervals of every 200 feet (United States Access Board, 2011). These walkways must offer adequate space that is free of trash receptacles, greenery, or construction equipment (Garvin, Nykiforuk, & Johnson, 2012). In Colorado, special attention should be paid to sidewalk maintenance in winter seasons as snow and ice become safety concerns (Garvin, Nykiforuk, & Johnson, 2012). Finally, when dismounting sidewalks, low curbs that taper into the road should be included in order to reduce the risk of falls (Shin, 2018).

Benches. Older adult pedestrians also benefit from the ability to rest throughout their walk. Winters et al. (2015) found that supportive infrastructure including benches and other resting places can have a positive effect on older adults' decisions to walk to retail-based destinations (Winters et al., 2015) Additionally, streets that offer comfort through benches have been found to be preferred to walk for transportation over streets without (Shin, 2018; Van Cauwenberg et al., 2014). Benches not only serve as a mobility aid, but they also facilitate enjoyment of green spaces and promote social engagement (Ottoni et al., 2016; Shin, 2018). One study found that “benches become like porches,” acting to increase neighborhood sense of community and the social engagement of older adults (Ottoni et al., 2016, pg. 39). Also important in this infrastructure is the type of bench used. For older adults, benches should sit between 17 and 19 inches and include back and arm support, as well as rails to facilitate sitting down and getting up (United States Access Board, 2011; Garvin, Nykiforuk, & Johnson, 2012). Finally, benches should be built from material that remains temperate to the touch in both winter

and summer months (i.e. wood versus metal) and should be within arms-reach from trash cans (Garvin, Nykiforuk, & Johnson, 2012).

Lighting. Also important in creating a sense of community and facilitating walking behavior is the type of lighting included throughout the community. Many urban settings contain road-oriented lighting, using yellow lights that illuminate the road rather than sidewalks. In more walkable areas, pedestrian-oriented lighting is found. This includes lighting that is closely spaced and white rather than yellow, as white lighting offers better visual clarity, renders colors more accurately, and improves reaction time for vehicles (Moniruzzaman & Páez, 2016; Project for Public Spaces, 2008). Adequate lighting contributes to a sense of safety, particularly in walkable areas that cross under an overpass or are similarly shaded from natural light (COS Walkability).

Pedestrian security. In addition to lighting, other aspects of neighborhood design can facilitate or hinder a sense of safety when walking throughout the community. Factors that contribute to the perception of neighborhood problems such as poor sidewalks, broken curbs, and vandalism have been found to relate negatively to older adult's walking behavior (Van Cauwenberg et al., 2011). Other nuisances such as unattended dogs and "youngsters hanging around" have been hypothesized to affect total walking (Van Cauwenberg et al., 2011, pg. 464), but have not been found to have a significant impact on perceived safety and walking behavior (Sugiyama & Ward Thompson, 2007).

It has been hypothesized that older adults may wish to avoid busy public spaces and prefer more quiet areas for walking (Garvin et al., 2012). Older pedestrians may be caught by surprise by young people on bicycles, skateboards, or roller-skates moving quickly down the sidewalks in busier, public areas (Garvin, Nykiforuk, & Johnson, 2012); thus, special attention should be paid to ensuring that less-populated spaces for walking sustain the feeling of security

without necessitating an influx of other pedestrians. One way to increase this feeling of security for pedestrians may be achieved through providing increased visibility of walkways throughout the neighborhood. Environments where people may be seen on the sidewalk from homes tend to be associated with significantly more walking compared to those where no one sees the sidewalk (Van Cauwenberg et al., 2014). This aspect of surveillance increases perceived pedestrian safety for older adults (Van Cauwenberg et al., 2014).

Trails. Finally, outdoor wellness areas such as trail systems are an asset afforded to those living in Colorado. To accommodate older adults, trails should be wide enough to allow walking groups for socialization and should be regularly maintained, clearly marked, and employ distance markers along trails (Dix.Hite+Partners, 2017). Finally, in a similar fashion to streets, a sense of safety can be facilitated by adequate lighting and the addition of seating, receptacles, and public art (Dix.Hite+Partners, 2017). Collectively, these recommendations can lead to increases in walking behavior for both travel and leisure in older adults, resulting in a prolonged ability to remain mobile and engaged in the surrounding community.

Mobility Outside of the Neighborhood

Walkability within the neighborhood is important for older adults' mobility; however, it is clear that older adults must also travel outside of their immediate neighborhood at times. Yang et al. (2018) examined this behavior, finding that older adults traveled 20.56 miles per day on average when leaving their immediate neighborhood. Although older adults were less likely to travel for work or study after retirement, researchers found they were more likely to travel for shopping and social events. This shopping and social travel tended to be completed with a car much more often than by active modes or through the use of public transport, which is unsurprising considering the overall distance traveled. However, along with the previously-noted

dependence on personal vehicles for older adults, Yang et al. (2018) demonstrate the importance of accommodating these frequently-used personal vehicles within the neighborhood design as well.

Parking. The parking infrastructure in a neighborhood can have an important impact on older adults' well-being when it is not properly designed. Shin (2018) reported that some older adults will constrain their travel times to an early period in the day in order to avoid difficulty finding a parking space later in the evening. Furthermore, rather than inviting family and friends into neighborhoods with limited parking and risk getting a ticket, older adults may ask visitors not to come or be forced to visit elsewhere (Shin, 2018). These patterns illustrate how poorly-designed parking can impede mobility and be a barrier to social engagement for older adults. The person-environment docility hypothesis (Lawton & Simon, 1968) would indicate that these constraints would only continue to worsen as an older adults' competence declines, likely having greater detriments to their ability to remain engaged in the community.

In order to remove such constraints, Shin (2018) suggests that a balance should be struck between adequate parking for both residents and visitors. This should be done without allowing parking to dominate the neighborhood layout; thus, it may be necessary to include an assignment system delegating spaces for residents, visitors, and sufficient handicapped spaces for older adults with mobility difficulties. Additionally, access to and surveillance from housing should be considered to facilitate a sense of safety in the parking infrastructure (Shin, 2018). Thus far, no research has been identified regarding the importance of covered or uncovered parking, although one could infer that covered parking in the Colorado climate would be beneficial for older adults in order to avoid damage to vehicles or their person due to hazardous weather conditions.

Public transport. In addition to personal vehicle accommodations, neighborhood design should also include accessible public transport when available. Doing so facilitates mobility and independence for those with and without personal vehicles, which may be of particular importance for those older adults living on a lower income, as public transport can account for up to 17 percent of travel in this group (Shin, 2018; Chudyk et al., 2015). Factors that facilitate public transportation use include locating bus stops within one-quarter mile of residences, as this has been named as the preferred maximum walking distance for older adults to access public transport (Peck 2010). Smaller, community buses that run through neighborhoods have been seen as helpful for older adults, particularly buses that can raise and lower for accessibility (Garvin, Nykiforuk, & Johnson, 2012). The use of Zipcar and Uber or Lyft technologies have also been promoted to increase mobility amongst older adults in popular press articles (Mullaney, 2017), although to our knowledge, no empirical evidence has examined their use.

Research has also demonstrated a number of factors that act as barriers to older adults' ability to use public transportation. Inconvenient stop locations, unsafe walking environments, and inaccessible transit stops prevent older adults from accessing public transportation (Peck, 2010). Therefore, the area around the bus stop should have wide, wheelchair accessible sidewalks, be clear of debris like rocks and gravel, and have adequate lighting and seating (Peck, 2010). In addition, transportation stops should be equipped with weather protected seating and sufficient lighting. If adequate transit stops cannot be included within the neighborhood infrastructure, shuttle services that connect to a transportation hub can enable use by older adults (Shin 2018).

Finally, for older adults living in Colorado, public transportation use can be obstructed as the changing seasons bring new barriers. Winter can be of particular concern, as during this

season litter tends to accumulate in stop shelters, making them unpleasant to use (Garvin, Nykiforuk, & Johnson, 2012). Additional winter concerns include snow piles accumulating at bus stops that may impede the ability to access public transportation (Peck, 2010). Special care should be taken in the winter months in order to ensure that the usability of public transportation by older adults does not suffer.

Bicycling. Finally, bicycling can offer an additional form of transportation that is both active and relatively low-cost. For most older adults, this is a rarely used option due to increased safety risks with age, such as poor vision, reduced muscle strength, and declining cognition (Ikpeze et al., 2018). For instance, one study in Minnesota looking at those who were 70 and older in a mid-size city found that only about 15 percent of respondents reported using a bike at all. This use did not appear to depend on the walkability of the area, although in general the area in the study was not considered particularly conducive to walking or biking. Age appeared to have a larger impact on biking behavior than the physical environment in this study (Takahashi et al., 2012). Additional studies found bicycle usage in older adults to account for below 10 percent of total travel (Winters et al., 2015; Van Cauwenberg et al., 2012). However, in an intergenerational community, infrastructure to accommodate bicycle use may be beneficial for increasing active modes of transportation among all ages. If such infrastructure is to be included, lanes should measure approximately six-feet in width and employ a clear separation between roads, sidewalk, and cycling paths, such as small median hardscapes (Van Cauwenberg et al., 2014; Dix.Hite+Partners, 2017).

Overall, including bicycle, public transport, and personal vehicle transport accommodations can facilitate independence for older adults and maintain mobility for an extended time. Ensuring that these infrastructures are included, accessible, and well-maintained

should be of high priority in designing an environment intended to support older adults' ability to age in place.

Neighborhood Comfort and Sustainability

Finally, older adults' mobility can be affected by their perceptions of safety, comfort, and sense of community within the neighborhood. Safety already has been discussed briefly, but further recommendations include the possibility of a security system at the main entrance if the neighborhood is located in a high crime area (Shin 2018). Potential other options of encouraging neighborhood openness while maintaining safety will be described later.

Additionally, neighborhoods that are considered quiet, controlled, and peaceful tend to foster a sense of safety and belonging for older adults (Garvin, Nykiforuk, & Johnson, 2012). Neighborhood design can facilitate this peace within the greater environment as well as within each individual residence by ensuring that an adequate buffer from street noise exists throughout the complex (Shin, 2018). It is recommended that when identifying locations, those near major highways, railroad tracks, or hospitals with frequent ambulance use are avoided (Shin, 2018).

Comfort throughout the neighborhood can also be offered through the inclusion of amenities that may be particularly relevant to older adults, such as water fountains, automated doors on buildings, and the presence of clean washrooms in public areas (Chaudhury, 2011). Public toilets should provide at least one fixture that is accessible to older adults (United States Access Board, 2011). Finally, a general respect for the neighborhood tends to be perceived when the environment is kept tidy and contains pleasing features (Garvin, Nykiforuk, & Johnson, 2012).

Green spaces. One way to incorporate pleasing features is through the inclusion of green spaces and vegetation within the neighborhood design. Including accessible green spaces and

parks within walking distance tend to be beneficial for older adults' physical activity, engagement, and overall well-being (Shin, 2018). Even the presence of a relatively small amount of vegetation may be sufficient to affect older adults' walking behavior, as these areas are deemed preferred spaces to walk for transportation over those without (Van Cauwenberg et al., 2014). Hong et al. (2018) also found that green spaces increased perceived comfort within the neighborhood, but noted that this relationship was moderated by perceived safety. Further, the authors noted that most green space elements were found to be beneficial to the social engagement of older adults; however, other factors such as parks and street trees were less beneficial for those who perceived their neighborhood to be unsafe for pedestrians (Hong et al., 2018). This caveat to the relationship between green spaces and their benefit to older adults illustrates the importance of not only including green spaces, but also the need to create an environment that facilitates their use by maintaining safety throughout. The next section on outdoor spaces will include additional information to this end.

Green spaces can also promote a safer and more comfortable living environment in several ways. Trees can create a physical buffer between cars and pedestrians on the sidewalk when placed within four to six feet of the street (Dix.Hite+Partners, 2017). This placement can also help to lower vehicle speed and absorb vehicle emissions, resulting in safer and cleaner streets (Dix.Hite+Partners, 2017). Comfort within individual units can also be improved through the use of vegetation. For instance, planting deciduous trees on the west side of developments can allow for shaded units in the summertime, but will also allow sun in during the winter months after the trees have lost their leaves (Shin, 2018). Evergreens may not offer this same benefit, and in general, trees should not be planted too near windows so that natural light is blocked (Shin, 2018).

Benefits of maintained outdoor spaces. While formal and lengthy social interactions usually occur in indoor shared spaces, frequent and informal interactions usually occur in outdoor spaces (Williams, 2005). As previously discussed, one of the biggest benefits of maintained outdoor spaces is that they improve neighborhood walkability, and thus contribute to increasing older adult well-being and quality of life (Moniruzzaman & Páez, 2016). When possible, residential activities can be held outdoors to benefit the health of residents, as studies have found reductions in serum cortisol levels when residents engaged in community activities outdoors (e.g. in a park) rather than indoors (e.g. in a classroom; Calkins, 2009). Because residents of intergenerational communities generally manage and maintain their own communities, creating and maintaining shared outdoor spaces invites the opportunity for exchange and community contact (Dorit, 2012). In intergenerational communities that include families with young children along with older adults, larger outdoor spaces help to prevent intergenerational conflict over space ownership and sound-related conflict (Dorit, 2012). Outdoor spaces can serve a variety of functions, from gardens that serve as buffer zones between private and shared spaces, to parks that invite children to play, to barbecue pits that allow adults to congregate (Tummers, 2016). Although shared outdoor spaces can act as a buffer and help to facilitate social engagement, private outdoor spaces are often also desirable and beneficial to residents (Dorit, 2012). One way to add private outdoor spaces to a community design is to build balconies and roof terraces attached to private homes and spaces (Dorit, 2012). Overall, greater diversity in both building design and land use are associated with higher residential activity levels, greater walkability, and improved residential health outcomes (Calkins, 2009; Dorit, 2012; Patterson & Chapman, 2004; Tummers, 2016)

Sustainability. Finally, ensuring that residents feel secure and comfortable in their neighborhood can be impacted by creating a sustainable community. Following a review of successful intergenerational housing projects that have been carried out in Europe, it appears that those that had a strong set of values and a shared thematic focus (e.g. gender, sustainability, etc.) tended to have more engagement from residents (Czischke, 2018). The more residents could get behind the 'ethos' of the community, the more likely they were to increase their stake in the community and collaborate to improve it (Czischke, 2018). Communities united by established environmental principles (e.g. permaculture) have been found to have reduced residential conflict and greater unity when making community decisions (Marckmann et al., 2012). Trust is essential in creating a sense of comfort and safety for older adults in intergenerational communities, and through shared values, intergenerational residents can more easily enhance their sense of community and trust (Ruiu, 2014). Indeed, shared values among intergenerational residents can support the creation of a community culture, help form community roles, and promote desirable pro-community behaviors (Ruiu, 2014).

The sense of volunteerism and community commitment found in intergenerational housing often predisposes residents towards the acceptance of sustainable activities and practices (Tummers, 2016). Sustainable practices such as installing solar panels on each residence, creating edible community gardens, planting fruit trees, and constructing smaller, more energy-efficient buildings can help to reduce community costs and promote well-being (Marckmann et al., 2012). Other sustainable practices frequently incorporated into successful eco-friendly intergenerational communities include collective central heating, community-wide composting, and the exclusive use of energy-efficient appliances that reduce waste and lower costs (Marckmann et al., 2012). Although people of low socioeconomic status often face challenges to

joining intergenerational communities, promoting sustainability is a proven way to reduce move-in costs and increase community accessibility (Ruiu, 2014). This is especially important for older adults and lower-income residents who might face financial barriers to community access without practices that offset costs for those with limited or fixed incomes (Ruiu, 2014). Incorporating sustainable practices into a community's culture can sometimes even lead to income-generating activities such as public workshops, community teaching events, and service committees that give residents an opportunity to share their knowledge and collaborate with the surrounding community (Tummers, 2016). Looking towards the future, intergenerational housing represents a practical and realistic way to enact pro-environmental lifestyle changes within communities to reduce housing costs and support the creation of a more sustainable urban environment (Aneshensel et al., 2015; Tummers, 2016).

Neighborhood Density

As previously discussed, street connectivity and building layout are crucial for increasing mobility in older adults. These factors can be included under the term "neighborhood density," which also includes how residential buildings are spaced, how private and public spaces are positioned, and how residents are able to interact within the built environment. Several aspects of older adult well-being, aside from mobility, are impacted by neighborhood density and will be described in the following section.

Facilitating social interaction. There are several factors to consider when thinking about how to design structures that achieve ideal levels of neighborhood density and thereby facilitate harmonious social interactions between residents. In intergenerational communities, social interactions provide an opportunity for residents to learn about each other and create a social structure (Williams, 2005). By designing spaces that allow for frequent social interactions, one

can support the building of trust between residents and the development of a communal culture of established norms, connections, and exchange (Williams, 2005). Therefore, when designing an intergenerational community, some of the most important considerations regard factors that saliently influence social interaction (Williams, 2005).

Functional social density. Functional social density (FSD) represents the total amount of shared social space available for each resident within a community (Calkins, 2009). Increasing functional social density is desirable as it can help foster a sense of community and increase social interaction (Williams, 2005). For planning purposes, FSD can be calculated using the following equation: FSD = (total square feet of shared social spaces used by at least 20 percent of residents at least 20 percent of the time) / (number of residents) (Calkins, 2009). Functional social density may be particularly important for older adult community members. In a study of residents in a dementia care setting, higher FSD was associated with higher rates of activity involvement among older adult residents (Saperstein, Calkins, Van Haitsma, & Curyto, 2004). Indeed, maximizing social density and minimizing private space seems to be one of the keys to reducing social isolation and encouraging engagement among intergenerational residents, especially older adults (Williams, 2005). However, when social density becomes too high, the community can begin to feel invasive and residents may withdraw into private spaces (Williams, 2005).

