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and Housing Opportunities***

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Becky L. Yust, University of Minnesota

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¹The 2020 HERA conference was canceled due to the COVID-19 pandemic. Abstracts accepted for presentation in 2020 are included in the 2021 HERA conference and proceedings.

*For multi-authored abstracts, an asterisk notes the corresponding author.

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Mobility Limitations and Non-Accessible Homes as Predictors of Aging in Place

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Keywords: aging-in-place, mobility limitations, accessible home

Objective

Aging-in-place (AIP) is the preferred living environment for most older adults. The ecological theory of aging (environmental press) suggests that living in a non-accessible home may increase the risk that older adults with mobility limitation will need to move out of their community home and into a nursing home. This study tested the associations between mobility limitations, non-accessibility of the home environment, and ability to AIP.

Methods

The 2014 and 2016 waves of the Health and Retirement Study were used. Using multinomial logistic regression, mobility limitations (2014) and home non-accessibility (2014) were used to predict respondent living arrangements (community, nursing home, or deceased) in 2016. Unadjusted, main effects and interaction effects models were tested.

Results

Older adults with more mobility limitations and home non-accessibility in 2014 were more likely to be living in a nursing home (or deceased) as opposed to living in the community in 2016. A model with an interaction term between mobility limitations and accessibility of home was not significant.

Discussion

This study contributes to the scientific literature by establishing an association between accessible homes and AIP. The major implication of this research is that more needs to be known about home accessibility living arrangements in later life. Very little data is available about the inventory of accessible homes in the country and given the association between home accessibility and the ability to AIP, future research could contribute by identifying housing inventory gaps.

Before Bug Spray: Integrating IPM into First Time Homebuyers Classes.

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Keywords: housing program; homebuyer classes; virtual programming.

Pests in a home impact the occupants, regardless of socio-economics or demographics. Pests in the home can affect everything from health to social interactions. Although Integrated Pest Management (IPM) is effective and has been in the vernacular of professionals for over 40 years, the adoption rate is slow. Exclusion, a major component of IPM is effective, but only a small amount of Pest Control Operators (PCOs) offer as a service. Homeowners are the first line of defense to prevent pests, so why not market IPM directly to them? Promoting IPM to homeowners makes sense, as they are the first line of defense in exclusion, maintenance, and sanitation in their homes. Homeowners encountering insect and rodent problems can be particularly motivated in pest prevention.

Objectives

Participants will learn to identify principles of IPM (exclusion, maintenance, and sanitation) and apply these principles to prevent household pests.

Methods

Extension Agents in eight Florida counties partnered with State Specialists to develop presentations and supporting materials to educate attendees of housing and homebuyer education classes on IPM principles. Each Agent received a kit to illustrate key presentation points of IPM principles. Classes have been held in English and Spanish.

Results

An end-of-class survey measuring knowledge and attitudes toward IPM, before and after training, has been administered in four counties. The addition of the IPM module to the first-time homebuyer and down payment assistance classes have been well-received by participants. Before the class, 21% contacted Extension for help with pests in the home, 32% felt they knew what IPM was, and 13% knew what questions to ask pest professionals. After the class, 92% intended to contact Extension, 93.3% knew what IPM was, and 84% knew what to ask their pest professionals. Follow-up phone surveys are forthcoming.

Conclusions

Thus far, the program has been successful in educating potential first-time homebuyers to be proactive in exclusion, maintenance and sanitation by self or pest control operators. The information is applicable even if the participant decides to rent instead of own. Many of the participants were unaware of Extension as a resource for pest information. The team goal is to share with other states who also may have homebuyer classes and to make Agents more knowledgeable about IPM when responding to phone calls or samples brought to the Extension office. A lengthier IPM section is in the process of being developed for the post purchase classes to allow for more focused instruction.

COVID Note: In-person classes used monitoring stations as an incentive for participants to fill out the lengthy survey. During COVID, classes switched to an all-virtual platform that was statewide. In 2020, there were 13 classes offered with 438 participants. The Agent team decided to combine IPM into the housing maintenance section in 2021. In 2021, a total of 18 online classes (minimum eight hours) have been scheduled in both English and Spanish. So far, 1,077 participants have attended. A shortened survey was administered to the online classes.

Pivoting Home-buyer Classes during COVID

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Keywords: homebuyer classes; virtual programming; housing programs

Stable housing is a critical component of good health and success. In Florida, 45% of families struggle to meet basic living costs and maintain stable housing due to low wages and rising costs of living (2018 United Way ALICE Report). Approximately 21% of children in Florida live in poverty and 47% live in low-income households. The increase in single parent families (40%), leads to fewer financial resources. Housing education helps families make informed choices and implement financial practices that promote stability (HUD Evidence Matters, Spring, 2016). Much of Florida's population falls into the "underserved," low-income category that county housing programs aid. Florida Agents already provided in-person homebuyer classes. Due to the COVID-19 pandemic, regularly available in-person classes were put on hold indefinitely. Without the HUD certified classes, many first-time, low-income participants would not be able to access financing programs like the USDA Rural Development's low interest loans or the State Housing Initiative Program (SHIP) down payment assistance.

Objectives

To increase knowledge of financial responsibilities of home buying and homeownership, determine trustworthy sources of information, identify steps in the homebuying process, identify potential home maintenance and IPM issues.

Methods

A multi-county housing team formed to deliver virtual programming statewide. Most of the Agents had never taught a class online. The online format included Dropbox for participant materials. Zoom allowed participants to interact with the Agents and volunteer housing instructors (professionals like mortgage lenders, insurance brokers, and real estate agents). Breakout rooms for housing counseling were offered at the end. Moving to online increased accessibility. More classes were offered with more variation in times and days in both rural and urban counties. Virtual classes allowed participation by bilingual and hearing-impaired participants.

Results

In 2020, 12 agents delivered 14 online workshops. Of the 759 attendees, over 400 completed a Qualtrics post evaluation. A total of \$185,000 in down payment assistance was provided. Home ownership contributes to the overall stability of a community through reduction in defaults and payment of ad valorem taxes. Studies show that children living in owned homes (vs. rented) are more likely to perform better in school due to the stability of their living environment.

Videotaped classes for participants unable to attend live classes are being discussed. The group identified a need and developed the virtual "Taking Control of your Money" series. It has already been offered 11 times. The group is coordinating the creation of 13 fact sheets on indoor pests, creating FAQs to be posted on the e-Xtension website, as well as developing a more in-depth home maintenance curriculum.

Conclusions

Virtual classes will continue. This format has increased the ability to provide homebuyer education. The support provided by the group to agents who might not have made the switch to virtual programming has proved successful. The housing team continues to grow as more county agents join and provide expertise. The collaboration effort initially focused on providing online classes has helped make the housing program stronger and more visible in Florida.