Semi-private buffer zones. The use of buffer zones, such as gardens and verandas, provide transitions between spaces and can prevent social density overload when private spaces are near high-density public ones (Williams, 2005). Urban infill is a type of community where a city area is repurposed through building upon and around existing infrastructure to increase neighborhood density and revitalize the neighborhood (Dorit, 2012). Semi-private buffer zones

are essential in urban infill communities and other high density communities because of the importance of being able to buffer high-density public zones (Dorit, 2012; Williams, 2005). Building gardens and shared outdoor spaces are effective ways to provide greenery and maintain a sense of openness that can buffer friction from highly trafficked or socially dense areas (Dorit, 2012). Alternatively, research on intergenerational communities in Europe suggests that increasing stakeholder buy-in (i.e. by residents contributing to design choices) can reduce conflict among residents and increase tolerance for high levels of social density (Czischke, 2018; Tummers, 2016).

Building Styles

Research on successful intergenerational housing projects across multiple countries have identified common themes in building style and functional emphasis (Dorit, 2012). Cross-culturally, successful intergenerational communities have shared common facilities, buildings designed to promote social contact among residents, and private living spaces large enough for residents to have their own private kitchens and bathrooms (Dorit, 2012).

Building layout. Physical proximity resulting from the built environment can have a powerful influence on social behavior (Williams, 2005). For example, those living on the outskirts of a community tend to be more socially isolated than those in more central locations (Williams, 2005). As older adults and residents with mobility challenges may be more vulnerable to social isolation, physical proximity is especially important to consider in intergenerational communities (Williams, 2005). Neighborhood layouts can be used to position buildings in ways that maximize physical proximity and promote accessibility, supporting the needs of older adults and increasing their well-being (Williams, 2005).

Two of the most common neighborhood layouts are constructing buildings in rows or clusters, with evidence suggesting that older adult residents benefit most from clustered layouts (Williams, 2005). For example, intergenerational communities in Japan have reported success positioning clusters of homes around a centralized public space (Dorit, 2012). Sub-community and neighborhood development is encouraged by positioning buildings in clusters with good visibility, helping to reduce social isolation while building a sense of safety and facilitating social contact on common pathways (Williams, 2005). By grouping homes relatively close together, intergenerational communities can encourage neighborhood interaction and facilitate social contact (Marckmann, Gram-Hanssen, & Christensen, 2012). Clustered layouts that provide poor visibility and impede accessibility to shared spaces can promote conflict and territorial behaviors among residents (Williams, 2005). To prevent this, larger communities should seek to promote neighborhood exploration by hosting activities in different parts of the community, and should seek to maintain accessibility through prioritizing walkability between clusters (Williams, 2005). Prioritizing building layouts that promote accessibility, visibility, and close physical proximity are likely to increase community walkability, promote residential well-being, and empower older adults to remain active and socially connected as they age in place (Williams, 2005).

Supporting physical activity. For older adults living in intergenerational communities, design considerations that support physical activity and engagement in pro-health behaviors are especially important (Aneshensel et al., 2015). Design features in intergenerational communities can either support physical activity or hinder it, primarily through factors like accessibility, walkability, and outdoor land use (Aneshensel et al., 2015). Increasing diversity in land use, landscaping, and building type have been found to increase walkability, support social harmony,

and improve quality of life (Li, Fisher, Brownson, & Bosworth, 2005; Moniruzzaman & Páez, 2016). Some examples of diverse land use in intergenerational communities include creating playgrounds, vegetable gardens, barbecue areas, trails, and parks (Williams, 2005). Other factors found to promote older adult physical activity in intergenerational communities include providing access to nearby recreational facilities and promoting a sense of safety through good visibility (Li et al., 2005).

Neighborhood openness and visibility. Successful intergenerational communities create a sense of security through interaction, trust, and good visibility that allows for passive surveillance (Ruiu, 2014). Building designs that extend a sense of openness to the surrounding neighborhood (e.g. having a terrace that opens out into a public plaza) tend to support positive interactions with the surrounding community (Dorit, 2012). Having numerous shared common spaces and flexible-use buildings can facilitate the inclusion of outside groups into community activities, increasing community visibility, cohesion, and social exchange (Dorit, 2012). Having numerous ground-level shared outdoor spaces (e.g. public courtyards, parks, gardens, etc.) can promote visibility, openness, and provide opportunities for informal social exchange between residents (Dorit, 2012).

Building design. As social cohesion and community support are some of the most salient benefits of intergenerational housing, communities benefit when buildings are designed in a way that promotes social contact and the development of social relationships (Marckmann et al., 2012). Buildings that are taller than one or two stories tend to reduce social interaction as residents on higher floors are less likely to come down into public areas (Williams, 2005). Further, buildings taller than two stories may prove difficult for older adults to access, or may endanger residents with limited mobility, and so are undesirable design choices for

intergenerational communities (Williams, 2005). Building smaller private living spaces is one way to promote social contact in intergenerational communities (Marckmann et al., 2012). Some of the benefits of designing smaller living spaces are that they require less energy, take up less land, reduce social isolation, and require fewer resources to build and maintain (Marckmann et al., 2012). Thus, designing smaller, more energy-efficient buildings can make intergenerational communities more environmentally and financially sustainable (Marckmann et al., 2012).

Shared indoor spaces. Shared indoor spaces that are centralized, easily accessible, and highly visible positively impact community participation and unity (Williams, 2005). Some examples of shared indoor spaces popular in intergenerational communities include dining areas, social gathering places, meeting rooms, and practical facilities (i.e. laundry, gym, etc.) (Williams, 2005). It is especially important to consider the acoustics of shared indoor spaces, as poor acoustics are associated with reduced building use among older adult community members (Williams, 2005).

Missing middle housing. Missing middle housing designs, given this name because they are uncommon in contemporary America, are appropriate designs for intergenerational communities seeking to promote social cohesion and walkability (Parolek, 2016). As depicted in Figure 1, missing middle housing types like bungalow courts, townhomes, and live/work facilities all represent desirable design options for intergenerational communities that need to construct spaces suitable to the needs of older adults, families, and single adults (Parolek, 2016). Bungalow courts are often laid out in tight clusters and are typically single-level, making them a desirable option for older adults or residents with mobility challenges looking to age in place (Parolek, 2016). For families, townhomes might be the best option, as these structures could support needs for additional space and privacy (Parolek, 2016). Overall, missing middle housing

designs are options well-suited to the diverse needs of people living in intergenerational communities.

Figure 1. "Missing Middle Housing" Building Types (Parolek, 2016)

Conclusion

The purpose of this chapter was to provide neighborhood design recommendations for intergenerational communities. By incorporating age-friendly design choices, intergenerational communities can support older adults seeking to age in place. By prioritizing factors like mobility, walkability, social contact, and neighborhood density, intergenerational communities can help residents stay physically, cognitively, and socially active. Intergenerational design choices that help older adults stay healthy, adapt to mobility decline, and stay socially connected are likely to promote well-being and facilitate aging in place.

References

Aneshensel, C. S., Harig, F., & Wight, R. G. (2015). Aging, Neighborhoods, and the Built Environment. In K. Ferraro & L. George (Eds.), *Handbook of Aging and the Social Sciences: Eighth Edition* (pp. 315–335). Academic Press. doi:10.1016/B978-0-12-417235-7.00015-9

Calkins, M. P. (2009). Evidence-based long term care design. *Neurorehabilitation*, *25*, 145–154. doi:10.3233/nre-2009-0512

Chaudhury, H., Mahmood, A., Michael, Y. L., Campo, M., & Hay, K. (2011). The influence of neighborhood residential density, physical and social environments on older adults' physical activity: An exploratory study in two metropolitan areas. *Journal of Aging Studies, 26*, 35-43. doi:10.1016/j.jaging.2011.07.001

Chudyk, A. M., Winters, M., Moniruzzaman, M., Ashe, M. C., Gould, J. S., & McKay, H. (2015). Destinations matter: The association between where older adults live and their travel behavior. *Journal of Transport & Health, 2*, 50-57.

Czischke, D. (2018). Collaborative housing and housing providers: Towards an analytical framework of multi-stakeholder collaboration in housing co-production. *International Journal of Housing Policy*, *18*, 55–81. https://doi.org/10.1080/19491247.2017.1331593

Dix.Hite+Partners. (2017). Toward a livable southeast Colorado Springs: A walkable and age-friendly communities workshop. *AARP Colorado and the Innovations in Aging Collaborative*.

Dorit, F. (2012). Seeding Community: Collaborative housing as a strategy for social and neighbourhood repair. *Built Environment*, *38*, 364–394. doi:10.2148/benv.38.3.364

Garvin, T., Nykiforuk, C. I. J., & Johnson, S. (2012). Can we get old here? Seniors' perceptions of seasonal constraints of neighbourhood built environments in a northern, winter city. *Geografiska Annaler: Series B, Human Geography, 94*, 369-389. doi:10.1111/geob.12004

Hong, A., Sallis, J. F., King, A. C., Conway, T. L., Saelens, B., Cain, K. L., & Frank, L. D. (2018). Linking green space to neighborhood social capital in older adults: The role of perceived safety. *Social Science & Medicine, 207*, 38-45. doi:10.1016/j.socscimed.2018.04.051

Ikpeze, T. C., Glaun, G., McCalla, D., & Elfar, J. C. (2018). Geriatric cyclists: Assessing risks, safety, and benefits. *Geriatric Orthopaedic Surgery & Rehabilitation, 9*, 1-5. doi:10.1177/2151458517748742

Li, F., Fisher, K. J., Brownson, R. C., & Bosworth, M. (2005). Multilevel modelling of built environment characteristics related to neighbourhood walking activity in older adults. *Journal of Epidemiology and Community Health, 59*, 558-564. https://doi.org/10.1136/jech.2004.028399

Marckmann, B., Gram-Hanssen, K., & Christensen, T. H. (2012). Sustainable living and co-housing: Evidence from a case study of eco-villages. *Built Environment, 38*, 413–429. doi:10.2148/benv.38.3.413

Meyer, K. (2018). Neighbors helping neighbors: Co-housing options for older adults to age in place. Retrieved from https://sophia.stkate.edu/msw_papers/837

Moniruzzaman, M., Páez, A., Nurul Habib, K. M., & Morency, C. (2013). Mode use and trip length of seniors in Montreal. *Journal of Transport Geography, 30*, 89-99. doi:10.1016/j.jtrangeo.2013.03.007

Moniruzzaman, M., & Páez, A. (2016). An investigation of the attributes of walkable environments from the perspective of seniors in Montreal. *Journal of Transport Geography, 51,* 85-96. doi:10.1016/j.jtrangeo.2015.12.001

Mullaney, T. (2017) Hot senior living architecture and design trends for 2018. *Senior Housing News*. Retrieved from: https://seniorhousingnews.com/2017/11/30/hot-senior-living-architecture-design-trends-2018/

Ottoni, C. A., Sims-Gould, J., Winters, M., Heijnen, M., & McKay, H. A. (2016). "Benches become like porches": Built and social environment influences on older adults' experiences of mobility and well-being. *Social Science & Medicine, 169*, 33-41. doi:10.1016/j.socscimed.2016.08.044

Parolek, D. (2016). Missing middle housing: Responding to the demand for walkable urban living. Retrieved from http://missingmiddlehousing.com/dev/wp-content/uploads/2015/04/Missing-Middle-Housing-Responding-to-the-Demand-for-Walkable-Urban-Living-by-Daniel-Parolek.pdf

Patterson, P. K., & Chapman, N. J. (2004). Urban form and older residents' service use, walking, driving, quality of life, and neighborhood satisfaction, *19*(1). Retrieved from http://journals.sagepub.com/doi/pdf/10.4278/0890-1171-19.1.45?casa_token=2M2kjKFD2lMAAAAA:aBvZyKgWLrd_AMBeKyMhnJBqudUBslxGmcI2bd3tEYTjArnQJ4fSwxBmq8DssIgn3FbJvfkl6Ubk

Project for Public Spaces. (2008) Lighting Use and Design. Retrieved from: https://www.pps.org/article/streetlights

Ritter, A.S., A. Straight, and E. Evans. (2002). *Understanding senior transportation: Report and analysis of a survey of consumers age 50+*. Washington, DC: AARP Public Policy Institute.

Ruiu, M. L. (2014). Differences between cohousing and gated communities. A literature review. *Sociological Inquiry, 84*(2), 316–335. doi:10.1111/soin.12031

Saperstein, A. R., Calkins, M. P., Van Haitsma, K., & Curyto, K. J. (2004). Missed opportunities: The disconnect between physical design and programming and operations. *Alzheimer's Care Today, 5*(4). Retrieved from https://journals.lww.com/actjournalonline/Fulltext/2004/10000/Missed_Opportunities__The_Disconnect_Between.11.aspx

Sugiyama, T., & Ward Thompson, C. (2007). Older people's health, outdoor activity and supportiveness of neighbourhood environments. *Landscape and Urban Planning, 83,* 168-175. doi:10.1016/j.landurbplan.2007.04.002

Scott, D. M., Newbold, K. B., Spinney, J. E. L., Mercado, R., Paez, A., & Kanaroglou, P. S. (2009). New insights into senior travel behavior: The Canadian experience. *Growth and Change, 40,* 140-168. doi:10.1111/j.1468-2257.2008.00464.x

Shen, S., Koech, W., Feng, J., Rice, T. M., & Zhu, M. (2017). A cross-sectional study of travel patterns of older adults in the USA during 2015: Implications for mobility and traffic safety. *BMJ Open, 7*(8), 1-7. doi:10.1136/bmjopen-2016-015780

Shin, J. (2018). Listen to the elders: Design guidelines for affordable multifamily housing for the elderly based on their experiences. *Journal of Housing for the Elderly, 32,* 211-240. doi:10.1080/02763893.2018.1431585

Takahashi, P. Y., Baker, M. A., Cha, S., & Targonski, P. V. (2012). A cross-sectional survey of the relationship between walking, biking, and the built environment for adults aged over 70 years. *Risk Management and Healthcare Policy, 5*, 35-41. doi:10.2147/RMHP.S30221

Tummers, L. (2016). The re-emergence of self-managed co-housing in Europe: A critical review of co-housing research. *Urban Studies, 53,* 2023–2040. doi:10.1177/0042098015586696

United States Access Board. (2011). Proposed guidelines for pedestrian facilities in the public right-of-way. Retrieved from: https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines

Van Cauwenberg, J., Clarys, P., De Bourdeaudhuij, I., Van Holle, V., Verté, D., De Witte, N., & Deforche, B. (2012). Physical environmental factors related to walking and cycling in older adults: The Belgian aging studies. *BMC Public Health, 12,* 142-142. doi:10.1186/1471-2458-12-142

Van Cauwenberg, J., De Bourdeaudhuij, I., De Meester, F., Van Dyck, D., Salmon, J., Clarys, P., & Deforche, B. (2011). Relationship between the physical environment and physical activity in older adults: A systematic review. *Health and Place, 17,* 458-469. doi:10.1016/j.healthplace.2010.11.010

Van Cauwenberg, J., Van Holle, V., De Bourdeaudhuij, I., Clarys, P., Nasar, J., Salmon, J., & Deforche, B. (2014). Physical environmental factors that invite older adults to walk for transportation. *Journal of Environmental Psychology, 38*, 94-103. doi:10.1016/j.jenvp.2013.12.012

Varady, D. P. (2017). Lidewij Tummers: The re-emergence of co-housing in Europe. *Journal of Housing and the Built Environment*, *32*, 859–861. doi:10.1007/s10901-016-9536-z

Webber, S.C., Porter, M.M., Menec, V.H., 2010. Mobility in older adults: A comprehensive framework. *Gerontologist, 50*(4), 443-450. doi:10.1093/geront/gnq013.

Williams, J. (2005). Designing neighbourhoods for social interaction: The case of cohousing. *Journal of Urban Design*, *10*, 195–227. doi:10.1080/13574800500086998

Winters, M., Voss, C., Ashe, M. C., Gutteridge, K., McKay, H., & Sims-Gould, J. (2015). Where do they go and how do they get there? Older adults' travel behavior in a highly walkable environment. *Social Science & Medicine, 133*, 304-312. doi:10.1016/j.socscimed.2014.07.006

Yang, Y., Xu, Y., Rodriguez, D. A., Michael, Y., & Zhang, H. (2018). Active travel, public transportation use, and daily transport among older adults: The association of built environment. *Journal of Transport & Health, 9,* 288-298. doi:10.1016/j.jth.2018.01.012

SECTION II: COMMUNITY SERVICES, PROGRAMS AND ACTIVITIES, AND STAFFING

Chapter VI: Linkage of Housing and Services to Promote Aging in Place

Chapter VII: Programs and Activities for Residents

Chapter VIII: Staffing and Governance

CHAPTER VI: LINKAGE OF HOUSING AND SERVICES TO PROMOTE AGING IN PLACE

The purpose of this chapter is to discuss the importance of belonging and community for the well-being of older adults within an intergenerational living community. We recommend a specific model of service-enriched housing that will facilitate aging in place among older residents in the community. Finally, we discuss and recommend specific types of supportive services and interventions that should be implemented within the model.

Psychological Sense of Community

How does acommunity foster aging in place? How can older adults be vital contributors to their communities? The relationship between a community and its members is reciprocal: a community meets the psychological, social, and physical needs of members, and members can fulfill different roles within the community and sustain the life of a vibrant community (Voydanoff, 2001). A community can also be defined as "the integration of people into networks that provide feelings of belonging, meaning, and identification" (Sonn, Bishop, & Drew, 1991, p. 205). Because older adults often require increased assistance due to chronic illness, disability, or limited mobility, the community becomes a critical element of their support system (Young et al., 2004). Research suggests that increased neighborhood support, with reciprocal relationships among neighborhood members, is related to greater well-being in older adults (Cram et al., 2012). Young et al. (2004) found that older adults who reported a greater sense of belonging to their community demonstrated better mental and physical health, increased social support, and more frequently engaged in physical activity.

We recommend that the design and implementation of services and programs within the present living community adopt elements that support a sense of belonging and meaning and

meet the psychological, social, and physical needs of older adults. In their influential theory of a "psychological sense of community" (PSOC), McMillan and Chavis (1986) proposed four main psychological benefits of a healthy community: membership, influence, integration and fulfillment of needs, and shared emotional connection. Membership involves a feeling of belonging to the community and a sense of security, or that they aresafe to express their needs and emotions to others. Generally, a sense of membership is promoted by knowing that one's presence is accepted and desired by the group. Influence refers to an individual's ability to impact the structure and activities of the community, and reciprocally be influenced by the community. Ways in which members can have influence over the community is discussed further in Chapter VIII (Staffing and Governance). Integration suggests that members experience a reward by being valued or needed by other members of the community. McMillan and Chavis (1986) observed that "a strong community is able to fit people together so that people meet others' needs while they meet their own" (McMillan & Chavis, 1986, p. 13). We propose that integration and reciprocity among community members can be facilitated by volunteer programs that allow older adults to help others while receiving support for their own needs. Finally, a sense of emotional connection is achieved through a shared history and important events, which occur during community events and activities shared by community members.

Extending McMillan & Chavis' (1986) work, other researchers found that the aforementioned elements are relevant to older adults' understanding and descriptions of community (Zaff & Devlin 1998). For instance, Bahl et al. (2017) found that older adults identified social acquaintances, shared experiences, care and compassion, and trust as vital to their sense of belonging to their community. In the following chapters, we consider the role of a strong community in meeting the psychological, social, and physical needs of members and

discuss the design and implementation of supportive services, activities, and staffing that promote a sense of belonging, meaning, and well-being among residents.

Service-Enriched Housing

What kinds of services facilitate aging in place in older adults? To answer this question, we consider the unique needs of this population. Older adults experience a higher rate of chronic disease and functional impairments, which often necessitate increased support from service providers, peers, or family members in maintaining their health and activities of daily living (Falkingham, 2010). Generally, research suggests that services offered by social workers connect older adults to resources while also increasing vital social connections that promote health and longevity (Singelenberg, Stolarz, & McCall, 2014). Thus, the linkage of social services and housing through "service-enriched housing" is a promising approach to facilitate aging in place. The goals of service-enriched housing are particularly well suited to the psychological and physical needs of older adults. Cohen et al. (2008) report that service-enriched housing aims to increase quality of life of residents while fostering interconnectedness among community members. Service-enriched housing also provides a simple, cost-effective means of service delivery for a wide range of individuals living within the community, making it appropriate for the present intergenerational living community (Cohen et al., 2008). Other research suggests that offering service-enriched housing helps to reduce hospitalization and prevent skilled nursing placement, keeping older adults in the community longer (Henwood et al., 2015; Gusmano, Rodwin, & Weisz, 2018). Although formal evidence that provides data on the outcomes of service-enriched housing is currently not available in the extant literature, we now discuss a specific model that has garnered preliminary research support.

Model for services delivery. The Self-Help Active Services for Aging Model (SHASAM) was developed for Medicare recipients living in a series of six apartment buildings in New York City (Gusmano et al., 2018). Within this model, social workers offer services such as assessments of psychological and functional well-being, counseling, and referral to public benefits and entitlements, specialized mental health, and educational programs. It is noteworthy that social workers are particularly well-suited to support aging in place among older adults, as they emphasize the role of systems and environment in shaping health outcomes and aim to increase well-being through systemic changes (Lynch, Greeno, Teich, & Delany, 2016). The SHASAM model has shown success in improving effective management of chronic disease, reducing hospitalization rates, and reducing barriers to appropriate mental and physical health care (Gusmano et al., 2018). The SHASAM model supports well-being in three ways: 1) increasing access to medical health care and specialized mental health services through appropriate referrals; 2) assessments increase efficiency and accuracy in identifying areas of concern for residents and guide intervention; 3) therapy services address mental health concerns; and 4) providing extra support through technology to reduce isolation within the living community (Gusmano et al., 2018). We recommend that a service-enriched housing model such as SHASAM be implemented in the present living community.

What other services promote aging in place? Research points to a two-pronged approach of social services and "capability-enhancing" services to support well-being in older adults (Shinn, 2015). "Capability-enhancing" services include engaging residents in activities that promote physical, intellectual, psychological, emotional, and social skills and development (Tiderington, 2017). Strategies for choosing and implementing appropriate activities that enhance capabilities in older adults are discussed in detail in Chapter VII (Programs and

Activities for Residents). We now expand upon the types of services that, provided by social workers, will support and enhance well-being among residents.

Assessment. We recommend that mental health specialists conduct psychological, cognitive, and functioning assessments to guide appropriate referral and intervention. Evidence suggests community dwelling older adults with chronic illness and financial instability are at increased risk of depression and anxiety (Yaka et al., 2014). Assessment is critical for guiding appropriate intervention and symptom management in this population, while also helping social workers understand the unique concerns of each resident. Validated mental health assessment tools for older adults include the Geriatric Depression Scale (GDS; Yesavage et al., 1987) and Geriatric Anxiety Scale (GAS; Segal et al., 2010). Another important area of assessment is cognitive functioning, as older adults have increased risk of developing cognitive disorders (Rashedi, Rezaei, & Gharib, 2014). Brief cognitive assessments can inform appropriate interventions such as compensatory strategies for mild memory impairment referral to further neuropsychological testing for residents (Kinsella et al., 2009). One example of a brief cognitive assessment is the Montreal Cognitive Assessment (MoCA; Nasreddine et al., 2005), which provides general information about domains of cognitive functioning and is validated in populations of older adults. Functional assessments provide important data about a person's ability to complete basic (e.g., bathing, dressing) and instrumental (e.g., medication management, laundry, food preparation) activities of daily living. One is the Lawton Instrumental and Basic Activities of Daily Living Questionnaire (Lawton & Brody, 1969). Other areas of assessment include nutrition and fall risk. Older adults sometimes need support in making, accessing, and planning nutritious meals. Therefore, nutrition assessments may identify older adults in need of increased food support or nutritional education, helping to prevent

malnutrition (Hamirudin, Charlton, & Walton, 2016). One nutrition assessment validated for use in older adults is the SCREEN II, which assesses weight change, food intake, and risk factors for food intake (e.g., appetite, meal frequency, chewing and swallowing difficulties, eating alone, shopping difficulties, and meal preparation; Keller, Goy, & Kane, 2005). Assessing frailty and fall risk are also important for helping older adults live independently, as frailty increases risk for hospitalization and long-term care placement (Boyd et al., 2005). Social workers can assess fall risk by asking residents to report fear of falling, history of falls, and aspects of physical fitness (e.g., ability to stand from a chair; Barry et al., 2014).

Counseling. We recommend that mental health specialists provide short-term counseling to older adults in the living community. Social workers, counselors, and psychologists are well-suited to provide counseling services to older adults (Lynch, Greeno, Teich, & Delany, 2016). To our knowledge, there are no current outcome studies suggesting the efficacy of a certain type of counseling for older adults within the supportive services model. However, there is evidence supporting the effectiveness of brief solution focused therapy (BSFT) and problem-solving therapy (PST) to treat mental health concerns in older adults in other service delivery settings. Brief solution-focused therapy is a short-term therapeutic model focused primarily on solutions to a problem rather than symptoms; thus, clients are encouraged to identify personal strengths and goals (Berg & De Jong, 1996). Seidal and Hedley (2008) found that Mexican older adults receiving BSFT reported increased goal achievement compared to a control group, indicating that this therapeutic modality increases positive behavioral outcomes in older adults. PST is a similar short-term model that focuses on identifying client problems that are detrimental to well-being and assisting clients in developing and implementing problem-solving strategies (Eskin, 2013). Areán et al. (2011) conducted a randomized clinical trial of PST in older adults with

depression and disturbances of executive functioning. They found that older adults receiving PST reported a greater reduction in symptom severity and demonstrated higher remission rates than the control group receiving supportive therapy. PST was also effective in reducing depressive symptoms for low-income older adults with disability (Choi et al., 2014). In sum, BSFT and PST as short-term therapeutic models show promise for treating mental health concerns and increasing well-being of low-income older adults within the present supportive housing design.

Advocacy. We recommend that mental health specialists serve as advocates for older adults. Social workers are a type of Another core philosophy of social workers is to alleviate or reduce systemic barriers to health and wellness faced by disadvantaged and impoverished populations (Lynch, et al.,2016). Social workers possess knowledge and a skillset that prepares them to serve as advocates for populations who have little resources, making their work integral to vulnerable populations of low-income older adults who will live in the living community (Lynch et al., 2016).

Referrals to benefits and services. We recommend that social workers provide older adults with referrals to necessary supports in the larger community. The goal of service enriched housing is to connect older adults to resources "that uphold their dignity and independence" (Singelenberg et al., 2014; p. 70). Referrals are a pathway through which older adults can easily access a variety of community services and resources (Cohen et al., 2008). Possible areas of referral include meals on wheels, adult day programs, assistance for vision and hearing impairment, legal and elder law attorneys, senior centers, and various other partners in the community. Social workers can also help residents navigate the application process for benefits such as Medicaid, Medicare, and VA services.

Technology. We recommend that technology support be offered to older adults within the community. SHASAM offers several technologies that promote in-home safety for physically frail and isolated older adults. These include motion detectors that detect unusual activity in residents' homes and prompt a telephone check-in from staff. Also available to SHASAM residents is a telehealth system in which homebound residents receive an iPad that allows them to engage with online interactive health video classes. These iPads also offer simplified Skype and messenger services that help homebound residents maintain face-to-face contact with friends and family. A systematic review of information and communication technology interventions concluded that these technologies helped to significantly reduce social isolation in older adults (Chen & Shulz, 2016). Mental health specialists could identify residents of the living community that are in need of technology services through assessment of safety concerns, frailty, and depressive symptoms related to isolation and a lack of social support.

Transportation. Community dwelling older adults face several barriers to mobility, such as an inability to drive or cognitive and functional limitations to driving, or difficulty accessing alternative forms of transportation such as buses or subways (Kerschner & Silverstein, 2018). This is an urgent problem, as many facets of well-being, including social connectedness, access to goods and services, and fulfillment of daily tasks of living are all supported by transportation (Dickerson et al., 2017). Older adults who do not have access to reliable transportation are at higher risk of social isolation, physical health problems, and depression (Marottoli et al., 2000). To further promote health and well-being among older adults, it is essential that the community offer transportation programs. Different types of empirically supported transportation programs, including educational interventions to prevent "driving

retirement" and programs to increase positive attitudes toward alternative transportation, are detailed in the following section.

Research suggests that common barriers to using alternative transportation include beliefs about the inconvenience of public transportation or negative beliefs about dependency on others for transportation (Brown et al., 2018). Staff within supportive service models such as SHASAM aim to alleviate attitudinal and systemic barriers to alternative transportation in older adults who are living independently. Although educational interventions on alternative transportation and travel training programs are shown to reduce negative beliefs and concerns toward using public transportation in older adults (Kerschner & Silverstein, 2018). However, other researchers have argued that older adults are likely to want to continue driving, as the personal car is the most reliable and effective form of transportation for older adults who have spent most of their lives driving (Rosenbloom, 2009). training and educational programs designed to prevent or delay driving retirement cessation in have gained increasing research support.These programs can help older drivers refresh on driving skills, provide care maintenance and monetary assistance for gas, and provide educational seminars on maintaining driving safety and have shown effectiveness in preventing driving retirement (Rosenbloom, 2009). With this in mind, we recommend that social workers and activity directors provide educational seminars aimed at maintaining driving safety and ability in older adults. .

There are other empirically supported programs and strategies that can be implemented to increase access to alternative transportation for older adults (see Chapter V for a discussion of the elements of the environment that support mobility in older adults). Travel training programs were developed to assist riders of all ages on how to access and use public transit systems successfully, which reduce anxiety about available routes, fares, and other aspects of complex

city bus systems (Hardin, 2005). Stepaniuk et al. (2008) evaluated the effectiveness of a transit training program in older adults living in a suburban area of a metropolitan city and found that older adults were more likely to use public transportation (e.g., buses) to achieve their tasks of daily living after receiving training on how to access and successfully use public transit. In sum, evidence suggests travel training programs increase use of public transportation in older adults, which in turn increases activity out of the home and supports community engagement (Hardin, 2005). In addition, a travel training program would allow residents to help other residents in meaningful ways with minimal time commitment, supporting social contact and a sense of community.

Ride sharing programs with volunteer drivers have also gained research support (Kerschner & Silverstein, 2018).. One successful program is the Shepherd's Center in Tulepo, Mississipi, where 27 volunteer drivers provided transportation services to 83 older adults. The costs of this program were under $20,000 per year, and drivers totaled over 4,000 miles and 500 destinations. Most common destinations within this program were non-emergency medical and health care services, grocery shopping, and personal errands. Older adults were allowed to choose their destinations and there was less of a wait period. This program recruited volunteer drivers who use private vehicles, allowing for a flexible service that is more individualized than commercial ride-sharing programs (Rosenbloom, 2009) and cost-effectiveness relative to relying on paid staff for transportation. Overall, this volunteer program resulted in significant success in increasing older adults' mobility within the community and increasing their well-being (Kerschner & Silverstein, 2018). Based on the evidence, it appears that a volunteer-based program would promote a sense of community among group members and allows for more

customized service, making it more likely that older adults will use the service because they feel a sense of control over their transportation options (Rosenbloom, 2009).

Another empirically-supported means of transportation involves time buying programs. In these programs, drivers "buy time" in the event they need transportation in a few years in return (Brown et al., 2018). In sum, research evidence suggests travel-training programs and ride sharing programs show success in allowing older adults without transportation to remain active and engaged within the community, while also providing opportunities for community members to fulfill the needs of other members. We recommend the implementation of both a ride sharing program with volunteer drivers and a travel-training program to meet the diverse transportation needs of older adults. . Coordination of a volunteer ride-sharing program and travel training programs can be supported through staff members such as the activity director and resident advisory council (see Chapter VIII, Staffing and Governance).

How residents will access the services. Cohen et al. (2008) recommended two general guidelines for successful service enriched housing programs: 1) resident participation in services is voluntary, and 2) residents and service providers work as a team, which involves communication between landlords, service providers, and residents on needs, preferences, and goals. The establishment of the resident as a member of the team and collaboration between residents and staff can be initiated during the move-in process. We recommend that a social worker and an activities director are part of a formalized "move-in" process to 1) assess resident needs and 2) build rapport and trust. This should include a screening intake in which residents fill out a background form that assesses needs for services, which should include assessments of mental, physical, and functional concerns. Considering community membership discussed in the prior section, we believe that early meetings between staff and residents as part of the move-in

process will build rapport and a sense of support and belonging among residents joining the community. Communication between residents, social workers, activity staff, and other staff members can also be supported by a resident advisory council, discussed further in detail in Chapter VIII (Staffing and Governance). Another way in which access is supported is through the location of mental health specialist and activity director offices on the first floor of the residential building where residents enter and frequently socialize (Gusmano et al., 2018). Finally, to support awareness of services, meetings and activities involving residents should be provided with information about services (Gusmano, 2018). In sum, we believe the implementation of a service-enriched housing model will support the health and well-being of older adults, allowing them to age in place and continue to be vital contributors to the community.

Conclusion

Elements of community (e.g., belongingness, meaning, and social connection) are central to the well-being of older adults and other members of this intergenerational living community. These elements inform the design and implementation of services and programs within housing for older adults. Research suggests that a service-enriched housing model promotes the health and well-being of older adults by connecting them to vital resources in the community.