Investigating Seriously Delinquent Mortgages in Hispanic/Latino Ethnotracts in Metropolitan Statistical Areas in the United States

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Keywords: foreclosure, Hispanics/Latinos, ethnotracts

Many scholars of subprime lending and the foreclosure crisis have discussed geographic, demographic, socioeconomic, and housing characteristics to explain foreclosure rates in neighborhoods of color. Hispanics/Latinos are the second fastest-growing group of color in the United States, and they will maintain their growth in the future (Colby & Ortman, 2015; Frey, 2018). While most policymakers and analysts may be aware of differences in foreclosure rates among racial and ethnic groups (i.e., non-Hispanic Whites, Blacks/African Americans, Asians, and Hispanics/Latinos), they may be less aware of the heterogeneity within Hispanic/Latino ethnotracts (i.e., differences among Hispanic/Latino subgroups in Census tracts with 30 percent or more households of one or more Hispanic/Latino subgroups; Cheng, 2013; Gordon, 2015; Lee & Greenlee; Mahler, 1995; Rugh, 2015).

The goal of this study is to investigate seriously delinquent mortgages in Hispanic/Latino ethnotracts in Metropolitan Statistical Areas in the United States. This manuscript answers three research questions: First, what are the geographic, demographic, socioeconomic, and housing characteristics of Hispanic/Latino ethnotracts? Second, what are the rates of seriously delinquent mortgages in Hispanic/Latino ethnotracts? Third, what factors determine the rate of seriously delinquent mortgages in Hispanic/Latino ethnotracts?

This manuscript analyzes publicly available 2010 Neighborhood Stabilization Program (NSP) 3 data from the U.S. Department of Housing and Urban Development and 2005/2009 American Community Survey (ACS) data from the U.S. Bureau of the Census for Census tracts in all Metropolitan Statistical Areas (MSAs) in the U.S. Descriptive statistics and Weighted Least Squares (WLS) regressions show that the rate of seriously delinquent mortgages in some Hispanic/Latino ethnotracts was relatively high compared to other Hispanic/Latino ethnotracts.

Answering research question 1, in terms of demographic characteristics, regression coefficients were negative for non-Hispanic Whites and Asians and positive for Blacks/African Americans, consistent with the literature. In terms of socioeconomic characteristics, regression coefficients were negative yet small, which is also consistent with the literature. Lastly, in terms of housing characteristics, regression coefficients of the homeownership rate and the proportion of vacant units were positive and coefficients of the median year housing unit built were negative, although there was a wide variation among Hispanic/Latino ethnotracts.

Answering research question 2, there are differences among Hispanic/Latino ethnotracts. For example, Cuban ethnotracts (n = 158) had a rate of seriously delinquent mortgages of 20.81 percent while Mexican (n = 5,073), Ecuadoran (n = 7), Puerto Rican (n = 362), Dominican (n = 107), Guatemalan (n = 9), and Salvadoran (n = 12) ethnotracts had rates of 13.67, 13.66, 13.64, 12.91, 12.60, and 11.09 percent, respectively. Answering research question 3, negative coefficients were the proportion of non-Hispanic Whites and Asians while positive coefficients were the proportion of Blacks/African Americans the homeownership rate, consistent with the literature. These findings may be of interest to those who design, introduce, implement, and evaluate programs.

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A Comparison of the Homeownership Status of Victims of Familial Versus Non-Familial Identity Theft

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Keywords: family; homeownership; identity theft

Identity theft is problematic for U.S. households; there were 14.4 million reported victims in 2018 (Marchini & Pascual, 2019). Navarro and Higgins (2017) found 22.5% of victims had their identity stolen by a relative. Familial identity theft occurs when an individual uses the personal identifying information of a relative without their knowledge or consent for personal gain (Betz-Hamilton, 2018). Familial identity theft can remain undetected for years and the financial damage can last for decades, thwarting financial goals such as obtaining housing.

Identity thieves are increasingly using stolen personal information to obtain both owner-occupied and rental housing. In 2019, 1.3% of the identity theft complaints received by the Federal Trade Commission involved the use of a victim's information to obtain rental housing, an increase of 56% compared to 2018 (Federal Trade Commission, 2020). Similarly, 1.2% of the identity theft complaints received by the Federal Trade Commission in 2019 involved the use of a victim's information to obtain a real estate loan, an increase of 49% compared to 2018. This data includes mortgage loans in addition to other types of real estate loans.

While these data suggest that identity thieves are successfully obtaining housing, what about their victims—are they renting or owning housing? The goal of this research was to determine if familial identity theft victims differ from non-familial identity theft victims regarding their homeownership status.

Data from the 2016 National Crime Victimization Survey—Identity Theft Supplement (ITS) comprised the sample. A total of 125,165 persons completed the ITS. Contained in the ITS is a question that asked the respondent to identify his/her relationship to the perpetrator. One hundred and thirteen respondents identified a relative as the perpetrator, and 513 identified a non-relative as the perpetrator.

An item in the ITS requested information about respondents' homeownership status: "owned/being bought", "rented for cash", and "no cash rent" (US Department of Justice, 2019). Owned/being bought was coded as "1", rented for cash was coded as "2", and cash rent was coded as "3" by the US Department of Justice. A dichotomous variable, familial identity theft, was created by the researcher from the ITS item that requested the respondent to identify the perpetrator's relationship to him/her. The following were coded as "0": (ex)spouse, parent/stepparent, (step)brother or sister, (step)child, grandchild, niece/nephew, and other relative. The following were coded as "1": (ex)friend, (ex)boyfriend or girlfriend, housemate, neighbor, co-worker, someone working in my home, casual acquaintance, salesperson, waiter, other non-relative, and stranger.

A chi-square test was computed comparing homeownership status with familial identity theft. It was hypothesized that familial identity theft victims will differ from non-familial identity theft victims with regard to their homeownership status. The chi-square test was not statistically significant ($\chi^2 (2) = 1.258, p = .868$), suggesting that familial identity theft victims do not differ in their homeownership status relative to non-familial victims. Future research should focus on identifying the demographics of housing-related identity theft victims to develop targeted educational materials for current and potential victims, mortgage lenders, and real estate property managers.

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Using a Housing-based Segmentation Method to Potentially Identify Diverse Future Leaders

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Keywords: volunteerism; leadership; disenfranchised; segmentation

Background

This presentation is about an ongoing debate regarding whether leaders are made or born (Day et al., 2014). Recent research suggests they are made, but the process is not clear (The National Society of Leadership and Success, 2017). A highly robust housing-based, segmentation method determined which young residents were most “bothered” (i.e., “Bothereds”) by commonly shared realities among all residents: utility bills and household budgets (Cantrell & Sewell, 2015). Bothereds were compared against those least bothered (i.e., “non-Bothereds”) to determine whether one group was more likely to view themselves as making a difference in other areas of their life (e.g., volunteering, donating, leadership). Bothereds were more likely to volunteer and donate while non-Bothereds viewed themselves in future leadership roles. Though this supported our leadership hypothesis, we questioned why Bothereds were less likely to view themselves in future leadership roles. Exploring that question led to findings enabling proposal of programs and policies to bolster chances for Bothereds to become involved in formal leadership programs, thereby potentially altering the trajectory of future leaders.