References

Areán, P. A., Raue, P., Mackin, R. S., Kanellopoulos, D., McCulloch, C., & Alexopoulos, G. S. (2010). Problem-solving therapy and supportive therapy in older adults with major depression and executive dysfunction. *The American Journal of Psychiatry*, *167*, 1391–1398. doi:10.1176/appi.ajp.2010.09091327

Bahl, N. K. H., Nafstad, H. E., Blakar, R. M., & Geirdal, A. Ø. (2017). Responsibility for psychological sense of community and well-being in old age: A qualitative study of urban older adults in Norway. *Open Journal of Social Sciences*, 5, 321-338. doi:10.4236/jss.2017.57020

Barry, E., Galvin, R., Keogh, C., Horgan, F., & Fahey, T. (2014). Is the Timed Up and Go test a useful predictor of risk of falls in community dwelling older adults: a systematic review and meta-analysis. *BMC geriatrics, 14*(1), 14. doi:10.1186/1471-2318-14-14

Berg, I. K., & De Jong, P. (1996). Solution-building conversations: Co-constructing a sense of competence with clients. *Families in Society, 77*, 376-391. doi:10.1606/1044-3894.934

Boyd, C. M., Xue, Q., Simpson, C. F., Guralnik, J. M., & Fried, L. P. (2005). Frailty, hospitalization, and progression of disability in a cohort of disabled older women. *The American Journal of Medicine, 118,* 1225-1231. doi:10.1016/j.amjmed.2005.01.062

Brown, J. R., Duncan, M., Horner, M. W., Bond, M., & Wood, J. (2018). Provider perspectives on six strategies to overcome the barriers to older adult use of alternative transportation services: Evidence from seven communities. *Case Studies on Transport Policy*, *6*, 237-245. doi:10.1016/j.cstp.2018.04.004

Chen, Y., & Schulz, P. (2016). The effect of information communication technology interventions on reducing social isolation in the elderly: A systematic review. Journal of Medical Internet Research, 18(1), e18. doi:10.2196/jmir.4596

Choi, N. G., Hegel, M. T., Marti, C. N., Marinucci, M. L., Sirrianni, L., & Bruce, M. L. (2014). Telehealth problem-solving therapy for depressed low-income homebound older adults. *The American Journal of Geriatric Psychiatry*, *22*, 263-271. doi:10.1016/j.jagp.2013.01.037

Cohen, C. S., Mulroy, E., Tull, T., Bloom, C. C., & Karnas, F. (2007). Integrating services for older adults in housing settings. *Journal of Gerontological Social Work, 49*, 145–164. doi:10.1300/J083v49n01pass:09

Cramm, J. M., Van Dijk, H. M., & Nieboer, A. P. (2012). The importance of neighborhood social cohesion and social capital for the well being of older adults in the community. *The Gerontologist, 5*3, 142-152. doi:10.1093/geront/gns052

Dickerson, A.E., Molnar, L.J., Eby, D.W., Adler, G., Bédard, M., Berg-Weger, M., & Trujillo, L. (2007). Transportation and aging: A research agenda for advancing safe mobility. *The Gerontologist, 47*, 578-590. doi:10.1093/geront/47.5.578

Eskin, M. (2013). *Problem solving therapy in the clinical practice*. Waltham, MA;: Elsevier.

Falkingham, J., Evandrou, M., McGowan, T., Bell, D., & Bowes, A. (2010). Demographic issues, projections and trends: Older people with high support needs in the UK. *BMC Public Health, 12*, 91. doi:10.1186/1471-2458-12-991

Gusmano, M. K., Rodwin, V. G., & Weisz, D. (2018). Medicare Beneficiaries Living In Housing With Supportive Services Experienced Lower Hospital Use Than Others. *Health Affairs, 37*, 1562-1569. doi:10.1377/hlthaff.2018.0070

Hamirudin, A. H., Charlton, K., & Walton, K. (2015). Outcomes related to nutrition screening in community living older adults: A systematic literature review. *Archives of Gerontology and Geriatrics, 62,* 9-25. doi:10.1016/j.archger.2015.09.007

Hardin, J. (2005). Helping seniors take the bus: Innovative transit travel training programs. *Community Transportation, 23*(7). Accessed from https://trid.trb.org/view/780723

Henwood, B. F., Katz, M. L., & Gilmer, T. P. (2015). Aging in place within permanent supportive housing. *International Journal of Geriatric Psychiatry, 30,* 80-87. doi:10.1002/gps.4120

Keller, H. H., Goy, R., & Kane, S. (2005). Validity and reliability of SCREEN II (seniors in the community: Risk evaluation for eating and nutrition, version II). *European Journal of Clinical Nutrition, 59,* 1149-1157. doi:10.1038/sj.ejcn.1602225

Kerschner, H. K., & Silverstein, N. M. (2018). Introduction to Senior Transportation: Enhancing Community Mobility and Transportation Services. New York: Routledge. Retrieved from https://libproxy.uccs.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=1699299&site=ehost-live

Kinsella, G. J., Mullaly, E., Rand, E., Ong, B., Burton, C., Price, S., . . . Storey, E. (2009). Early intervention for mild cognitive impairment: A randomized controlled trial. *Journal of Neurology, Neurosurgery and Psychiatry, 80*, 730-736. doi:10.1136/jnnp.2008.148346

Lawton, M. P., & Brody, E. M. (1969). Assessment of older people: self-maintaining and instrumental activities of daily living. *The Gerontologist, 9,* 179-186. doi:10.1093/geront/9.3_Part_1.179

Lynch, S., Greeno, C., Teich, J., & Delany, P. (2016). Opportunities for social work under the affordable care act: A call for action. *Social Work in Health Care*, 55, 651-674. doi:10.1080/00981389.2016.1221871

Marottoli, R. A., CFM, d. L., Glass, T. A., Williams, C. S., Cooney, J., L M, & Berkman, L. F. (2000). Consequences of driving cessation: Decreased out-of-home activity levels. The *Journals of Gerontology. Series B, Psychological Sciences and Social Sciences, 55*, 334-340. doi:10.1093/geronb/55.6.S334

McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of Community Psychology, 14*, 6-23. doi:10.1002/1520-6629(198601)14:1<6::AID-JCOP2290140103>3.0.CO;2-

Nasreddine, Z. S., Phillips, N. A., Bédirian, V., Charbonneau, S., Whitehead, V., Collin, I., ... & Chertkow, H. (2005). The Montreal Cognitive Assessment, MoCA: A brief screening tool for mild cognitive impairment. *Journal of the American Geriatrics Society*, *53*, 695-699. doi:10.1111/j.1532-5415.2005.53221.x

Rashedi, V., Rezaei, M., & Gharib, M. (2014). Prevalence of cognitive impairment in community-dwelling older adults. *Basic and Clinical Neuroscience, 5*, 28. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4202605/

Rosenbloom, S. (2009). Meeting transportation needs in an aging-friendly community. *Generations*, *33*, 33-43. Retrieved from https://www.aarp.org/content/dam/aarp/livable-communities/learn/transportation/meeting-transportation-needs-in-an-aging-friendly-community-aarp.pdf

Segal, D. L., June, A., Payne, M., Coolidge, F. L., & Yochim, B. (2010). Development and initial validation of a self-report assessment tool for anxiety among older adults: the

Geriatric Anxiety Scale. *Journal of Anxiety Disorders*, *24*, 709-714. doi:10.1016/j.janxdis.2010.05.002

Seidel, A., & Hedley, D. (2008). The use of solution-focused brief therapy with older adults in Mexico: A preliminary study. *American Journal of Family Therapy, 36*, 242–252. doi:/10.1080/01926180701291279

Singelenberg, J., Stolarz, H., & McCall, M. E. (2014). Integrated service areas: An innovative approach to housing, services and supports for older persons ageing in place: Integrated service areas. *Journal of Community & Applied Social Psychology, 24*, 69-73. doi:10.1002/casp.2175

Shinn, M. (2015). Community psychology and the capabilities approach. *American Journal of Community Psychology, 55*, 243-252. doi:10.1007/s10464-015-9713-3

Stepaniuk, J. A., Tuokko, H., McGee, P., Garrett, D. D., & Benner, E. L. (2008). Impact of transit training and free bus pass on public transportation use by older drivers. *Preventive Medicine, 47*, 335-337. doi:10.1016/j.ypmed.2008.03.002

Sonn, C. C., Bishop, B. J., & Drew, N. M. (1999). Sense of community: Issues and considerations from a cross-cultural perspective. *Community, Work & Family, 2*, 205–218. doi:10.1080/13668809908413941

Tiderington, E. (2017). "We always think you're here permanently": The paradox of "permanent" housing and other barriers to recovery-oriented practice in supportive housing services. *Administration and Policy in Mental Health, 44*, 103. doi:10.1007/s10488-015-0707-0

Voydanoff, P. (2001). Conceptualizing community in the context of work and family. *Community, Work & Family, 4*, 133–156. doi:10.1080/13668800120061125

Yaka, E., Keskinoglu, P., Ucku, R., Yener, G. G., & Tunca, Z. (2014). Prevalence and risk factors of depression among community dwelling elderly. *Archives of Gerontology and Geriatrics, 59,* 150-154. doi:10.1016/j.archger.2014.03.014

Yesavage, J. A., Brink, T. L., Rose, T. L., Lum, O., Huang, V., Adey, M., & Leirer, V. O. (1982). Development and validation of a geriatric depression screening scale: A preliminary report. *Journal of Psychiatric Research, 17,* 37-49. doi:10.1016/0022-3956(82)90033-4

Young, A. F., Russell, A., & Powers, J. R. (2004). The sense of belonging to a neighbourhood: Can it be measured and is it related to health and well being in older women?. *Social Science & Medicine, 59,* 2627-2637. doi:10.1016/j.socscimed.2004.05.001

Zaff, J. and Devlin, A.S. (1998) Sense of community in housing for the elderly. *Journal of Community Psychology, 26,* 381-398. doi:10.1002/(SICI)1520-6629(199807)26:4<381::AID-JCOP6>3.0.CO;2-

Zhang, Z., & Zhang, J. (2017). Perceived residential environment of neighborhood and subjective well-being among the elderly in China: A mediating role of sense of community. *Journal of Environmental Psychology*, *51*, 82–94. doi:10.1016/j.jenvp.2017.03.004

CHAPTER VII: PROGRAMS AND ACTIVITIES FOR RESIDENTS

The purpose of this chapter is to highlight the psychosocial needs of older adults and describe how those needs can be met through social programming and activities. Portions of this chapter demonstrate the characteristics of those who engage in activities as well as how to encourage participation among older adults living independently. Lastly, each section provides recommendations for how to create programming that serves as a mechanism to improve older adult well-being.

What Drives Senior Programming?

Program initiatives for older adults who are independently living are driven through three routes: research, policy, and practice. All three routes have focused efforts to promote various aspects of older adult well-being. Agencies such as the Centers for Disease Control and Prevention (CDC), Administration on Aging (AoA), and the National Council on Aging (NCOA) have called for community-based health and wellness programs supported by empirical evidence (Bobitt & Schwingel, 2017). While these national agencies call for evidence-based programs, it is unclear how these programs operate at the local level (Bobitt & Schwingel, 2017). Research of the efficacy and feasibility of programming and program models is sparse. A search of the literature brought up only one randomized clinical trial and no other program-by-program comparisons. However, the benefits of programs that engage older adults are well documented. Those delivering programs in practice, the boots on the ground, are at the source of innovation and can create new approaches by observing what is useful. These observations provide an opportunity for empirical research which can add validity to implementation in addition to influencing policy and practice on a broader level. One example of integrated research that informed practice is the Palisades (Silva-Smith et al., 2011). The Palisades was a senior housing

facility organized through a university partnership. The university created a holistic model of wellness which included spiritual, social, emotional, intellectual, and occupational elements to promote well-being. The program completed assessments, collected feedback, and gathered data to inform and inspire future wellness model implementation. As can be seen from the Palisades example, there is an extensive range of program types to address multiple domains of well-being, but for this review, programs are categorized into three broad categories: independent, intergenerational, and community-based. Each category will be discussed in detail next with an emphasis on research, policy, and practice that represents the needs of older adults and the programs designed to address these needs.

Individual Independent Programming

Education. The 1970s represented a shift in the characteristics of older adult retirees. Compared to previous generations, who were more likely to have worked manual labor jobs, an increasing proportion of those retiring in the 1970s performed "mental labor" jobs. Therefore, retirees tended to be more physically healthy and attained higher levels of education compared to older generations. Changing demographics gave rise to a new category of retirees, those with a thirst to continue education: lifelong learners. Programs such as Elderhostel/Road Scholar, Osher Lifelong Learning Institute, and University of the Third Age in Europe (U3A) created educational programs to meet this demand. To date, there are over 400 lifelong learning institutes, commonly formed through university partnerships (“Mental Stimulation and Lifelong Learning Activities in the 55 Population,” 2007).

It is essential to understand the qualities of those who are interested in education programs in order to create relevant programming. To understand what lifelong learning means, Elderhostel Inc. (2007) surveyed older adults age 50 and older and conducted focus groups. The

survey was sent to 1,238 Knowledge Network panel members, a representative sample of consumers, and asked about weekly activities. The second group of participants surveyed (*N* = 2,311) had participated in an Elderhostel program within the past 12 months. The survey also gathered demographic information and included measures of self-reported health and other psychological variables. Information gathered from the focus groups identified a common motive for older adult educational engagement: "use it or lose it." Older adults reported that learning is critical to successful aging and can prevent isolation and cognitive impairment. The older adults in this study considered a breadth of activities from hobbies such as knitting or fishing to intellectual pursuits such as reading and coursework to represent mental stimulation and lifelong learning.

The Elderhostel Inc. (2007) survey revealed five lifelong learning segments. The first two segments, *focused mental achievers* and *contented recreational learners* represented those who are self-starters and take ownership over educational opportunities and mental stimulation. Focused mental achievers and contented recreational learners made up 13 and 34 percent of the population, respectively. Additional research suggests older adults with higher levels of education have the highest interest in participating in education-based activities (Mehrotra, 2003). *Anxious searchers* and *isolated homebodies* (23 percent) were considered less zealous in their engagement in mental stimulation and lifelong learning. The study suggested individuals in those categories may require active engagement. Lastly, the *pessimists* group, which contained those from lower socioeconomic backgrounds, consisted of those focused on basic life necessities and therefore do not consider lifelong learning a priority. Compared to all other segments, focused mental achievers achieved higher levels of education and participated in physical activity more frequently (Elderhostel Inc., 2007).

Additionally, focused mental achievers reported high levels of optimism and satisfaction with life (Elderhostel Inc., 2007). These psychosocial measures (e.g., education, physical activity, optimism, satisfaction with life, and self-reported health) decreased sequentially with each segment with pessimists reporting the lowest levels on each psychosocial measure. Comparison of the qualities of participants in each segment points to the heterogeneity of desire and motivation among older adults and demonstrate a spectrum of engagement. Although not explicitly stated, socioeconomic status and social determinants of health appear to influence engagement with activities. Population statistics suggest that older adults living independently may fall into the focused mental achiever and contented recreational learners categories (13 and 34 percent). A variety of activities should be offered to address the heterogeneity of interest, but academically driven activities such as academic talks or opportunities to volunteer may be more captivating to older adults living independently and target a large proportion of older adult learners (Elderhostel Inc., 2007).

The majority of studies of lifelong learning attempt to characterize lifelong learners, understand motivations to learn, and observe psychological outcomes. The previous section focused on qualities of older adult learners and motivations to learn. Next, we focus on psychosocial benefits. McWilliams and Barrett (2018) suggest lifelong learning through college courses has unique benefits because of the age-segregated context. The authors suggest the mere premise of offering opportunities to learn goes against ageist beliefs about older adults' abilities to learn. The goal of lifelong learning courses is to increase quality of life and promote social engagement. This goal is an important distinction from college courses aimed at earning a degree or credentials. Fernández-Ballesteros et al. (2013) completed a pretest-posttest comparison of lifelong learners. The results showed that engagement in lifelong learning

programs reduced negative affect and improved self-perceptions of aging. Lamb and Brady (2005) conducted interviews with 45 participants in the Osher Lifelong Learning Institute located on the University of Southern Maine campus to understand the primary benefits of lifelong learning programs. The results found four main perceived benefits: 1) supportive community, 2) intellectual stimulation, 3) self-esteem, and 4) spiritual renewal. In sum, certain people are attracted to formal educational programs. Those who choose to engage in lifelong learning programs experience psychosocial benefits which contribute to overall quality of life.

Recreation and leisure activities. The previous sections focused on formal educational opportunities. However, older adults also appear to view informal recreational activities as crucial to maintaining cognitive health. The literature represents a plethora of domains regarding recreation and leisure activities. Formal activities occur as part of a specific program or are related to an organization. Informal activities can occur with friends or family. Activities can also be performed independently in a solitary environment. Recreational and leisure activities encompass a wide range of pursuits including hobbies, physical activity, lifelong learning, and volunteering. A systematic review of 40 qualitative and quantitative studies explored the impact of interventions to promote health and well-being in older adults (Ronzi, Orton, Pope, Valtorta, & Bruce, 2018). Interventions included intergenerational contact, mentoring, art and culture, technology, dancing, music and singing, and multi-activity interventions. Altogether, intergenerational music and singing, multi-activity, and art and culture interventions were related to positive health outcomes, including reduced depression and improved physical health, subjective health, quality of life, well-being, and mental health (Ronzi, Orton, Pope, Valtorta, & Bruce, 2018).

Recreation and leisure activities are inextricably tied to older adult well-being. A study which included a representative sample of 1,246 older adults found that those with lower levels of participation had double the risk of mortality compared to those with the highest levels of participation (Agahi & Parker, 2008). Gender differences between men's and women's survival suggested that for women, survival was related to organizational and relational activities whereas for men survival was related to hobby-related activities (Aghi & Parker, 2008). Engagement with activities appears to be a protective factor in risk for mortality, with gender differences in the types of activities that predict longevity.

Social engagement through activities increases life satisfaction among older adults. Jang, Mortimer, Haley, and Graves (2004) sought to understand the influence of social engagement in those with disease and no disability and those with disease and disability. Participants were community-dwelling older adults who were cognitively intact. Social activities included phone calls to family and friends, visiting friends, enrolling in and attending classes, joining groups or social clubs, or going to religious-based services and events. Participants rated the frequency of participation in activities from (0) *not in the past year* to (5) *every day*. Results suggested that those with both disability and disease participated in social activity less frequently and had lower levels of life satisfaction than those with a disease. Interestingly, social engagement was more strongly tied to life satisfaction in those with disease and disability. The authors suggested that individuals with lower functional abilities may place more importance on social activities due to physical limitations. Thus, efforts should be made to increase engagement and therefore the quality of life of older adults with a disease, disability, or both. Given the value of social activities, we recommend a provision of services that make it easier for older adults with disabilities to attend social activities. For example, housing planners and developers need to

consider providing accessible transportation and physical assistance needed to make social activities accessible.

Volunteering. Volunteering provides older adults with the opportunity to fulfill the needs of others, therefore supporting a psychological sense of community (McMillan & Chavis, 1986). Through these actions, older adults can garner a sense of purpose and meaning. In order to explore the impact of volunteering on older adults' well-being, Morrow-Howell, Hinterlong, Rozario, and Tang (2003) used archival data from the Americans Changing Lives Study. They analyzed volunteer variables including volunteer status (volunteer or not), volunteering site, hours spent volunteering, number of volunteer sites, and perceived impact of volunteering to those being served. Well-being included self-rated health, functional status, and psychological symptoms of depression.. Analyses that controlled for demographic variables found that a higher number of volunteer hours was related to higher levels of well-being. There was no effect on well-being based on the number of volunteer sites, type of volunteering site, or perceived benefit to others (Morrow-Howell et al., 2003). Overall, it appears that the act of volunteering is uniquely linked to well-being. There were no differences in benefits based on demographic categories. Focusing on the characteristics of those who benefit from volunteering appears unnecessary; instead, efforts to encourage older adults to volunteer should be considered. Additionally, social organizations should be incentivized to provide older adults with volunteer opportunities and placement.

Physical activity. The United States Department of Health and Human Services recommends that older adults perform at least 150 minutes of moderate-intensity physical activity every week. Strength-based exercises are recommended two or more days per week (“Physical Activity Guidelines for Americans,” 2018). Despite these recommendations, only a

small portion of older adults get adequate physical activity. Physical activity can serve to prevent disease as well as slow the progress of disease processes (Durstine, Gordon, Wang, & Lou, 2013). Specifically, older adults who are physically active can reduce their risk of chronic diseases such as type 2 diabetes, depression, heart disease, obesity, hypertension, and bone and joint disease (Strawbridge, Deleger, Roberts, & Kaplan, 2002; Warburton, Nicol, & Bredin, 2006). These findings are significant as 80 percent of older adults have at least one chronic illness ("Facts About Healthy Aging," 2018). In addition to physical health benefits, physical activity can enhance psychological and emotional well-being. A meta-analysis examined the relationship between physical activity and mood (Arent, Landers, & Etnier, 2000). The analyses consisted of aggregating results from 158 effect sizes across 32 studies. Across all studies, exercise was associated with improved mood in pre- and posttest measures, and this effect was strengthened when activity groups were compared to control groups. Improvement in mood was seen for several different types of exercise and was pronounced in exercises involving resistance training. Exercise performed less than three days per week for more than 45 minutes was associated with consistent mood improvements (Arent et al., 2000). The benefits of physical activity on physical and mental health are well-established.

The research on maximally effective exercise interventions is mixed. However, research indicates that individual-based interventions to increase physical activity have unexceptional improvements in mood and lack long-term effectiveness (Hobbs et al., 2013). Instead, considering a larger frame, including communities and environment, may be more effective at increasing physical activity engagement among older adults (Wahl, Iwarsson, Oswald, 2012). Group interventions serve as a motivator to older adults who may attempt to avoid social engagements (Goll, Charlesworth, Scior, & Scott, 2015). Using both quantitative and qualitative

methods, Hwang, Wang, Siever, Del Medico, and Jones (2018) explored the impact of a Walk ‘n' Talk for your Life community-based program (WTL) on loneliness and social isolation. Participants reported increased motivation to socialize and experience a "sense of belonging." Chapter VI (Linkage of Housing and Services to Promote Aging in Place) provided a detailed discussion on the psychological outcomes of belongingness. Group-based physical activities provide social interaction reducing social isolation while targeted individual interventions may be less beneficial.

Intergenerational Programming

Due to an increasingly age-segregated society, older adults are less likely to have frequent and meaningful contact with younger people and are at an increased risk for social isolation which is associated with detriments to mental and physical health (Nelson, 2005; Nicholson, 2012). On the contrary, social interaction can give rise to positive elements critical to well-being (Roniz, Orton, Valtorta, Bruce, 2018). Research has focused on initiatives that promote social inclusion of older adults. One focus has been intergenerational activities or activities that facilitate interaction and communication between people of different ages. A long line of evidence has suggested the benefits of intergenerational contact and activities for the mental and physical well-being of older adults, as well as promoting a sense of community among all age groups. For instance, intergenerational contact has been shown to promote mental and physical well-being in older adults (Teater, 2016) and reduce ageism (Drury, Hutchison, Abrams, & 2016).

To promote successful intergenerational contact among members of the community, we consider the environmental conditions that promote successful contact between ingroups and outgroups. One psychological theory used to understand and promote positive and meaningful

relations between different age groups is Intergroup Contact Theory, which posits that interactions between different groups within broader society help to reduce prejudice and promote positive attitudes toward outgroups (Allport, 1954; Pettigrew, 1998). Importantly, this theory also stipulates ideal conditions under which successful intergroup contact occurs: 1) groups have equal status; 2) common goals for contact; 3) cooperation; and 4) support from authority figures/broader societal norms on intergroup contact. Equal status refers to both groups having equal importance or standing within the interaction. Cooperation and a common goal indicate that both groups have a common understanding of the reason for and outcome of their interaction. Finally, acceptance from broader societal institutions helps to promote positive intergroup experiences. These elements of successful intergroup contact are reflected in the recommendations for intergenerational programming.

The psychological and social benefits of intergenerational programs are bidirectional when implemented correctly. For this document, only the literature on the outcomes of older adults involved intergenerational programs will be reviewed. In order to summarize outcomes of intergenerational programs for both children and older adults, Gualano, Vogline, Bert, Camussi, and Siliquini (2018) systematically reviewed 27 sources. The review focused on studies that included younger children (i.e., elementary or preschool aged) and did not consider high-school or university aged students. Additionally, researchers excluded studies in which older adult and child participants had familial relationships. Fifteen of the 27 articles assessed outcomes for older adults. These articles considered a wide range of program types and settings from school-based programs to community-based programs to programs within nursing home facilities. Therefore, settings and sample sizes varied among studies. The review included studies outside of the United States and used a variety of designs and evaluation methods. The researchers

concluded that the outcomes for older adults were consistently positive across the fifteen studies. The benefits to intergenerational programs included better self-reported health, reduced stress, and decreased depressed mood (Gualano et al., 2018). Intergenerational programs are a benefit to both older and younger adults.

Other research suggests that many intergenerational programs tend to focus on the development of the younger participants rather than considering the importance for both older and younger participants (Dellman-Jenkins, 1997). An extension of this problem is the tendency to move from treating children like children to treating older adults like children, infantilization, in shared settings (Salari, 2002). There are no training guidelines to assist staff in developing intergenerational activities that prove a mutual benefit to both populations. Researchers warn that simply encouraging different age groups to do an activity is not enough and that staff may assume that is all that is needed. Instead, scholars suggested that older adults need to perceive themselves in meaningful and valued roles (Dellman-Jenkins, 1997). To address the issue of intergenerational programs focused on only child development, Dellmann-Jenkins (1997) designed a model of programming that considers both sides of development. A review of intergenerational studies that used a senior-centered approach (i.e., consider older adults' needs) led Dellman-Jenkins (1997) to specify seven steps to maximize benefits in programs including older and younger people:

1.) *"Conduct orientation sessions for both senior adults and children before actual contact"* (p. 500). The author recommended orienting each group to the other to foster a better understanding of each other's positive attributes. This orientation may also provide skills for positive communication between groups. The author recommended distributing a survey to gather autobiographical information including

hobbies and interests to create a foundation for conversation and to bring to light mutual interests which will inform activities.

2.) *"Encourage the senior adults to identify creative, vocational, daily living, and hobby skills they would like to share with the children"* (p. 500). Identifying skills assists older adults in understanding their strengths, creates a sense of purpose, and defines their role in the program.

3.) *"Conduct training sessions for staff who will be in charge of facilitating intergenerational exchanges"* (p. 500). The training sessions would identify the characteristics and interests of both groups and reinforces developmental needs. The staff would integrate this information and use it to inform programming design.

4.) *"Incorporate intergenerational experiences that have previously been found to receive positive evaluations by both older adult and young child participants"* (p. 501). The author provides many examples such as adding an education component, where older adults can teach a skill, and younger participants can improve a skill, or a team effort, where both generations assume active roles with a mutual goal.

5.) *"Formally evaluate the activities"* (p. 502). Evaluating activities can ascertain if the activity was enjoyable to both groups and determine specific benefits. Comments provided on evaluation forms can lead to refinement and improvement of future activities (Dellman-Jenkins, 1997).

6.) *"Identify the older adults' views about their participation in a program involving interaction with children"* (p. 502). Questioning older adults about their experience allows the evaluator to determine if the interaction was meaningful.

7.) *"Assess the effect of participating in the intergenerational program on the younger children's perceptions of older people"* (p. 502). Assessing the children answers the question: Did the program promote positive impressions of older adults?

In conclusion, intergenerational programs must be more than gathering two different generations in a shared space. An effort should be made to consider the development of and benefit to both groups. Programs that allow older adults to take an active role, creating a sense of purpose, appear to be maximally beneficial. Staff training should be focused on understanding the needs and interests of each population to determine relevant activity types. Lastly, efforts for program evaluation are essential to see that the activity aligned with the determined goals and to inform future activities.

Community-Based Programming

Senior centers. The passage of the Older Americans Act in 1965 and initiatives by the National Council on Aging gave rise to the expansion of senior centers. The National Council on Aging's National Institute of Senior Centers defines a senior center as:

> A community focal point on aging where older adults come together for services and activities that reflect their experience and skills, respond to their diverse needs and interests, enhance their dignity, support their independence, and encourage involvement in and with the community (Gibson & Singleton, 2012, p. 193).

Older adults access senior centers within their communities to connect to community resources and engage in social and recreation activities. Specifically, services include wellness programs, transportation, meal and nutrition programs, public benefits counseling, volunteer opportunities, and educational programs. According to the National Council on Aging, 75 percent of senior

center participants present to the center one to three times per week and spend an average of 3.3 hours per visit (National Council on Aging, 2015).

Senior centers not only meet practical needs, but also lead to psychosocial improvements as well through services. A survey of 257 older adult senior center participants in Arkansas found 88 percent of respondents said they come to the senior center for social support/friends (Fulbright, 2010). Accessing social support through the senior center was related to self-reported improvement in life and reduced depressive symptomatology. Although these data were gathered in a specific community, these findings are consistent with previously mentioned research on social engagement and improved mental health. The research on psychosocial outcomes is limited. A review of the literature (58 studies) involving senior centers in the United States and Canada consolidated findings from 18 articles about the benefits on well-being among participants; results suggested important benefits were meal services, increased independence, improved physical and mental health, reduced caregiver burden, increased socialization, and reduced function limitation and chronic illness (Kadowak & Mahmood, 2018). Increasing older adults' awareness of services available at the senior center(s) can serve many psychosocial benefits.

Silver Sneakers. Silver Sneakers is a program that was designed to increase physical activity among older adults. The company contracts with health insurance providers and local fitness centers (e.g., YMCA) to provide low-cost memberships. By partnering with pre-existing fitness centers, Silver Sneakers incentivizes older adults to increase physical activity and promotes age-friendly environments. Participation in Silver Sneakers and other community-based fitness programs reduces the risk of medical falls (Greenwood-Hickman, Rosenberg, Phelan, & Fitzpatrick, 2015). Research specific to community-based fitness programs is limited.

However, as discussed previously, physical activity, engaging with others, and community involvement all contribute to older adult well-being. Programs such as Silver Sneakers may be particularly relevant to older adults with fixed incomes who may not otherwise be able to afford fitness memberships. Information about community resources and programs should be disseminated through posters and flyers within the present living community. Social workers and case managers should be available to assist older adults in accessing these resources and determining eligibility for community-based programs.

Engagement of Outsiders with Insiders

Little research exists on the outcomes associated with inviting outsiders, or professionals to provide services or information such as fitness classes or educational classes to older adult living communities. Research suggests that third spaces may be an optimal environment for outside services. First conceptualized by Oldenberg (1989), third places are spaces considered to be on "neutral ground," with a light atmosphere and familiar faces or "regulars." They are spaces that promote conversation and community with the idea that participation does not feel forced. Health promotion programs have targeted third spaces because they provide a more comfortable space, compared to a public space, to discuss difficult or uncomfortable health topics (Northridge et al., 2016). Health care providers target third spaces to access people who may not otherwise seek health information. From a health promotion standpoint, outsiders providing public health information may aid in disease prevention contributing to better health individually and on a larger public scale. These sections on education, recreational and leisure activities, and intergenerational programs stress the importance of understanding the interests of older adults. The resident advisory council, as discussed in the next chapter, may create a survey or suggestion box to determine which outsiders to invite to the present community.

Conclusion

The research presented in the previous sections demonstrated how programming can address wellness among older adults. Activities provide intellectual stimulation, social interaction, and physical activity. Community-based programs provide additional benefits in the professional, financial, and spiritual realms of well-being. Programming designed and tailored to older adults' needs can produce significant and positive psychosocial outcomes. Practice, research, and policy remain important in informing senior-centered well-being.

References

Agahi, N., & Parker, M. G. (2008). Leisure activities and mortality: Does gender matter? *Journal of Aging and Health, 20*, 855-871. doi:10.1177/0898264308324631

Ageing and health. (2018, February). Retrieved from http://www.who.int/news-room/fact-sheets/detail/ageing-and-health.

Allport, G. W. (1954). *The nature of prejudice*. Cambridge, MA: Perseus Books.

Arent, S. M., Landers, D. M., & Etnier, J. L. (2000). The effects of exercise on mood in older adults: A meta-analytic review. *Journal of Aging and Physical Activity, 8*, 407-430. doi:10.1123/japa.8.4.407

Bobitt, J., & Schwingel, A. (2017). Evidence-based programs for older adults: A disconnect between U.S. national strategy and local senior center implementation. *Journal of Aging & Social Policy, 29*, 3-19. doi:10.1080/08959420.2016.1186465

Dellmann-Jenkins, M. (1997). A senior-centered model of intergenerational programming with young children. *The Journal of Applied Gerontology*, *16*, 495-506. doi:10.1177/073346489701600407

Drury, L., Hutchison, P., & Abrams, D. (2016). Direct and extended intergenerational contact and young people's attitudes towards older adults. *British Journal of Social Psychology*, *55*, 522-543. doi:10.1111/bjso.12146

Durstine, J. L., Gordon, B., Wang, Z., & Luo, X. (2013). Chronic disease and the link to physical activity. *Journal of sport and health science*, *2*, 3-11. doi:10.1016/j.jshs.2012.07.009

Facts About Healthy Aging. (2018, June). Retrieved from https://www.ncoa.org/news/resources-for-reporters/get-the-facts/healthy-aging-facts/.

Fernández-Ballesteros, R., Caprara, M., Schettini, R., Bustillos, A., Mendoza-Nunez, V., Orosa, T., & Zamarrón, M. D. (2013). Effects of university programs for older adults: Changes

in cultural and group stereotype, self-perception of aging, and emotional balance. *Educational Gerontology, 39,* 119-131. doi:10.1080/03601277.2012.699817

Fulbright, S. A. (2010). Rates of depression and participation in senior centre activities in community-dwelling older persons. *Journal of Psychiatric and Mental Health Nursing, 17*, 385. doi:10.1111/j.1365-2850.2009.01535.x

Gibson, H. J., & Singleton, J. F. (2012). *Leisure and aging: Theory and practice*. Champaign, IL: Human Kinetics.

Goll, J. C., Charlesworth, G., Scior, K., & Stott, J. (2018). Correction: Barriers to social participation among lonely older adults: The influence of social fears and identity. *PloS One, 13*, e0201510. doi:10.1371/journal.pone.0201510

Greenwood-Hickman, M. A., Rosenberg, D. E., Phelan, E. A., & Fitzpatrick, A. L. (2015). Participation in older adult physical activity programs and risk for falls requiring medical care, washington state, 2005-2011. *Preventing Chronic Disease, 12,* E90-E90. doi:10.5888/pcd12.140574

Gualano, M. R., Voglino, G., Bert, F., Thomas, R., Camussi, E., & Siliquini, R. (2018). The impact of intergenerational programs on children and older adults: A review. *International Psychogeriatrics, 30,* 451-468. doi:10.1017/S104161021700182X

Hobbs, N., Godfrey, A., Lara, J., Errington, L., Meyer, T. D., Rochester, L., & Sniehotta, F. F. (2013). Are behavioral interventions effective in increasing physical activity at 12 to 36 months in adults aged 55 to 70 years? A systematic review and meta-analysis. *BMC Medicine, 11,* 75-75. doi:10.1186/1741-7015-11-75

Hwang, J., Wang, L., Siever, J., Medico, T. D., & Jones, C. A. (2018). Loneliness and social isolation among older adults in a community exercise program: A qualitative study. *Aging & Mental Health, 23,* 736-742. doi:10.1080/13607863.2018.1450835

Jang, Y., Mortimer, J. A., Haley, W. E., & Graves, A. R. B. (2004). The role of social engagement in life satisfaction: Its significance among older individuals with disease and disability. *The Journal of Applied Gerontology, 23,* 266-278. doi:10.1177/0733464804267579

Jarrott, S. E., & Smith, C. L. (2011). The complement of research and theory in practice: Contact theory at work in nonfamilial intergenerational programs. *The Gerontologist, 51,* 112-121. doi:10.1093/geront/gnq058

Kadowaki, L., & Mahmood, A. (2018). Senior centres in canada and the united states: A scoping review. *Canadian Journal on Aging / La Revue Canadienne Du Vieillissement, 37,* 420-441. doi:10.1017/S0714980818000302

Lamb, R., & Brady, E. M. (2005). Participation in lifelong learning institutes: What turns members on? *Educational Gerontology, 31,* 207-224. doi:10.1080/03601270590900936

McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of Community Psychology, 14,* 6-23. Retrieved from http://iranarze.ir/wp-content/uploads/2016/06/3026-engilish.pdf

McWilliams, S. C., & Barrett, A. E. (2018). "I hope I go out of this world still wanting to learn more": Identity work in a lifelong learning institute. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences, 73,* 292-301. doi:10.1093/geronb/gbv110

Mehrotra, C. M. (2003). In defense of offering educational programs for older adults. *Educational Gerontology, 29,* 645-655. doi:10.1080/03601270390225631

Mental Stimulation and Lifelong Learning Activities in the 55 Population [PDF]. (2007). Elderhostel, Inc.