Objective

The objective is to level the proverbial “playing field” so qualified candidates have equal opportunity for becoming future leaders (Avolio et al., 2009). The playing field is where those with advantaged socioeconomic status (SES) are groomed for formal leadership programs while those with disadvantaged SES rarely receive such opportunities. The segmentation method used identifies those who desire to be leaders and display such characteristics, yet because of their SES status, will doubtfully have opportunity to receive formal leadership training. However, programs and policies could be developed to nurture such individuals who could one day compete for leadership positions and roles, thereby leveling the playing field.¹

¹ Note, informal and formal potential leaders were not selected or sampled; they self-selected, by how they scored on survey questions, into segments of Bothereds and non-Bothereds, which is how they were defined by the segmentation method used.

Methodology

A web survey sampled 1,943 US participants in the Southeast and Midwest who self-reported² into groups. Those scoring highest (Bothereds) were compared against those scoring lowest (non-Bothereds). Differences emerged between groups (e.g. education, current behaviors, past/current beliefs, expected future behavior), which comprised nine dependent variables for linear regression to estimate "Leadership." The dependent variable was two variables, which comprised impediments identified toward Bothereds becoming future leaders.

Results

Bothereds are associated with being renters, earning lower incomes, and having less education. The regression equation showed three of nine dependent variables as predicting 57.1% of the explanation in variance regarding formal future leadership for Bothereds. That variance is broken down as whether Bothereds believe they will be a leader in their work organization (46.9%), imagine what their future will be like (6.4%), and volunteer with nonprofit/community organizations as their futures evolve (4.1%).

Conclusion

It is not too late for Bothereds desiring to be future leaders to get started toward receiving formal training. Most significant behaviors/beliefs describing differences between Bothereds and non-Bothereds did not explain Bothereds' likelihood of becoming future leaders. Although Bothereds show clearly how they are different from non-Bothereds, that is not necessarily where attention needs to be focused when developing programs for Bothereds to become future leaders.

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² Using a 10-point Likert scale, where 1=Least Bothered and 10=Most Bothered

Artistic and Creative Communities as Drivers of Neighborhood Satisfaction

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Keywords: residential satisfaction; creative communities; cultural assets

Perception of neighborhood quality remains one of the biggest drivers behind the choice in where to live. A significant amount of research has been done to determine what neighborhood features appeal to different household types. Traditional determinants include age, racial composition, marital status and tenure of householders, as well as housing type and cost and the neighborhood's schools and perceived safety (Chapman & Lombard, 2006; Hipp, 2009; Swaroop & Krysan, 2011). Quantitative studies focused on the impact of arts and cultural assets on neighborhood choice are largely absent within this body of work, however, despite the increased attention to and valuation of arts and cultural practices and community and institutionally driven creative place making efforts. This research project aims to quantitatively discern the role that arts, culture and creative assets play in producing neighborhood satisfaction. This insight to neighborhood satisfaction could provide deeper comprehension of the link between creative enterprise and housing choice, as well as the value of creativity to community well-being.

There is a clear and demonstrated link between the presence of arts and culture assets and activities and neighborhood improvement, and city planners now rely on creative assets to foster economic development by attracting tourists and new residents and businesses (Kayzar, 2008, Zitcer et al., 2016). Local community groups and organizations use artistic and cultural resources to cultivate neighborhood identity and a sense of belonging (Borup, 2006). Despite this, research studies showing direct links of arts and culture to neighborhood satisfaction and housing choice are thin, with much of research directed toward macroscale discussions centered on revitalization and the creative economy, or local scale concerns about gentrification (CEC, 2013; Grodach & Loukaitou-Sideris, 2007; Lloyd, 2010).

The 2015 American Housing Survey (AHS) provides researchers an opportunity to determine whether artistic assets and activities provide value-added to people who reside within certain communities. As part of a special module the AHS included a battery of questions that provide some insight on both the access to artistic and cultural events, the quality of such events, and the importance that such events hold for nearby residents. Of those who responded to the question of whether access to the arts and cultural events played a role in the householder's choice of neighborhoods, 16.2% of respondents replied affirmatively. This suggests that a community's artistic and cultural identity may indeed hold up as an important, yet currently uninvestigated driver of neighborhood choice. This study will explore questions such as:

- 1) Does satisfaction with neighborhood artistic and cultural events subsequently result in overall neighborhood satisfaction?
- 2) Does the householder's perception of artistic and cultural events improving neighborhood quality coincide with other actual neighborhood quality indicators?
- 3) Are there demographic disparities in importance to artistic and cultural events?

The research method used for this project will be a series of multiple regression models with the housing satisfaction scalar variable included in AHS as the dependent variable. Preliminary results show that: a) access to artistic and cultural events does positively impact overall neighborhood satisfaction; b) people's belief that artistic communities improve neighborhood quality is reflected in various quality measures such as crime and school quality; and, c) there are certain population segments that live in cultural communities (such as higher income, college educated whites) which raise questions of resource inequities.

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Transit Representation

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Keywords: equity; community; micro-mobility; underrepresented

In today's urban core, transit is the structural genome. The impact of COVID-19 has altered the code as the pursuit of public health becomes paramount. With the opportunity for re-evaluation, the lens must include communities that are most at risk. Communities who do not question the effects of post-COVID urbanization must define for themselves a survival within its tenets. Transit serves as a lifeline of connection. These communities will need to lead the direction for their future and not wait nor follow established institutional norms that currently underperform. Transit not only needs to be safer but also adaptable and equitable.

The goal of the conversation will focus on how a community directly engages in creating transit options that rejuvenate existing hubs and challenge historic patterns. Creating work centers within underrepresented spaces allow stakeholders to preserve their historical moorings, generate employment opportunities, and reduce transit dependency; keeping transit safe means focusing inward. Evaluation of in situ infrastructure and latent skill sets of its constituents will begin to uncover local opportunities.

The proposed opportunity looks to develop a micro-mobility design and fabrication center that focuses on the evolution of the bicycle to forge a tangible connection to affordable communities. "There is nothing about bicycle technology that lends itself to race and class division. It is largely an equal-opportunity form of transportation for people of able bodies" (Hoffman, 2016, p.4). The first objective will be to work with civic partners to create a human-powered transit device that pushes the possibilities of local transit habits and produces multiple design strategies of connective mobility with built-in data capture. The second objective is to empower communities to rethink their everyday patterns and create a sustainable model that facilitates value from within the community.

The inclusion of data capture presents the potential for a database of current norms such as, but not limited to, household incomes, transit to work times, transit to work expenses, transit methods, and comparative employment data of the immediate community context. Moreover, in the post-COVID existence, the same data capture also possesses the capacity to collect health statistics of social distancing and contact tracing.

For underrepresented communities, the future of safe post-COVID transit should work to create new independence that is equitable. A system that enables its constituents to take ownership.