Morrow-Howell, N., Hinterlong, J., Rozario, P. A., & Tang, F. (2003). Effects of volunteering on the well-being of older adults. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 58,* S137-S145. doi:10.1093/geronb/58.3.S137

National Council on Aging. (2015). *Senior Centers* [Fact sheet]. Retrieved from https://www.ncoa.org/wp-content/uploads/FactSheet_SeniorCenters.pdf.

Nelson, T. D. (2005). Ageism: Prejudice against our feared future self. *Journal of Social Issues, 61*, 207–221. doi:10.1111/j.1540-4560.2005.00402.x

Nicholson, N. R. (2012). A review of social isolation: An important but underassessed condition in older adults. *The Journal of Primary Prevention, 33*, 137-152. doi:10.1007/s10935-012-0271-2

Northridge, M. E., Kum, S. S., Chakraborty, B., Greenblatt, A. P., Marshall, S. E., Wang, H., . . . Metcalf, S. S. (2016). Third places for health promotion with older adults: Using the consolidated framework for implementation research to enhance program implementation and evaluation. *Journal of Urban Health, 93*851-870. doi:10.1007/s11524-016-0070-9

Oldenburg, R. (1989). *The great good place: Café, coffee shops, community centers, beauty parlors, general stores, bars, hangouts, and how they get you through the day*. Paragon House Publishers.

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49*, 65-85. doi:10.1146/annurev.psych.49.1.65

Physical Activity Guidelines for Americans. (2018, November). Retrieved from https://www.hhs.gov/fitness/be-active/physical-activity-guidelines-for-americans/index.html.

Ronzi, S., Orton, L., Pope, D., Valtorta, N. K., & Bruce, N. G. (2018). What is the impact on health and wellbeing of interventions that foster respect and social inclusion in community-residing older adults? A systematic review of quantitative and qualitative studies. *Systematic Reviews, 7*(1), 26. doi:10.1186/s13643-018-0680-2

Salari, S. M. (2002). Intergenerational partnerships in adult day centers: Importance of age-appropriate environments and behaviors. *The Gerontologist, 42,* 321-333. Retrieved from , https://doi-org.libproxy.uccs.edu/10.1093/geront/42.3.321

Silva-Smith, A. L., Feliciano, L., Kluge, M. A., Yochim, B. P., Anderson, L. N., Hiroto, K. E., & Qualls, S. H. (2011). The palisades: An interdisciplinary wellness model in senior housing. *The Gerontologist, 51*406-414. doi:10.1093/geront/gnq117

Strawbridge, W. J., Deleger, S., Roberts, R. E., & Kaplan, G. A. (2002). Physical activity reduces the risk of subsequent depression for older adults. *American Journal of Epidemiology, 156,* 328-334. doi:10.1093/aje/kwf047

Teater, B. (2016). Intergenerational programs to promote active aging: The experiences and perspectives of older adults. *Activities, Adaptation & Aging, 40,* 1-19. doi:10.1080/01924788.2016.1127041

Wahl, H., Iwarsson, S., & Oswald, F. (2012). Aging well and the environment: Toward an integrative model and research agenda for the future. *The Gerontologist, 52,* 306-316. doi:10.1093/geront/gnr154

Warburton, D. E. R., Nicol, C. W., & Bredin, S. S. D. (2006). Health benefits of physical activity: The evidence. *CMAJ : Canadian Medical Association Journal = Journal De l'Association Medicale Canadienne*, *174*, 801-809. doi:10.1503/cmaj.051351

CHAPTER VIII: STAFFING AND GOVERNANCE

The purpose of this chapter is to present information and recommendations for staffing, governance, and structures within an intergenerational housing community. Specifically, we review literature on staffing roles and requirements; describe the need for an activity director, social worker, and volunteer program; introduce important topics in which to train staff; provide a model for preventing staff turnover; and present governance structures that maximize older adults' involvement, sense of purpose, and feeling of safety. Social scientists have yet to thoroughly study the impact of intergenerational living community characteristics (e.g., staffing, training, governance, and structures) on older adult well-being, and both formal and informal evaluations of intergenerational programs are lacking (Henkin, Patterson, Stone, & Butts, 2017). Thus, while reviewing information on staffing, governance, and structures in the following chapter, we draw largely from reports of intergenerational programming models, long-term care literature, and homeowners association (HOA) guidelines.

Staffing

The overall importance of staff roles in intergenerational living communities is informed by the theory of community (McMillan & Chavis, 1986) and intergroup contact theory (Allport, 1954). According to the theory of community (McMillan & Chavis, 1986) as described in Chapter VI (Linkage of Housing and Services to Promote Aging in Place), staff serve an important role in creating a sense of community and membership among older adults. Staff are particularly integral to helping residents feel as though they belong to the community and providing opportunities for residents to interact safely with others to develop meaningful relationships. Further, staff develop reciprocal relationships with residents that empower them to give feedback about activities and the living community, thus endowing them with a sense of

agency. Through their interactions and activities that make them feel valued, staff nurture relationships with and between residents and also experience mutual rewards for their role as staff. And lastly, through creating opportunities to interact, staff facilitate the development of emotional connections between residents (McMillan & Chavis, 1986). It is evident that staff serve an important role in enhancing a sense of community among intergenerational residents.

Similar to the theory of community, intergroup contact theory (Allport, 1954; Pettigrew, 1998) posits that staff play an integral role in facilitating positive attitudes towards other age cohorts. Through activities and interactions with residents, staff have the ability to increase residents' sense of equal importance in activities, structure opportunities to ensure the presence of a common goal, and help residents feel supported – all of which improves contact with other ages and engenders cooperation and positive attitudes. Moreover, interactions such as these may also reduce prejudice and challenge ageist beliefs (Pettigrew, 1998). Next, evidence is reviewed for the specific staff roles that would benefit an intergenerational living community.

Staffing Requirements

Based on the extant research, an intergenerational living community will benefit from staffing an activity director, a social worker, and creating a volunteer program.

Activity director. Extensive research has demonstrated that residents of assisted living communities who engage in planned activities report improved physical and mental health, increased socialization with others, and improved adjustment to a new environment, among other benefits (e.g., Grant & Kluge, 2012; Hutchinson, Loy, Kleiber, & Dattilo, 2003; Janke, Nimrod, & Kleiber, 2008; Kleiber, Hutchinson, & Williams, 2002; Mannell & Snelgrove, 2012). Although these studies are specific to residents in assisted living facilities, it is reasonable to expect that older adults in intergenerational living environments may glean the same benefits.

Researchers have also found lower rates of resident turnover in communities that nurture connections and culture through activities (Dupuis-Blanchard, Neufeld, & Strang, 2009; Hanson et al., 2014). Despite these benefits, many older adults choose not to attend programmed activities in assisted living. Plys (2018) evaluated the factors that predict activity attendance in assisted living and found that personal preference is the primary predictor of intent to engage in activities, such that residents are more likely to participate in activities that interest them. From these results, Plys (2018) suggested that, as activity programs may be unable to satisfy all residents' interests, residents may require alternative means of satisfying their activity desires. In the present intergenerational community, these needs might be met through the development of connections and relationships with external agencies.

Henkin et al. (2017) conducted a one-year study in which they investigated multidimensional aspects of intergenerational programming in senior housing, which included evaluation of the critical role of staff in serving as a bridge between residents and external organizations. Specifically, their study revealed that the activity director in many settings played a key role in managing volunteers, structuring activities, and developing important partnerships with local institutions to create opportunities for residents to engage with other age cohorts and develop social capital. In fact, settings with designated activity directors were more likely to forge long-term, sustainable relationships with outside agencies (e.g., volunteer programs), which benefits older adults through opportunities to engage with the external community. While Henkin et al.'s (2017) review included programming within senior housing settings, the information gleaned from the results and corresponding recommendations may still be relevant to the present intergenerational living community. Therefore, based on these findings and Plys' (2018) suggestion, we recommend hiring and training an activity director to fulfill this key role,

which will likely play a significant part in creating opportunities for intergenerational contact within and outside the present community. Further, as described in Chapter VII (Programs and Activities for Residents), staff who design and implement intergenerational programming must be aware of the specific facilitation processes that increase understanding of each age cohort's needs and interests and maximize the quality of intergenerational contacts (Dellmann-Jenkins, 1997). We argue that an activity director would best fulfill this need, given the unique position of an activity director in designing and implementing programs.

The readers and staff should be aware that while many older adult residents will attend programmed activities, others will prefer to organize their own activities with others. Indeed, Singelenberg, Stolarz, and McCall (2014) found that many residents preferred to engage in informal interactions and activities with others in their neighborhood, particularly in social areas (e.g., cafes, shopping centers). Nevertheless, the activity director, among other important roles (i.e. forging connections with local organizations), will play an important role in reaching out to residents about activities and intergenerational opportunities, which has been demonstrated to increase resident participation (Cohen et al., 2016).

Social worker. Given the complexity and uniqueness of older adults' lives, situations, and needs, an integral role to be filled in the present living community is that of a social worker (Ingrao, 2015). Whereas an activity director will coordinate activities and opportunities for intergenerational engagement, a social worker will help residents coordinate important services, connect with local agencies (e.g., social assistance programs), and consult with families on resident care when necessary (Henkin et al., 2017; Ingrao, 2015). As described in Chapters VI (Linkage of Housing and Services to Promote Aging in Place) and VII (Programs and Activities for Residents), a social worker may also serve as a key member of a social services delivery team

(e.g., the SHASAM model; Gusmano, Rodwin, & Weisz, 2018) and administer assessments, conduct brief psychotherapy, and provide referrals for various resources (e.g., long-term psychotherapy, meal delivery services, Silver Sneakers). A systematic review revealed that social work interventions are cost-effective, reduce patients' healthcare spending and services, and improve older adult well-being and quality of life. This is particularly salient during times of health transition and care coordination, in which medical adherence is better when a social worker is available to provide education and support (Rizzo & Rowe, 2006).

A social worker may also be part of resident intake and move-in processes, ensuring that needs are met and residents understand options for assistance (Henkin et al., 2017). Moreover, the multifaceted training of social workers prepares them to monitor for elder abuse and health and resource disparities, and, importantly, to consider the intersection of SES, race, and gender in their work (Ingrao, 2015). In fact, Rizzo and Rowe (2006) suggested that social workers are particularly well-suited to fill the workforce gap that serves older adults. Thus, we recommend hiring or contracting with a social worker to fulfill the diverse and complex needs of older adults residing in the intergenerational living community, especially if the community is multi-income, in which case lower-SES older adults may have more needs. Silver Key Senior Services offers case management that may be a useful resource to some residents in the present community.

Volunteers. Henkin et al. (2017) recommended using volunteers to fill staffing gaps, an effective strategy employed by many programs. Volunteers can be recruited both within and outside the living community. Alternatively, Henkin et al. (2017) found that some senior housing settings (more often those with market-rate or mixed-rate units) share staff with co-located child care centers or schools (Henkin et al., 2017). Thus, the development of a child care center in the present intergenerational living community, if determined feasible, could provide an

opportunity to leverage staffing. Otherwise, we recommend supporting the formation of a volunteer program to fill staffing gaps and address unmet needs (e.g., activity planners and coordinators), which the activity director would be well-suited to direct.

Staff Training and Roles

Given the complexity of working with older adults, staff training should be comprehensive, ongoing, and tailored to older adult needs. According to the most recent White House Conference on Aging (2015) initiative, current "hot topics" relevant to our aging society include healthy aging, independent living, and recognizing signs of elder abuse. Therefore, staff should receive balanced training at orientation that includes general education on the aging process, including the biopsychosocial model of well-being; education on healthy aging and the factors that help older adults live independently; information about ageism and its impact on older adult well-being; and training on recognizing signs of elder abuse and cognitive decline and impairment. Ongoing training may be provided that provides refreshers on each topic, particularly those related to reporting processes and resources. The following sections describe specific processes with which residents may need assistance, which staff are well-positioned to provide.

Elder abuse. Elder abuse can occur physically, verbally or psychologically, sexually, financially, or through neglect of an older adult. While not all older adults will experience elder abuse, Lachs and Pillemer (2015) conducted a systematic review and found that approximately 10 percent of older adults are abused, neglected, or financially exploited. Indeed, the Metlife Foundation (2007) reported that elder abuse is a key challenge to address and proposed a solution involving training all staff on key signs of elder abuse, proper reporting processes, and ensuring residents are aware of with whom they can speak about elder abuse concerns (i.e. staff).

Further, the Metlife Foundation (2007) suggested collaborating closely with law enforcement for regular trainings. Therefore, we recommend forging a partnership with local law enforcement agencies (e.g., Adult Protective Services, the Colorado Coalition for Elder Rights and Abuse Prevention) to provide staff training on recognizing signs of elder abuse and mandatory reporting laws and procedures.

Cognitive decline and impairment. Staff training on diseases common in late life is also important, including training on cognitive decline and dementia. *Dementia* is an umbrella term with different etiologies, the most common of which include Alzheimer's disease, vascular dementia, frontotemporal dementia, and dementia with Lewy bodies (La Rue, 2015). According to a global report by the World Health Organization and Alzheimer's Disease International (2012), the prevalence of all-cause dementia will reach 64.7 million by 2030; within the United States, nearly 6.5 percent of older adults (60 years and older) will develop dementia. Thus, it is important to provide staff training on dementia, especially as it confers significant consequences for both personal and family functioning and well-being. Moreover, staff may have more regular contact with some residents than others, uniquely positioning them to recognize early signs of cognitive change and provide invaluable early referrals for cognitive assessment. LaRue (2015) argued that comprehensive evaluations of cognitive function can assist in care planning, assessing decision-making ability, and addressing safety concerns, such as increased risk for falls or elder abuse, all of which may be relevant to older adults in the present living community. We therefore recommend training staff on the general prevalence, signs, and symptoms of cognitive decline and dementia, as well as community resources to which staff may refer residents for cognitive testing.

Adapting to change. When residents first move into the living community, they may struggle to create new relationships within and outside the community (Carroll & Qualls, 2014). Therefore, we recommend that staff assist this process by helping residents "nest" and find meaning in a new place (Rowles & Bernard, 2013). Scholars have also recommended involving established residents in the welcoming process. For example, same-age residents could be recruited as "Champions" to reach out to new residents and encourage participation in socialization processes and activities involvement (Henkin et al., 2017). This program may be especially effective, as people tend to befriend others their own age (Singelenberg et al., 2014). Further, Henkin et al. (2017) recommended that staff personally invite older adults to join them in activities to increase participation rates. Indeed, researchers have demonstrated an increase in activity participation among nursing home residents following staff outreach to residents (Cohen et al., 2016). To increase connections outside the living community, the activity director and social worker can assist residents in identifying services and opportunities to engage in the community (Henkin et al., 2017).

Staff Turnover

Multiple scholars have identified factors that affect staff turnover, primarily stress. For example, Calkins (2009) found that staff stress was affected by the relationship between perceived time pressures and the size of long-term care units, such that larger units and less perceived time to complete work resulted in greater stress. This research highlights the importance of addressing and managing stress among staff, even though the present community is independent living and staff will not have direct care responsibilities.

The Adards example of Australian nursing home care (Cohen-Mansfield & Bester, 2006) provides a useful model of addressing staff needs, reducing turnover, and increasing job

satisfaction. Central to the person-centered care provided at Adards nursing home is the principle of flexibility, both in terms of how residents receive care and how staff operate. For example, staff are encouraged to enjoy meals alongside residents, to share work duties with one another (law-permitting), and to bring children to work, which can reduce the burden of using childcare services and increase intergenerational contact. Henkin et al. (2017) recommended a similar strategy of offering on-site child care or summer camps to improve staff retention. Adards staff schedules also abide by the flexibility principle, such that employees are able to select shift lengths and hours of work per week, and switch shifts with willing coworkers (Cohen-Mansfield & Bester, 2006). Thus, staff work shorter shifts and fewer days per week with more days off, which, according to Cohen-Mansfield and Bester (2006), appeals to married women with children who desire part-time work. This guiding principle increases staff's sense of control and comfort, which nurtures well-being, decreases stress and turnover, and ultimately results in better quality of care and satisfaction. Flexible care to residents, which occurs in the form of individualized care routines among other tasks, also improves residents' sense of control and comfort and enhances well-being and satisfaction (Cohen-Mansfield & Bester, 2006). Although the Adards example stems from a nursing home setting, we nevertheless recommend incorporating similar tenets of flexibility into staff management in the present intergenerational living community, as it also benefits older adult well-being.