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“Home” Work - Housing Education for Children

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Keywords: housing education; housing norms; children; multifamily housing; renting

The American Dream of owning a single-family detached house is a long-held societal norm (Beamish & Goss, 2018). And, recent studies have documented the “rent stigma” (see Warnock, 2019; Kricheli-Katz & Posner, 2020). For adults, these housing norms are often shaped by and communicated through public policy and the media. But how are housing norms communicated to children, and why should we care?

Today’s children are tomorrow’s housing consumers, housing professionals, community leaders, and elected officials. We also know that young children are impressionable and often form lifelong attitudes at an early age. Some children may grow up in a neighborhood of single-family detached houses, without exposure to multifamily rental housing. Other children may live in multifamily rental housing, but are teased or looked down upon because of their housing situation. Exposing young children to a broad range of housing options in a positive way will help them have a better understanding of these housing options when they are adults, when they are in a position to make housing decisions for themselves, their clients, their communities, and their constituents.

Previous work completed by students and faculty at Ball State University has demonstrated that multifamily rental housing has a variety of positive attributes; however, children may not be in favor of this housing option (Earhart et al., 2012). Further work on this topic points to children’s literature as one of the factors that may be contributing to this negativity (Earhart, 2017). However, how can the public education system use children’s literature to expose these young children to a broad range of housing options?

In Spring 2021, in the *Housing and Society* course at Ball State University, students participated in a variety of activities which ultimately resulted in the creation of a total of six housing-related lesson plans for the elementary grades. In addition to the scholarly products cited above, the works of Day, Dolon, Foltz, Heyse, Marksbarry, and Sturgeon (2006) and Rodgers, Hawthorne, and Wheeler (2007) also guided the course activities. Components of the course included:

- Identification of housing norms and how they are created
- Myths and realities of various housing options
- Introduction to Indiana Academic Standards for grades K-5

- Lesson plans and how children learn
- Working in teams to create a lesson plan for each grade, based on children's housing-related books that portray apartments in a positive manner
- Sharing results through social media and a presentation to stakeholders

The purpose of this project was to create lesson plans for elementary educators who may be unaware of the need to broaden children's understanding of housing options. The lesson plans created by the college students were well-received by the project partners. Additional partnerships have been established with a local elementary school to have teachers pilot test the lesson plans in their classrooms. The conference presentation will elaborate on the course outcomes, feedback from the elementary educators, and plans to continue to build on this important topic in the future.

Acknowledgment

Credit is extended to the Ball State University Honors College, selected alumni of the Ball State University Residential Property Management Program, and the Indiana Department of Education for their assistance with this project.

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Lights, Camera, Housing: RPM Goes to the Movies

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Keywords: apartments; renting; housing norms; movies and TV shows; immersive learning

Introduction

Housing and Society is a senior-level immersive learning course in the Residential Property Management (RPM) curriculum at Ball State University. The student-led course is described as an exploration of the relationship between housing norms and the factors which reflect and influence housing beliefs, decisions, and aspirations. The specific focus changes each semester; previous topics include:

- *Housing Messages in Children's Literature*
- *Apartment Industry Terminology in Online News Articles*
- *apARTments: An Intersection of Art and Apartments*

Spring 2020 Course Focus – Housing Norms in Movies and TV Shows

Inspired by housing-related books written by film scholars, the Spring 2020 course focused on housing norms in movies and TV shows. The first assignment asked students to share their own housing history, their current housing situation, and their future housing aspirations. In every instance, students' housing aspirations mirrored the housing norm of wanting to own a single-family detached house. Next, students studied housing norms theory as a way to understand housing choices and housing aspirations.

Social norms can be communicated in a number of ways, including through movies and TV shows. As future property management professionals, these RPM students were especially interested in how houses/homeownership are portrayed in movies and TV shows, as compared to how apartments/renting are portrayed. Students sought answers to this issue by reading and discussing topics from the textbook, and by viewing, analyzing, and discussing a variety of movies and TV shows. See a list of movies and TV shows used in the course in Table 1 and Table 2, respectively.

Table 1. Movies viewed/analyzed

Movies
<i>A Home of Our Own</i> (1991)
<i>A Raisin in the Sun</i> (1961)
<i>Breakfast at Tiffany's</i> (1961)
<i>Cash Only</i> (2015)
<i>House of Sand and Fog</i> (2003)
<i>Rear Window</i> (1954)
<i>Rosemary's Baby</i> (1968)
<i>The Apartment</i> (1960)
<i>The Landlord</i> (1970)
<i>The Super</i> (1991)
<i>The War of the Roses</i> (1989)
<i>Tower Heist</i> (2011)
<i>Under the Yum Yum Tree</i> (1963)

Table 2. TV shows viewed/analyzed

TV shows	Episode(s) viewed
<i>All in the Family</i>	<i>The Jeffersons Move Up</i> (aired January 11, 1975)
<i>Big Bang Theory</i>	(student's choice)
<i>Brooklyn Nine-Nine</i>	<i>The Apartment</i> (aired February 25, 2014)
<i>Everybody Hates Chris</i>	(student's choice)
<i>Frasier</i>	(student's choice)
<i>Friends</i>	(student's choice)
<i>How I Met Your Mother</i>	<i>Moving Day</i> (aired March 19, 2007)
<i>Mad About You</i>	(student's choice)
<i>Seinfeld</i>	(student's choice)
<i>The Jeffersons</i>	<i>Movin' On Down</i> (November 1, 1975)
<i>Three's Company</i>	(student's choice)
<i>Will & Grace</i>	<i>Pilot – Love and Marriage</i> (aired September 21, 1998)
	<i>A New Lease on Life</i> (aired September 28, 1998)
	<i>Head Case</i> (aired October 5, 1998)
	<i>Between a Rock and Harlin's Place</i> (aired October 12, 1998)

As an immersive learning course facilitated by the instructor but led by students, students were divided into working groups:

- The Scholars Group researched and presented information on course topics, as well as suggested content for assessments of student learning.
- The Movie Tech Group located and shared movies and TV shows to correspond to weekly course topics.
- The Event Planning Group worked behind the scenes to plan all special events, including a dialogue with the textbook author and final showcase of student work.

The instructor supervised the work of all groups, kept them on track with their schedule and budget, established and maintained the course management site, approved various events and activities, intervened with group issues when necessary, and graded all activities.

Course Outcomes

Through a fun, non-traditional course format, students in the *Housing and Society* class learned about housing norms, but also learned a variety of personal/professional skills as a result of working independently and in groups on a student-led project. A major outcome of the course was the creation of the **Lights, Camera, Housing** Facebook page, summarizing the work of the semester (<https://www.facebook.com/BallStateUniversityPMGT400>). If this same topic is to be offered in the future, recommendations from students and faculty include:

- Use more current movies
- Have students do more background research on the impact of movies/TV
- Provide more time to discuss movies and TV shows
- Host a live event to showcase student work, in addition to the Facebook page

Additional course details will be shared in the conference presentation.

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A “Plan B” for RPM Internships during the COVID-19 Pandemic

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Keywords: residential property management; internships; COVID-19 pandemic

The onset of the COVID-19 pandemic and the resulting business reduction or closure orders had a nearly immediate effect on Summer 2020 internships. Employers in a wide range of industries cancelled active internships in the middle of the spring term, and many cancelled all internship programs for the summer. Although apartment communities continued to perform essential functions to serve the housing needs of their residents and the investment needs of their owners, would these apartment communities still be able to partner with Ball State University to help serve the educational needs of Residential Property Management (RPM) students?

Nationwide, there were numerous calls to reconsider cancelling internships or to design alternative experiences to help students gain professional skills and relationships necessary for the development of future industry leadership (AnitaB.org, 2020; Byrne, 2020; Channick, 2020). In collaboration with property management industry partners, Ball State University faculty, staff, and administrators shared concerns about how to overcome these challenges. The group created a “Plan B” comprised of policies and activities to enable RPM students to complete their internship requirements during the pandemic. The focus of this presentation is to share the creation, implementation, and evaluation of these revised RPM internship policies and activities.

To satisfy curriculum requirements, students majoring in RPM at Ball State University must complete either a 3-credit (200 work hours) or 6-credit (400 work hours) internship. These hands-on learning experiences are critical to students’ professional development, providing opportunities for application of classroom concepts in a practical setting. The RPM internship also serves as a prerequisite to advanced courses in the curriculum and satisfies the industry experience requirement for professional designations offered by the National Apartment Association Education Institute. For the RPM internship employer, the internship presents opportunities to assist in educating the future of the apartment industry and to provide a “preview experience” that encourages students to return to their company upon graduation.

The “Plan B” was developed to permit students to complete their internships in the event that they were unable to complete their required work hours due to circumstances related to the COVID-19 pandemic. A set of substitute assignments was created that incorporated training modules provided by industry partners including Yardi, IREM, NAA, and HUD. Additional activities included shopping competitor properties, career preparation activities, interviewing vendors and/or corporate-level staff, and participating in the IREM Writing Competition. Students were permitted to substitute these activities to replace up to 50% of their required work hours if needed.

The plans created for the Summer 2020 RPM interns continue to be valuable as the COVID-19 pandemic continues. It has been valuable in assisting interns to complete their internship requirements during a time when employers adjusted the nature and location of internship assignments as well as the duration of work shifts. More details will be shared in the presentation, to assist other university programs experiencing similar crisis situations in the future.

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Public Housing Rent Default: A Bounded Rationality

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Keywords: public housing; rent default; education; eviction prevention

Rationale

Rent default in public housing is on the rise (Nelson et al., 2002). This research examined public housing rent and found bounded rationality (Simon, 1972, 1991), defined as limited information for rational decision-making such as paying rent. This study discusses the research objectives, methodology, results, conclusions, and implications.

Objectives

The research demonstrates that besides tenants' attitudes (Friedman, 1966; Tighe, 2012), knowledge on basic economics and personal finance are significant predictors for rent payment (Harsanyi, 1953; Hellegers, 1999; Mele, 2000; Mele, 2005); financial management information is bounded rationality (Plott, 1996; Gigerenzer & Goldstein, 1996) - limited information to help pay rent (Weil, 1991; Goetz, 2003); and that, participating in basic economics and personal finance classes would expand information to pay rent timely and avoid rent default.

Methodology

Survey: Classes in basic economics and personal finance were held in public housing (DeVerteuil, 2006). 149 participants attended three to five classes, completed pre and post-Likert scale surveys on the predictors (tenant's attitude towards rent, basic economics, and personal finance).

Data Analysis/Procedure: The data from the pre and post-surveys were collected for analysis. The research employed a multiple regression model using SPSS Statistics to generate the probability estimates to determine the significance of the predictors to rent payment in the results below.

Results

The following models from SPSS statistics explain the variance and the significance of each predictor on rent payment.

Model 1

Tenants' attitudes: $F(1, 214) = 9.86, p = .002, R^2 = .044$, indicating that only 4.4% of tenants' attitudes account for variance.

When the tenant's attitudes are influenced by basic economics and personal finance: $\Delta F(2, 212) = 10.9, p < .001, \Delta R^2 = .089$: the variance is accounted 8.9%, indicating that as basic economics and personal finance information increases, tenants ability to pay rent also increases.

Model 2.

The predictors' significance in predicting rent payment:

Tenants' attitude $\beta = .097$, $t(212) = 1.421$, $p = .157$; is not significant to rent payment decision.
Personal finance $\beta = .139$, $t(212) = 1.997$, $p = .047$: is significant to help tenants pay rent.
Basic economics $\beta = .241$, $t(212) = 3.392$, $p = .001$: is significant to rent payment.

Conclusion

Although tenants' attitudes are commonly the overriding attribute to the decision to pay rent (Lempert, & Monsma, 1994; Mazerolle et al., 2000), the results demonstrate that knowledge of basic economics and personal finance are significant predictors to rent payment. When tenants at risk of rent default attend basic economics and personal finance classes, they acquire information beyond the bounded rationality that propels rent payments. The result also indicates that basic economics education is a stronger predictor than personal finance education in changing tenants' attitudes towards rent payment.

Implication

Education in basic economics and personal finance is helping tenants to acquire essential information such as budgeting, banking, decision making (Kogelmann, & Gaus, 2017). Adults in community housings are willing to learn and the more they learn, the more they acquire a positive attitude towards rent payments (Kahneman, 2003). Additionally, most state universities have Extension Agents that are capable of helping communities acquire free educational skills, and therefore, community housing agencies should take advantage of such opportunities. This research targets urban community housing and as such, the implication could be different from rural housing communities.

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National Healthy Homes Training Center and Network: Educating Environmental Health Professionals for the Future

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Keywords: healthy homes; training; environmental health

Introduction

The National Healthy Homes Training Center and Network (training center) provides ongoing education, collaboration, and interactive resources to a network of professional training partners across the nation. These partners are composed of university educators and other experienced environmental health professionals who collaborate to instruct other partners and professionals on a variety of healthy homes issues that the general public may experience in their homes. It is fundamentally important for individuals and families to be educated on the best practices for maintaining a healthy living environment and to protect themselves from issues in and around the home that may cause accidents and injuries (Housing and Urban Development, 2020).

Background

In 2003, the United States Center for Disease Control and Prevention (CDC) partnered with the United States Department of Housing and Urban Development (HUD) to launch the training center (Neltner, 2020). Between 2003 and 2020, the National Center for Healthy Housing (NCHH) provided support and management for the initiative. Recently, in July 2020, the University of Missouri Extension began leading the efforts of the training center. The training center is funded by HUD, who works closely with the University of Missouri Extension to ensure the success of the program. Since 2003, under leadership from NCHH, the training center educated over 21,000 people to understand and resolve healthy issues in the home (Healthy Housing Solutions, 2019).