Governance and Structures

Just as there exists a gap in social science literature on aspects of staffing that affect older adult biopsychosocial well-being, so too is there a chasm in research focused on governance and structures within intergenerational living communities. Next, we discuss the utility of a resident advisory council as a key governance structure in the present community. We then describe the

"Champions program" as a means of developing connections between residents and conclude with recommendations for addressing resident safety.

Resident Advisory Council

Several scholars have investigated the benefits of resident councils for program development and intergenerational contact (e.g., Henkin et al., 2017; Metlife Foundation 2007). According to the theory of community (McMillan & Chavis, 1986), a resident advisory council would also increase a sense of influence among community members, such that they may feel as though they are making a difference and their voices are heard. Existing advisory councils (e.g., the Seattle-King County Advisory Council for Aging and Disability Services; Advisory Council, n.d.) also serve as models for governance, and HOA guidelines provide a flexible example of how shared outdoor space may be managed (Evans, n.d.). In the following section, we discuss the various roles a resident advisory council could play and the utility of the Village Model in providing services in the present living community. Existing advisory councils (e.g., the Seattle-King County Advisory Council for Aging and Disability Services; Advisory Council, n.d.) also serve as models for governance, and HOA guidelines provide a flexible example of how shared outdoor space may be managed (Evans, n.d.). In the following section, we discuss the various roles a resident advisory council could play and the utility of the Village Model in providing services in the present living community.

Program development. The Metlife Foundation (2007) suggested creating an advisory council of older adults to increase participation in coordinating community programs that enhance cultural activities. For example, a resident advisory council could collaborate with and/or advise the activity director in developing partnerships between the living community and

local organizations to create programs for intergenerational contact, such as oral history programs.

Advocacy and resources. More broadly, a resident advisory council could advocate on behalf of older adult residents and connect residents with local services through the Area Agency on Aging. For example, the goals of the Seattle-King County Advisory Council for Aging and Disability Services (Advisory Council, n.d.) are to advocate for people with disabilities and older adults, advise Aging and Disability Services, and connect and collaborate with local organizations (e.g., senior centers). The Council also works closely with the AAA to connect older adults and those with disabilities with local services. In this capacity, a resident advisory council would serve as a bridge between older adult residents of the present living community and useful organizations and services. Depending on the goals of the council, they may also engage in local advocacy on behalf of certain groups, as does the Seattle-King County Advisory Council for Aging and Disability Services (Advisory Council, n.d.).

Management of shared outdoor spaces. In addition to developing and coordinating intergenerational programming, connecting residents with services, and advocating on behalf of older adults, a resident advisory council could fulfill similar roles as board members of HOAs. Although members of the present intergenerational living community are not expected to submit fees typical of HOA membership, and the council will lack legal power to enforce guidelines, the council could help establish guidelines for neighborhood management through consultation with appropriate property management and on a volunteer basis. For example, such consultation might provide guidelines for the maintenance of shared outdoor spaces, such as yards, sidewalks, open spaces, gardens, etc., all to be completed within a volunteer maintenance program. Alternatively, the Village Model (Village Model, n.d.) provides an example of how residents can

receive and provide volunteer services within the community. A central tenet of the Village Model is to provide individualized services to a specific community based on need, which a council may be well-positioned to assess and address (Village Model, n.d.). Further, the establishment of a Village Model in the present intergenerational living community may increase exchange between residents and nurture meaningful relationships, leading to increased well-being (Dorit, 2012).

In this capacity, advisory councils capitalize on older adults' strengths in creating activities that bring together age cohorts. In forming an advisory council, Metlife Foundation (2007) recommended being transparent while planning communities, being open to collaborating with potential residents, and using easily-understood terminology. , Henkin et al. (2017) recommended forming an intergenerational advisory council, consisting of members of diverse ages, to help develop programs. Bringing together residents of different ages would both increase contact and provide a setting for collaborative work, an activity supported by both the theory of community (McMillan & Chavis, 1986) and intergroup contact theory (Allport, 1954). Therefore, we recommend supporting the formation of a resident advisory council to develop intergenerational programming in collaboration with the activity director; to provide advocacy and resources on behalf of residents; and to establish guidelines on the maintenance of shared outdoor spaces, perhaps through the development of a Village Model program.

Champions Program

As mentioned previously, new residents may face initial challenges adapting to a new living community and developing relationships with others (Carroll & Qualls, 2014). To this end, Henkin et al. (2017) recommended recruiting volunteer older adults to serve as "Champions" to reach out to new older adult residents to participate in activities and social

opportunities. The Colorado Springs Rocky Mountain Program of All-Inclusive Care for the Elderly (PACE) developed a similar program in which established participants volunteered as Champions to help acquaint new participants to center procedures, activities, and to establish themselves within the social environment (E. Hansen, personal communication, October 3, 2018). Henkin et al. (2017) further suggested that Champions could pilot newly developed programs and provide feedback. Thus, under the guidance of the activity director and/or resident advisory council, we recommend supporting the formation of a Champions program to help new residents develop connections, become acquainted with the physical and social environments, and to pilot new programs developed by the activity director and resident advisory council.

Safety

According to the Metlife Foundation (2007), results of a national survey by the AdvantAge Initiative indicated that nearly 35 percent of all older adults reported problematic crime within their communities. The perception of crime in one's community and feeling unsafe increases isolation and reduces the extent to which older adults feel free to explore their local neighborhoods (Metlife Foundation, 2007). Thus, the Metlife Foundation (2007) recognized neighborhood safety as a key concern of older adults and recommended forming Neighborhood Watch and mail carrier alert programs. Neighborhood Watch programs are operated by residents and involve collaboration with local law enforcement to monitor neighborhood activity. Similarly, mail carrier alert programs involve recruiting the observatory efforts of mail carriers, who, in the event that at-risk residents have not collected their mail, notify neighbors of concerns. Programs such as these could be developed through the collaborative efforts of the activity director, resident advisory council, and volunteers. We therefore recommend supporting

the formation of safety watch programs for the present intergenerational housing community to enhance residents' feelings of safety and enable them to fully utilize the neighborhood.

Conclusion

Staff in intergenerational housing communities can play important roles in older adults' lives. Not only will staff develop relationships with residents and support the creation of relationships between residents, but staff will also be key players in linking residents with resources to meet biopsychosocial needs; generating opportunities for engagement through capitalizing on older adults' strengths; and ensuring resident safety and well-being through rigorous staff training and implementation of support structures. While the evidence provided throughout this chapter stems primarily from other successful intergenerational programming models, long-term care literature, and HOA guidelines rather than from research specific to senior living communities, we believe it is still relevant to the holistic well-being of older adults residing in the present intergenerational living community.

References

2015 White House Conference on Aging. (2015). Retrieved from http://www.whitehouseconferenceonaging.gov/.

Advisory Council. (n.d.). Retrieved November 25, 2018 from https://www.agingkingcounty.org/about-us/advisory-council/

Allport, G. W. (1954). *The nature of prejudice*. Cambridge, MA: Perseus Books.

Calkins, M. P. (2009). Evidence-based long term care design. *NeuroRehabilitation, 25,* 145-154.

Carroll, J., & Qualls, S. H. (2014). Moving into senior housing: Adapting the old, embracing the new. *Generations, 38,* 42-47.

Cohen, L. W., Zimmerman, S., Reed, D., Brown, P., Bowers, B. J., Nolet, K., & … Horn, S. (2016). The Green House model of nursing home care in design and implementation. *Health Services Research, 51*(Suppl 1), 352-377. doi: 10.1111/1475-6773.12418

Cohen-Mansfield, J., & Bester, A. (2006). Flexibility as a management principle in dementia care: The Adards example. *Gerontologist, 46,* 540-544. doi: 10.1093/geront/46.4.540

Dellmann-Jenkins, M. (1997). A senior-centered model of intergenerational programming with young children. *The Journal of Applied Gerontology, 16,* 495-506. doi: 10.1177/073346489701600407

Dorit, F. (2012). Seeding community: Collaborative housing as a strategy for social and neighbourhood repair. *Built Environment, 38,* 364–394.

Dupuis-Blanchard, S., Neufeld, A., & Strang, V. R. (2009). The significance of social engagement in relocated older adults. *Qualitative Health Research, 19,* 1186-1195. doi: 10.1177/1049732309343956

Evans, B. (n.d.). What is HOA? What You Need to Know About Rules and Regulations. Retrieved November 24, 2018 from https://www.houselogic.com/home-thoughts/hoas-what-you-need-to-know-about-rules/.

Grant, B. C. & Kluge, M. A. (2012). Leisure and physical well-being. In H. J. Gibson & J. F. Singleton (Eds.), Leisure and aging: Theory and practice (pp. 129-139). Champaign, IL: Human Kinetics.

Gusmano, M. K., Rodwin, V. G., & Weisz, D. (2018). Medicare beneficiaries living in housing with supportive services experienced lower hospital use than others. *Health Affairs, 37*, 1562-1569. doi: 10.1377/hlthaff.2018.0070

Hanson, H. M., Hoppmann, C. A., Condon, K., Davis, J., Feldman, F., Friesen, M., ... & Ashe, M. C. (2014). Characterizing social and recreational programming in assisted living. *Canadian Journal on Aging*, *33*, 285-295. doi: 10.1017/S0714980814000178

Henkin, N. Z., Patterson, T., Stone, R., & Butts, D. (2017). Intergenerational Programming in Senior Housing: From Promise to Practice. Retrieved October 27, 2018 from http://leadingage.org/sites/default/files/Intergenerational_Programming_in_Senior_Housing_Full_Report.pdf.

Hutchinson, S. L., Loy, D. P., Kleiber, D. A., & Dattilo, J. (2003). Leisure as a coping resource: Variations in coping with traumatic injury and illness. *Leisure Sciences*, *25*, 143-161. doi: 10.1080/01490400306566

Ingrao, C. (2015). Gerontological social work: Meeting the needs of an aging population. Retrieved November 26, 2018 from https://socialwork.simmons.edu/gerontological-social-work-meeting-needs-aging-population/.

Janke, M. C., Nimrod, G., & Kleiber, D. A. (2008). Reduction in leisure activity and well-being during the transition to widowhood. *Journal of Women & Aging, 20,* 83-98. doi: 10.1300/J074v20n01_07

Kleiber, D. A., Hutchinson, S. L., & Williams, R. (2002). Leisure as a resource in transcending negative life events: Self-protection, self-restoration, and personal transformation. *Leisure Sciences, 24,* 219-235. doi: 10.1080/01490400252900167

Lachs, M., & Pillemer, K. (2015). Elder abuse. *New England Journal of Medicine, 373,* 1947–56. doi: 10.1056/NEJMra1404688

LaRue, A. (2015). Dementia: A health care team perspective. In P. A. Lichtenberg & B. Mast (Eds.), *APA Handbook of Clinical Geropsychology. Volume 1.* (pp. 515-547). Washington, DC: APA.

Mannell, R. C. & Snelgrove, R. (2012). Leisure and psychological well-being and health of older adults. In H. J. Gibson & J. F. Singleton (Eds.), *Leisure and aging: Theory and practice* (pp. 143-154). Champaign, IL: Human Kinetics.

McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of community psychology, 14,* 6-23. doi: 10.1002/1520-6629(198601)14:1<6::AID-JCOP2290140103>3.0.CO;2-I

MetLife Foundation. (2007). A blueprint for action: Developing a livable community for all ages. Retrieved October 27, 2018 from http://www.livable.org/storage/documents/reports/AIP/blueprint4actionsinglepages.pdf.

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49,* 65-85.

Plys, E. (2018). *Programmed activity attendance in assisted living: A study of the theory of planned behavior* (Doctoral dissertation). Retrieved from Dissertation Abstracts International: Section B: The Sciences and Engineering. (978- 0355846584)

Rizzo, V. M., & Rowe, J. M. (2006). Studies of the cost-effectiveness of social work services in aging: A review of the literature. *Research on Social Work Practice, 16*, 67-73. doi: 10.1177/1049731505276080

Rowles, G. D., & Bernard, M. (2013). The meaning and significance of place in old age. In G. D. Rowles & M. Bernard (Eds.), *Environmental gerontology* (pp. 3-24). New York: Springer.

Singelenberg, J., Stolarz, H., & McCall, M. E. (2014). Integrated service areas: An innovative approach to housing, services and supports for older persons ageing in place. *Journal of Community & Applied Social Psychology, 24*, 69-73. doi: 10.1002/casp.2175

Village Model. (n.d.). Retrieved November 24, 2018 from https://vtvnetwork.clubexpress.com/content.aspx?page_id=22&club_id=691012&module_id=248578.

World Health Organization and Alzheimer's Disease International. (2012). *Dementia: A public health priority.* Retrieved from http://www.who.int/mental_health/publicaations/dementia_report_2012.

Conclusion

The chapters in this paper include recommendations for an intergenerational community that facilitates aging in place for older adults. The number of older adults in the United States is rapidly increasing, which creates a need for housing and community programs that promote well-being with advancing age. Though Colorado Springs and the state of Colorado have been designated as "age-friendly," intergenerational, affordable, and accessible housing communities for older adults are in short supply. As a result, older adults are forced to live in inaccessible homes and neighborhoods or unaffordable, age-segregated housing. Scholars have reported benefits for older adults who reside in age-friendly inclusive communities, such as increased trust between generations, decreased isolation, increased community engagement, and improved well-being and self-esteem.

Biopsychosocial theories, which are summarized in Chapter I, were used to inform recommendations throughout the paper. These recommendations focus on architectural and neighborhood design dimensions, as well as programming and governance issues. Specifically, both internal and external building structure recommendations are considered to aid older adults' ability to age in place. We also provide guidance for the design and infrastructure of an age-friendly neighborhood.

Architectural Elements and Neighborhood Design

Section I (Chapters III, IV, and V) reviews the literature and contains recommendations for structural components that facilitate aging in place. Specific to interior spaces, use of universal design creates inclusive livable spaces for people at all levels of ability across the lifespan and promotes greater ability to compensate for limitations imposed by age-related decline. External spaces can promote health, comfort, and safety through external architectural

elements factors such as windows, walls, and roofs, which affect thermoregulation. Porches, ramps, fire escapes, and house color also contribute to well-being by providing residents with a sense of safety, security, and privacy. Finally, the construction of an age-friendly neighborhood can impact the ability to age in place by ensuring that the environment provides adequate support for older adults. Factors such as mobility, walkability, and social contact can be enhanced with proper neighborhood design, aiding in older adults' overall well-being.

Community Services, Programs and Activities, and Staffing

Section II (Chapters VI, VII, and VIII) reviews literature and contains recommendations for social programs and staffing that facilitate aging in place. Elements of community, such as belongingness, meaning, and social connection are important factors for well-being over the lifespan. Research suggests that a service-enriched housing model promotes the health and well-being of older adults by connecting them to vital resources in the community. Additionally, community programming that addresses SAMHSA's eight dimensions of wellness (emotional, environmental, financial, intellectual, occupational, physical, social, and spiritual) provides intellectual stimulation, social interaction, and physical activity over the lifespan. Finally, staff play an important role in ensuring that older adults find a sense of support, safety, and engagement throughout the neighborhood. Staff also provide opportunities to procure resources necessary to meet biopsychosocial needs that aid the process of aging in place.

Limitations

Limitations to these specific recommendations are included throughout each chapter. Overall, this project summarizes the available research from a number of different disciplines, such as psychology, sociology, and housing and building codes; thus, recommendations are limited by the availability and rigor of empirical research that has been conducted in each of

these areas. The purpose of this paper was to synthesize evidence-based recommendations for housing and community, however, it should be noted that many potential recommendations could be made that would positively impact the well-being of older adults which were not included in this white paper. Future research would benefit from rigorous evaluation of other biopsychosocial housing and community interventions intended to improve well-being and promote aging in place for older adults.