Educational Programs and Objectives

Nationally, the training center has 31 professional training partners in 22 states across the United States. Under new leadership, the training center anticipates expanding the number of trainings partners and course offerings. Currently, the in-person courses offered by the training center include:

- Healthy Home Evaluator
- Healthy Homes Assessment and Interventions
- Healthy Homes for Community Health Workers
- Code Inspection for Healthier Homes
- Healthy Homes Assessment for Community Health Workers
- Healthy Homes Assessment: Principles and Practice
- Health Opportunities in Energy Audits and Upgrades
- Integrated Pest Management in Multifamily Housing
- Healthy Homes Rating System
- Essentials for Healthy Homes Practitioners (self-paced online course and in-person)
- Launching a Healthy Homes Initiative
- Healthy Homes Essentials for Environmental Professionals

All of the trainings provided are based on the 8 healthy homes principles which were developed by HUD in collaboration with NCHH. The trainings emphasize particular important healthy homes issues while also targeting specific environmental professionals in the field such as community health workers, code inspectors, social workers, health department officials, and more. These courses offer continuing education credits, credentials (in some cases), and certificates of completion for individuals participating in the courses. The objective of this presentation is to highlight the new leadership of the Healthy Homes Training Center and Network under the direction of the University of Missouri Extension and to draw attention to some new programs and initiatives that will be offered.

Future Direction

The training center works to continually research and update healthy homes education and curriculum to establish best practices to effectively train environmental health professionals to serve their clientele. The training center also invests a great deal of time and energy to promote cross-training, collaboration, and networking amongst the training partners. It is through this relationship with valuable training professionals across the country that “practical and cost-effective methods” for building healthier homes will be generated (Neltner, 2020).

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Lessons in New Deal Housing: Historic Rural Prototypes

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Keywords: sustainability, historic, rural

The purpose of this presentation is to illustrate historic experiments in Appalachian New Deal government planned housing to glean lessons for future prototypes. This research is significant as housing in the region is often viewed through perspectives that reflect private company towns but not governmentally planned ones. This presentation will focus on Depression era housing developments in West Virginia. A particular focus will be a town that was a project of Eleanor Roosevelt and had her support throughout her husband’s administration. It had a goal of providing a sustainable lifestyle to its residents, with a focus on food production and storage.

This presentation will utilize relevant literature to examine both issues and policies that act as a framework around the topic, and as a foundation for future research that will rely on a mixed methods approach. Those future research tools will include observation, analysis of historic documents, and interviews and surveys with current residents. This presentation will focus on the contextual setting for decisions and actions related to the construction of the town and will solicit questions from the audience to aid with the shape of the future work. A goal of the work is to highlight both the successes and failures of these centrally planned towns, and an aim of the next phase of research is to obtain findings that will aid planners and policymakers regarding the future of Appalachian housing.

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Exploring Pathways of Long-Term Extended Stay Hotel Residents

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Keywords: housing pathways; underhoused; extended-stay; affordability

Diminishing the progress and renewed optimism in the United States' housing market is a growing inequity in residential housing. For the better part of two-decades, production in the U.S. has increasingly ignored a middle segment of consumer demand, disproportionately impacting low-to-moderate income households. Significant declines in these lower-cost units have restricted the supply of affordable and market-rate housing, fueling the rising economic and social challenges associated with housing instability (Joint Center for Housing Studies, 2020). It is inevitably contributing to a growing gap in both affordable and available housing.

Extended stay hotels are increasingly filling a void of displaced and locked-out residents, particularly in more local and small market communities (Allen et al., 2019). A rise in popularity and an increase in hotel constructions reflect a private-public struggle unfolding in communities across the country, particularly those seeking to obtain more permanent housing solutions. Even amidst the 2020 global pandemic, the industry's growth continues, as the number of hotel rooms available for extended stay increased 8.2 percent from the prior year (Kwok, 2020). When used as a stopgap form of housing, extended stay hotels neither alleviate the financial burden nor their residents' transient nature. Instead, more often than not, they perpetuate the current hardships associated with housing instability. Inconveniently situated between the housed and under-housed populations (Lewinson et al., 2010), these longer-term hotel residents could benefit from research drawing attention to their housing market challenges.

The research objective is to develop an understanding of the pathways into extended stay accommodations and the lived experiences of these residents. It seeks to utilize a mixed-method approach in collecting and analyzing primary data, including, but not limited to, conducting interviews with residents living in these accommodations longer term. Georgia remains a particular area of interest in this research. As of 2019, the state housing shortage was estimated at approximately 350,000 new units (Groome & Speck, 2019). Evidence has shown that, across the state, communities are increasingly relying on these temporary accommodations to fill the housing void. Meanwhile, residents are suffering from a lack the adequate space, tenure security, and affordability. Housing stability is a prerequisite for economic mobility, job security, health, and well-being. Therefore, this research is expected to raise awareness for local programming and public policy solutions to better meet residents' needs. It otherwise promotes increased investment in good-quality and affordable housing for long-term development.

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An Analysis of Housing and Mental Health During the COVID-19 Pandemic

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Keywords: COVID-19; mental health; stress; renters

The COVID-19 pandemic has been a harsh reminder of the important connections between housing and health, especially mental health. During the pandemic there have been numerous health, economic, social, and financial stressors, including shelter-in-place orders. Findings in pre-pandemic research reported that affordability problems had negative effects on households' mental health (Mason et al., 2013) and residents in high-density housing situations had more adverse psychological consequences (Evans et al., 1989). Rental communities are perceived to be more adversely affected by the pandemic than homeowners; however, limited studies have investigated the relationship between residential environments and residents' mental health during the pandemic (Benfer et al., 2021).

In this study, the researchers hypothesized that the mental health status of an individual depends on their residential environments. The residential environments variable included housing tenure, building type and number of household members. Logistic regression was used to estimate the model, while controlling for their demographic characteristics and week-specific unobserved heterogeneities.

Data were from the U.S. Bureau of the Census' Household Pulse Survey, which was a weekly 20-minute online survey examining the social, economic, and mental health impacts of coronavirus. Data were collected from over 90,000 households per week between April 23 and November 23, 2020, for a total of over 1.5 million households. Survey respondents were asked to indicate the degree to which the household was suffering from mental health concerns, related to feeling down, experiencing anxiety, being worried, and losing interest. Based on these four variables, a binary indicator variable for mental health was constructed. Survey data also included pandemic-related circumstances that could impact mental health, such as job loss (both expected and actual), health insurance availability, health status, food security, and demographics.

The researchers expected that as the number of people residing within the home increased, so would mental health concerns, since more people in the home provided more potential exposure to infection. Also, more densely populated buildings were expected to have a positive relationship with mental health concerns.

Of those surveyed, 60-67 percent expressed feeling down, worried, anxious, or uninterested. After controlling for all other variables, renters experienced more mental health problems than homeowners. This may have been because of a lack of control within one's housing situation. Unexpectedly, as the number of people in the household increased, the odds of experiencing mental health issues was lower.

The limitations of this study were that it provided only a snapshot of time during the pandemic, data collection time periods were inconsistent, and the survey began about five weeks after state lockdowns were implemented, so stress levels prior to the pandemic are unknown. It is important to note that property managers have had their own mental health concerns and have dealt with challenges in safely providing services while meeting the needs of their residents and staff. Ongoing research in this area can help to identify solutions to meet the wellness needs of residents and staff. The solutions may be by providing additional services or making structural design changes.

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Inclusion and Diversity Activities: Does it Matter to Students' Openness to Diversity?

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Keywords: diversity; higher education; curriculum

The goal of this teaching practice was to enhance students' awareness and understanding of diversity among consumers in homes, communities, and workplaces. This goal elaborates upon a unifying value of our department with consumer-related majors such as apparel, housing, and consumer studies. As faculty, we were particularly interested in increasing awareness of the needs of various consumers, including people living with a disability, and people from diverse cultural experiences, socioeconomic status, age, and health and illness conditions.

To address the goal, the project committee faculty, from all majors in the department, met regularly and organized public lectures, design competitions, and class assignments based on the experiential learning approach to solve real-world problems. The topics of guest lectures included: global initiatives on life-span friendly communities; consumer lifestyles and small businesses in racially-mixed communities; housing adequacy; debt; financial literacy; and virtual realities in social studies. These guest lectures were coordinated with assignments such as in-class discussions between students and speakers, oral/written research reports, exam questions, and design projects. The yearlong project concluded with an Undergraduate Research Symposium and multicultural design competitions.

To understand the impacts of the project, we also measured students' openness to diversity after project completion. We used Pascarella and his colleagues (1996)'s "openness to diversity" questions measured by a five-point eight-item Likert scale. The highest mean score among the openness items was the question asking if students enjoyed talking to people who had values different from them because it helped them understand themselves and their values better and the lowest mean score was the item asking if students enjoyed taking courses that challenged their beliefs and values. Analysis of variance (ANOVA) was used to analyze group differences for those who attended at one guest lecture (optional or required), multiple guest lectures (optional or required), and follow-up activities/projects coordinated with guest lectures in predicting their overall scores of openness to diversity.

In summary of the findings, student outcomes included increased interview and research skills, and greater knowledge of cultural norms and values. Students who completed all coordinated assignments after each guest lecture had higher scores for openness to diversity. In contrast, there was no positive relationship between the number of events attended and the openness score, and there were no group differences in terms of major, year of study, or gender. Our findings suggest that inclusion and diversity activities may be able to enhance students' growth on this dimension through purposeful follow-up activities that encourage interactions with guest speakers and problem-solving experiential learning projects. In addition to more details from the openness to diversity findings, we will share the experiential learning framework used, and samples of assignments and students' work during the presentation.

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Fire Egress Simulation Tools for Emergency Preparedness

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Keywords: fire egress; virtual reality; high-rises

The importance of emergency preparedness and evacuation strategies has been emphasized for building managers and local communities as disasters and emergencies have increased all over the world. Disasters such as fires can cause death and severe injuries, especially in high-rise buildings. Nevertheless, research in this area has been limited. Thus, the purpose of this study was to develop a virtual tool to simulate evacuee's behavioral patterns in fire egress.

Since it is not possible to demonstrate fire egress with real people, we developed a computer simulation of fire egress, based on an agent-based egress behavioral model (Ren et al., 2009). This model assumes that an evacuee selects his/her exit routes according to the location of exits, illumination from windows, widths of corridors, and the original direction in which evacuees move. Evacuees travel a building to find exits and make choices to move through to escape it. Typically, an evacuee prioritizes moving close to a visible fire exit and move to the corridor near the closest fire exit. When there is no visible fire exit observed, the evacuee checks illuminated paths. An evacuee usually chooses the corridor located in the same direction of his/her movement.

Our developed simulation system was consisted of evacuees, fire exits, walls, and windows. The evacuee agent was implanted with vision, memory, and mobility in its system. Vision sensed the environmental characteristics of the building. The memory system stored any information such as previously recorded fire exists, windows and walls. This allowed the evacuee agent to make a decision on path selections based on the location of fire exits and windows. To show the different behavioral patterns, we developed two agents, an evacuee agent with no prior information on the building versus an evacuee agent who was familiar with the building.

To verify the simulation system, we ran two simulation experiments. The first simulation was based on the egress behavioral model where the evacuee agent did not have prior information about the building and the second simulation was the evacuee had prior knowledge on the location of fire exits. Overall, our simulation experiments verified that the evacuee agent who was familiar with the building layout took less time to evacuate than the evacuee who was unfamiliar with the building. The evacuee with no prior knowledge about the building took 1.51 times longer to exit the building than the familiar evacuee. The familiar evacuee used the walls to ensure the shortest path to the fire exit; on the other hand, the unfamiliar evacuee situated in the middle of corridors to secure better sights to explore multiple options. The simulation system can be used to evaluate emergency preparedness and evacuation strategies by creating virtual environments based on floorplans of the buildings or highrises. Other environmental factors such as window locations and various resident characteristics (e.g., different ages and disabilities) could be added for future simulation projects.

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Design for HIV/AIDS: A Service-learning Housing Opportunity in St. Louis

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Keywords: service-learning; housing design; HIV/AIDS

This service-learning project in a graduate/senior level interior design class tasked students with designing housing for individuals with HIV/AIDS. It was the final project in a semester long course, *Inclusive Environments*, which explored how multiple factors prevent people from accessing the built environment. The project was set over six weeks in two weekly 1¼ hour sessions. The aim was for students to apply the knowledge they had gained in the first part of the semester and implement them in this housing design project. Students had to consider a range of disabilities, e.g., mobility, vision and hearing loss, and mental health needs. Since HIV/AIDS affects everyone, including gay men, heterosexuals, and older people, students had to consider housing design to support the gender identity of residents, a range of ages, and single and family units (Avert, 2019). Additionally, Avert (2019) reports a high incidence of Black/African Americans and Hispanic/Latinos with HIV/AIDS. Students had to consider how to provide a safe, supportive environment for all these demographics and consider inclusion in a wide sense, including poverty, equity, and social justice.

The project site was an historically segregated area of St. Louis, MO. We partnered with Doorways, a non-profit provider of housing and allied services for individuals with HIV/AIDS. Doorways was in the process of identifying a location on their site for a 30-unit 20,000 sq. ft. long-term housing solution for people with HIV/AIDS. Students, in teams of 2-3, were required to design prototype one- and two-bedroom apartments, an entrance/gathering space, a community space of their choice, and an outdoor amenity area. They also had to select furniture, materials, and consider a wayfinding strategy. Although students did not have to provide a cost estimate, they had to be conscious of Doorways' limited budget and carefully consider furnishings to create a beautiful space without being excessive.