Appendix A

Summary of Recommendations

Chapter III: Interior Living Spaces

- Use universal design standards and at a minimum, incorporate visitable home design

Visitable homes	▪ Zero threshold entrances ▪ 32” width for main floor doors and hallways ▪ Accessible first floor bedroom and bathroom
Mobility Support	▪ Doors and hallways at least 36” wide, which is 4” wider than visitable home recommendations ▪ Open living spaces with a minimum of 42” width for wheelchair clearance and a minimum of 5’ x 5’ maneuvering space ▪ Counter heights in the kitchen and bathroom should range from 28” to 45” ▪ Open knee space under sinks, cooktops, and at least one counter space to provide closer access for people in wheelchairs ▪ For aesthetic appeal use retractable cupboard doors
Bathrooms	▪ Walk in shower with no or low threshold ▪ Raised toilet seats ▪ Variable bathing modes (e.g., bathtubs, showers) ▪ Benches ▪ Grab bars ▪ Substantial framing in ceiling to allow for hoists
Bedrooms	▪ Substantial framing in ceiling to allow for hoists ▪ Walk-in closets with adequate space for wheelchair to turn
Stairwells	▪ Built wide enough to allow for addition of a stair lift ▪ Electrical outlet at top and bottom of stairs
Fine Motor Support	▪ Lever door handles ▪ Single lever faucets ▪ Detachable shower heads mounted at the side of basins ▪ Cabinet hardware with open loop handles
Reduced Fall Risk	▪ Flooring o No steps or ridges throughout the first floor o Smooth transitions between flooring types and from room to room o Non-skid flooring

- Impact resistant flooring
- Bathrooms
  - Non-slip textured surfaces in bathtubs and showers
- Kitchen
  - Raised dishwasher
- Stairs
  - Low angle gradients with deep step surfaces
  - Handrails on both sides of the stairwell
- Other
  - Electrical outlets no lower than 15” to 18” from the floor

Support for Visual Impairment

- Glare-free lights with a minimum of 100-watt bulb capacity
- Indirect light
- Two-way rocker panel light switches at each room entrance and the top/bottom of stairs
- Motion activated sensors
- Window treatment options that control light volume; should have pull-mechanisms reachable from wheelchair
- Contrasting colors on counter edges, between countertops and sinks, between flooring types, and between stair risers and treads

Control of the Environment

- Choice in wall color and ability to hang decorations on the wall
- Windowsills large enough to place plants without impeding access to window locks
- Retractable clothesline over the bathtub/shower area

Chapter IV: Exterior Architectural Elements

Thermoregulation

- Windows
  - Maximize the amount of sunlight entering the home by placing windows on south facing walls or within ninety degrees of the south if a south-facing window wall is not possible
  - Avoid windows on west-facing walls
  - Windows need coverings to block excess heat from entering and help with sleep quality
- Walls
  - Follow industry guidelines to ensure homes are properly sealed, sheathed and insulated for Colorado Springs
  - Ensure that insulation has an R-value of R-18 for walls

	▪ Roofs o Green roofs are recommended as a cost-effective way to help regulate housing temperature

Well-Being	▪ Light/Windows
	  o Maximize the number of windows on homes
	  o Reducing glare by tinting windows
	  o Do not make windows too small because it breaks up the outside view
	  o User friendly window mechanisms
	  o Windows that open or tilt out
	  o Windows should have a maximum of 36-inch sill heights
	  o When possible, have windows overlook a stimulating environment

Spending Time Outdoors	▪ Comfortable outdoor sitting area near exit point ▪ Sitting area should face toward the sidewalk and street
Privacy (soundproofing)	▪ Use double or triple pane windows ▪ Consider glazing windows ▪ Exterior doors need weather tight seals ▪ Adding a storm door will block additional sounds ▪ Consider adding an extra layer of drywall
Security	▪ Easy locking mechanisms on windows and doors ▪ Double locks on doors (use a chain lock for one of them) ▪ Lever door handles ▪ Peep hole at eye level on front door ▪ Use glass that is 1/8-inch-thick to reduce the odds of breaking ▪ Thick external doors to reduce sound transmission
Safety	▪ Avoid outdoor stairs leading up to homes ▪ Use of ramps is recommended ▪ Install handrails on either side of stairs, if stairs are unavoidable ▪ Install windows that open to the outside as opposed to single or double hung windows ▪ Vary exterior house colors or front door colors

Chapter V: Neighborhood Design

Walking	▪ Increase the amount of potential destinations within walkable window (400-500 meters) through mixed land use and diversity in the rise of building ▪ Include grid layout with high street connectivity and avoid dead-ends, three-way intersections, and cul-de-sacs ▪ Intersections should be controlled with stop signs rather than automated lights ▪ Crosswalks should be easily visible and highly marked Crossing islands can allow for a rest break while traversing the street ▪ Sidewalks must be well-paved, smooth, and wide with walking space free of trash receptacles, greenery, or construction equipment Low curbs should taper into the road ▪ Flat terrain is ideal, but for inclined walkways, ramps and handrails should be utilized ▪ Benches should be available to provide a location for rest and socialization ▪ Any trail systems should be wide enough to allow for walking groups and should be regularly maintained, clearly marked, and should utilize distance markers throughout ▪ Special winter concerns include sidewalk maintenance, litter accumulation in shelters, and snow piles interfering with walking or accessing public transport
Biking	▪ Bike lanes should measure approximately six-feet in width ▪ Include clear separation between roads, sidewalk, and cycling paths, such as small median hardscapes
Parking	▪ Parking infrastructure should be adequate for both residents and visitors without overwhelming the neighborhood layout ▪ Include a useful assignment system to designate spaces ▪ Consider usefulness of covered versus uncovered parking for specific climate
Public Transportation	▪ Locate public transport stops within one-quarter mile of residences ▪ Public transport stops should have wide, wheelchair accessible sidewalks, be clear of debris like rocks and gravel, have adequate lighting and weather- protected seating ▪ Consider including shuttle services that connect to a transportation hub
Safety	Slow drivers through low speed limits, narrow roads, and roundabouts to improve pedestrian safety Lighting should be plentiful and pedestrian-oriented; using white, closely-spaced lights

	Walkways should be visible from homes in order to provide a sense of safety to pedestrians through surveillance Consider including a security system at the main entrance if the neighborhood is located in a high crime area
Comfort	▪ Include adequate buffer from street noise throughout the complex ▪ Provide amenities such as water fountains, automated doors on buildings, and clean washrooms in public areas ▪ Include green spaces and parks within walking distance to increase comfort, walking, and socialization ▪ Include trees between cars and pedestrians on the sidewalk to provide a physical buffer for pedestrians, lower vehicle speeds, and absorb vehicle emissions ▪ Take advantage of natural light by planting deciduous trees on the west side of developments Avoid planting trees too close to windows
Neighborhood Density	▪ Key design goal: facilitating harmonious social interaction ▪ Design spaces to allow for frequent social interactions ▪ Increase functional social density (FSD): this will build a sense of community, increase social interactions, and increase community activity involvement ▪ Functional social density (FSD) = (total sqft of shared social spaces used by at least 20% of residents at least 20% of the time) / (the number of residents) ▪ Minimize excess private space: this increases social interaction among residents ▪ If FSD becomes excessively high, or if there's no boundary between private and public spaces, community feels invasive and residents withdraw ▪ Buffer private spaces with semi-private spaces (e.g., gardens, verandas, etc.): this helps to prevent social density overload by providing transitions between spaces ▪ Private areas near high-density public spaces benefit most from semi-private spaces ▪ Gardens and outdoor greenery spaces provide a sense of openness can help to buffer friction is high density areas ▪ Increasing resident buy-in (e.g., by residents contributing to design choices) increases resident collaboration, increases tolerance for high neighborhood density, and reduces class-related conflict within the community
Building Style	▪ Private residences should be equipped, at least, with their own private kitchens and bathrooms

	▪ Shared structures should include common functional facilities and buildings designed to facilitate social contact among residents ▪ Smaller private residences are ideal: they require less energy, take up less space, encourage social interaction, and require fewer resources to build and maintain ▪ Buildings that are space-efficient and designed to be environmentally sustainable help to make the overall community more financially sustainable ▪ Locate parking on the outer perimeter of the community to promote walkability ▪ Physical proximity of buildings has a huge influence on social behavior: construct neighborhood buildings in 'pods' clustered around a shared centralized space, rather than constructing neighborhood buildings in rows ▪ Ensure clustered building pods do not reduce the visibility and accessibility of shared spaces ▪ In a larger community, vary activity locations across housing pod clusters to promote residents travelling to different clusters, which reduces territorial behavior ▪ Do not construct buildings taller than one or two stories, this reduces social interaction among those living on the top floors ▪ Ensure shared indoor spaces are centralized, easily accessible, and highly visible ▪ Some examples of shared indoor spaces include: dining areas, social gathering places, meeting rooms, and practical facilities (e.g., laundry, gym, etc.) ▪ Carefully consider the acoustic design of shared indoor spaces, poor acoustics are associated with reduce use by older adult residents "Missing middle" housing designs are well-suited to intergenerational communities, these include building residential structures like bungalow courts, townhomes, and live/work facilities
Design Features that Influence Health	▪ As residential density increases, balance this by increasing the number of open and green spaces within the neighborhood to maintain walkability ▪ Maintain high diversity in: land use, type of landscaping, building height, building type This improves walkability, residential harmony, and resident quality of life ▪ Examples of diverse land use include the creation of playgrounds, vegetable gardens, barbecue areas, parks, trails, and benches ▪ Extra-wide corridors and walking areas, both indoors and outdoors, increase social exchange and facilitate walkability

	▪ Neighborhood walkability is improved by nearby access to recreational facilities and high-visibility, which create a sense of safety for residents ▪ Common architectural paradigms in successful intergenerational communities include roof terraces, centralized common spaces, and diverse facilities ▪ Grouping homes relatively close together encourages neighborhood interaction and facilitates walking between buildings ▪ Maintaining high visibility throughout the community allows for passive surveillance and helps foster a sense of safety and trust among residents ▪ Building designs that extend a sense of openness to the surrounding neighborhood (e.g., having a terrace that opens out into a public plaza) tend to enliven and have a greater positive impact on the surrounding community ▪ When intergenerational housing projects are designed in an open way that invites non-residents to interact with residents, entire neighborhoods can be enriched and developed ▪ Having numerous ground-level "in-between spaces," (e.g., public courtyards, green spaces, etc.) especially near public entrances to the community, help to buffer public, shared, and private areas while providing informal opportunities for residents to interact All of this can help to facilitate the inclusion of outside groups into community activities
Sustainability	▪ Intergenerational communities with a strong set of shared values (e.g., sustainability, health, gender) tend to have more engagement from residents ▪ The more residents can get behind the 'ethos' of the community, the more likely they are to increase their stake in the community and collaborate to improve it ▪ Communities united by established environmental principles (e.g., Permaculture) have been found to have reduced residential conflict and greater unity when making community decisions ▪ Through shared values, intergenerational residents can more easily enhance their sense of community and trust ▪ The sense volunteerism, community, and shared commitment to the community often found in intergenerational housing predispose residents toward the acceptance of sustainable activities and practices ▪ Research on European communities has identified that the social structure of intergenerational communities naturally encourages residents to initiate and maintain sustainability practices

- Sustainable practices can help to reduce community costs and can sometimes lead to income-generating activities that support the continued inclusion of lower-income residents within the intergenerational community
- Intergenerational housing represents a practical and realistic way to enact pro-environmental lifestyle changes within communities that will ultimately reduce housing costs and support the creation of a more sustainable urban environment

Benefits of Maintained Outdoor Spaces

- Maintained outdoor spaces improve neighborhood walkability, and thus increase residential well-being and quality of life
- Outdoor spaces can serve a variety of functions, from gardens that serve as buffer zones between private and shared spaces, to parks that invite children to play, to barbecue pits that allow adults to congregate
- When possible, residential activities can be held outdoors to benefit the health of residents, as studies have found reductions in serum cortisol levels when residents engaged in community activities outdoors (e.g., in a park) rather than indoors (e.g in a classroom)
- Creating and maintaining shared outdoor spaces creates the opportunity for exchange and contact among community residents
- In intergenerational communities that include families with young children, larger outdoor spaces have been found to help prevent intergenerational conflict over space ownership and sound-related conflicts
- Private outdoor spaces are also desirable and beneficial to residents
- One way to add private outdoor spaces to a community design is to build balconies and roof terraces attached to private homes and spaces
- Overall, greater diversity in both building design and land use are associated with higher residential activity levels, greater walkability, and improved residential health outcomes

Chapter VI: Linkage of Housing and Services to Promote Aging in Place

Service-Enriched Housing

- Implement a service-enriched housing model such as the Self-Help Active Services for Aging
- Assessment
    - Social workers conduct assessments of psychological, cognitive, and physical functioning to guide appropriate referral and intervention for residents

	○ Utilize cognitive screens such as the MoCA to assess for cognitive impairment ○ Utilize screens such as the Geriatric Depression Scale (GDS) and the Geriatric Anxiety Scale (GAS) to assess for mental health concerns ○ Utilize the Lawton Basic and Instrumental Activities of Daily Living Scale to screen residents for functional impairment ○ Utilize a nutrition screen such as the SCREEN II to identify residents at risk of malnutrition and food concerns ○ Utilize a nutrition screen such as the SCREEN II to assess for risk of malnutrition ○ Assess fall risk and frailty in residents ▪ Counseling ○ Social workers provide short term counseling to residents to increase well-being ○ Employ brief solution-focused therapy and problem-solving therapy to increase positive behavioral outcomes and well-being in older adult residents ▪ Advocacy ○ Social workers serve as advocates for older adults ▪ Referrals to Benefits and Services ○ Social workers provide older adults with referrals to necessary medical and social supports in the larger community ▪ Technology ○ Technology support should be offered to older adults within the community ○ Residents receive a telehealth system that allows them to engage with online interactive health video classes ○ Residents are also provided with simplified Skype and messenger services that increase social contact
Transportation	▪ Provide educational seminars aimed at maintaining driving safety and ability in older adults ○ Utilize both a ride sharing program with volunteer drivers and a travel-training program to meet the diverse transportation needs of older adults within the community
How Residents Will Access Services	▪ Incorporate social worker and activities director as part of a formalized “move-in” process to 1) assess resident needs and 2) build rapport and trust ▪ Utilize an initial screening questionnaire to assess resident needs

- Social worker and activity director offices should be located on first floor of residential building
- Advertise and display information about supportive services during activities and meetings involving residents
- Participation in services is voluntary for residents
- Residents and social workers work as a team to communicate needs and preferences for services

CHAPTER VII: Programs and Activities for Residents

Education

- A variety of activities should be offered to address the heterogeneity of interest, but academically driven activities such as academic talks or opportunities to volunteer may be more captivating to older adults living independently and target a large proportion of older adult learners

Recreation and Leisure

- A provision of services that make it easier for older adults with disabilities to attend social activities for example, providing accessible transportation or physical assistance

Volunteering

- Focusing on the characteristics of those who benefit from volunteering appears unnecessary, instead efforts to encourage older adults to volunteer should be considered

Physical Activity

- Group-based physical activities provide social interaction reducing social isolation while targeted individual interventions may be less beneficial

Intergeneration Programming

- An effort should be made to consider the development and benefit of both populations
- Programs that allow older adults to take an active role, creating a sense of purpose, appear to be maximally beneficial
- Staff training should be focused on understanding the needs and interests of each population to determine relevant activity types
- Efforts for program evaluation are essential to see that the activity aligned with the determined goals and to inform future activities

Senior Centers

- Increasing older adults' awareness of services available at the senior center(s) can serve many psychosocial benefits

Silver Sneakers

- Information about community resources and programs should be disseminated through posters and flyers Social workers and case managers should be available to assist older adults in

	accessing these resources and determining eligibility for community-based programs
Engagement of Insiders with Outsiders	▪ A survey or suggestion box could be used to determine which outsiders to invite to present or perform ▪ Third spaces may be optimal for hosting outsiders or community-based meetings

CHAPTER VIII: Staffing and Governance

Staffing Requirements	▪ We recommend hiring and training an activity director, who will likely play a significant part in creating opportunities for intergenerational contact within and outside the community ▪ We recommend hiring or contracting with a social worker to fulfill the diverse and complex needs of older adults residing in the community, especially if the community is multi-income, in which case lower-SES older adults may have more needs Silver Key Senior Services offers case management that may be a useful resource ▪ We recommend supporting the formation of a volunteer program to fill staffing gaps and address unmet needs (e.g., activity planners and coordinators), which the activity director would be well-suited to direct
Staff Training and Roles	▪ We recommend staff receive balanced training at orientation that includes general education on the aging process, including the biopsychosocial model of well-being; education on healthy aging and the factors that help older adults live independently; information about ageism and its impact on older adult well-being; and training on recognizing signs of elder abuse and cognitive decline and impairment We also recommend ongoing training that provides refreshers on each training topic, particularly those related to reporting processes and resources ▪ We recommend forging a partnership with local law enforcement agencies (e.g., Adult Protective Services, the Colorado Coalition for Elder Rights and Abuse Prevention) to provide staff training on recognizing signs of elder abuse and mandatory reporting laws and procedures ▪ We recommend training staff on the general prevalence, signs, and symptoms of cognitive decline and dementia, as well as community resources to which staff may refer residents for cognitive testing ▪ We recommend staff assist in the resident move-in process to help residents “nest” and find meaning in a new place

Staff Turnover	▪ We recommend incorporating tenets of flexibility from the Adards nursing home care model into staff management to benefit staff and resident well-being and reduce turnover
Governance and Structures	▪ We recommend supporting the formation of a resident advisory council to develop intergenerational programming in collaboration with the activity director; to provide advocacy and resources on behalf of residents; and to establish guidelines on the maintenance of shared outdoor spaces, perhaps through the development of a Village Model program ▪ We recommend supporting the formation of a Champions program to help new residents develop connections, become acquainted with the physical and social environments, and to pilot new programs developed by the activity director and resident advisory council ▪ We recommend supporting the formation of safety watch programs for the community to enhance residents' feelings of safety and enable them to fully utilize the neighborhood

Appendix B

Resources for Readers

AARP Beyond 50.05: A Report to the Nation on Livable Communities: Creating Environments for Successful Aging. Retrieved from https://assets.aarp.org/rgcenter/il/beyond_50_communities.pdf

Biggs, S., & Carr, A. (2015). Age- and child-friendly cities and the promise of intergenerational space. *Journal of Social Work Practice, 29*, 99-112. Doi: 10.1080/02650533.2014.993942

Henkin, N. Z., Patterson, T., Stone, R., & Butts, D. (2017). Intergenerational Programming in Senior Housing: From Promise to Practice. Retrieved October 27, 2018 from http://leadingage.org/sites/default/files/Intergenerational_Programming_in_Senior_Housing_Full_Report.pdf.

Hope Meadows Village. Retrieved from https://hopemeadows.org

Appendix C

Group Member Roles

Role	**Group Member(s)**
Time and agenda keeper	Jen Roberts
Recorder and minutes keeper	Katie Johanson
Communicator and intergroup liaison	Lauren Schneider
Conflict monitor	Lauren Schneider
Group leaders	Katie Stypulkowski, JoAnna Dieker
Group editors	Jen Roberts, JoAnna Dieker
Chief editor	Katie Johanson
Grammar guru	Allison Walden
APA stylist	Robert Wickersham
Timeline accountability specialist and support	Katie Stypulkowski
Presentation organizer	Allison Walden