A field trip to support this project was not possible due to COVID-19 but students attended a virtual field trip. They received presentations from the non-profit organization explaining their function and ethos, and from local planners involved in identifying and procuring the site. This helped students understand the planning process and role in developing a city, an important element of a project they had little prior knowledge of. The project architect and interior designer shared insights about an emergency housing block they had previously designed on the site. Finally, two specialists in HIV/AIDS, one with the condition, answered questions about the disease which helped students consider design practicalities.

Project deliverables included research and programming document, conceptual design, floor plans, and renderings. Each component was graded by the instructor on a rubric scale. Students shared their completed work with the non-profit to provide inspiration for their new building. Afterwards, students submitted a reflection paper outlining the class topics which had the greatest impact on their learning. Many students mentioned the project, expressed enjoyment of the virtual field trip, and demonstrated an increased understanding and empathy for this population. The project could be replicated with different populations in other cities.

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A Theoretical Model for Repurposed Housing for Autistic Adults

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Keywords: repurposed; autistic adults; theoretical; classroom

Many of our cities are blighted by redundant buildings (Schilling & Logan, 2008; U.S. Department of Housing and Urban Development (HUD), 2014). At the same time, there is a housing crisis with over half a million people homeless (HUD, 2021). An overlooked population that needs dedicated residential space is autistic adults. These issues were highlighted by Autism Speaks (2016; 2013) when they ran a competition seeking proposals to help transitioning young autistic adults lead independent lives. This paper describes a response to that call.

Theoretical Model

The aim was to create a home providing autistic adults a safe place to live with opportunities for work while supporting physical, mental, and social well-being. The theoretical model underpinning the proposal was Maslow's (1943) Hierarchy of Needs, which states that if a person can satisfy their basic needs, they can progress up the hierarchy to be their best selves.

This theory was adapted into what housing developers term the "live, work, play" model, i.e., mixed-use developments that provide residents easy access to living, working, and entertainment. In this proposal, the Live+Work+Play model has been adapted into a hierarchy of needs for autistic adults (Figure 1). The premise is that if designers/developers can satisfy the needs of living, working, and leisure, and provide choice for autistic adults, they may feel a sense of self-fulfillment and accomplishment.

Figure 1. Live+Work+Play model applied to a hierarchy of needs for autistic adults.



The solution was *Hometel*, converting redundant motels into homes for autistic adults (Autism Speaks, 2016). There are many benefits to repurposing this building topology as a sustainable model when resources are scarce. Motels are usually located within easy access of urban areas with good transport links within an existing community. They are often located in mixed-use developments near commercial,

shopping, and eating-places. Individual motel rooms coupled with common areas can provide a balance of security with independence.

At any given time, numerous motels are for sale across the U.S. at various price points. Those providing 20-60 rooms with interior corridors are most appropriate. A case study of a different population is a successful motel conversion to senior living in Hibbing, MN.

Live+Work+Play Model

Motel rooms can be utilized for independent living with a sleeping area, sitting and study space, kitchenette, and bathroom. Utilities are provided with individual thermostats and lighting controls to suit autistic individuals with sensory sensitivities. Work could be provided in the homotel in administration, janitorial, laundry, and catering services. Onsite minibus transport could facilitate working outside the homotel. Alternatively, adults who prefer to work from home could work online in a dedicated computer/business center. Relaxation and socialization opportunities could be provided by a gymnasium, indoor pool, communal dining, and lounge areas. Flex rooms could provide scheduled activities, e.g., yoga, board game, or movie nights. Local residents could be invited to use facilities, creating income and a sense of community.

Next steps are to test this model in a student class project to repurpose a local motel for sale into residential housing for autistic adults. Repurposing a redundant building will help to revitalize a city and provide safe housing for this population.

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Gauging Post-Disaster Preparedness Behaviors for Affected and Non-Affected Households

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Keywords: disaster preparedness; household risk; risk management

Rationale/Purpose of Research

Natural disasters cause extensive property damage annually. Even though climate change has potential implications for all households, some areas may be more prone to disasters than others. Once these disasters hit, families may face implications beyond the destruction of their property. Some households, specifically renters, had adverse housing consequences after experiencing a crisis event, which included displacement (Authors, 2020). Other research found long-term housing effects for families and communities affected by disasters (Levine, et al., 2007; Peacock, et al., 2014; Quarantelli, 1995).

Methodology

We provide analysis on various disaster preparedness measures that households make, particularly those who have either already been impacted by a disaster or have some existing level of disaster exposure, using the 2017 American Housing Survey (AHS). This specific edition of the AHS introduced a special module on disaster preparedness, and comprises over 66,700 households within the national sample.

The research questions that we address is whether households either impacted by or at risk of disaster are more likely to exhibit disaster preparedness behaviors than those households which had not been directly affected by disasters. Disaster-impacted households are defined in our model as households which answered affirmatively to any of the following questions:

- 1) Is your neighborhood at risk of flooding?
- 2) Did you have a home improvement job related to disaster?
- 3) Was there a major disaster related to a rental property of yours?
- 4) Was there a forced move related to disaster loss?

In total, 4,737 households responded "yes" to at least one of these questions, comprising 7.1% of AHS respondents.

Procedures

The AHS disaster preparedness variables are listed in Table 1. More than 58% of the survey respondents had not performed any of the disaster preparedness tasks listed. The average number of preparedness measures addressed across the entire respondents was 2.1 (out of the 8 listed below). We employ a series of models to determine the effect that previous disaster exposure has on future preparedness. First, we use a logistic regression model to determine likelihood of households to perform any of the listed disaster preparedness measures. Second, we employ another logistic regression model to predict likelihood of various households to perform three or more of the stated preparedness measures. Finally, we use a standard multiple regression model by converting disaster preparedness to a scalar dependent variable. The experimental variable is whether the household has been impacted by or is at risk of disaster. Other control variables used within the model include income, race, citizenship, housing tenure, presence of children, presence of elderly, and marital status.

TABLE 1. AHS Disaster Preparedness Variables

Variable name	Variable description	Number responding "Yes"	% of total
DPALTCOM	Alternative communication plan	5,560	8.33%
DPDRFOOD	Non-perishable food availability	22,937	34.36%
DPEMWATER	Emergency water	16,811	25.18%
DPEVFIN	Financial resources in case of evacuation	20,957	31.40%
DPEVINFO	Disaster plan with financial and contact info	22,831	34.20%
DPEVKIT	Emergency kit prepared	15,112	22.64%
DPEVSEP	Designated meeting spot	7,486	11.21%
DPGENERT	Generator for power outage	3,842	5.76%

Results

Preliminary findings offer perspective on the types of households that prepare in advance for disaster events. Homeowners, U.S. citizens, and married households had positive relationships with preparedness. Curiously, the presence of children had a negative effect on preparedness, controlling for all other variables. Not surprisingly, one's previous experience and exposure to disaster experience and risk had a positive effect on preparedness. When combining low-income populations (defined as household income at or below \$25,000) with disaster risk as an interaction variable, however, the effect on disaster preparedness turns negative and significant (at the .1 level), meaning that low-income populations that have either disaster experience or disaster exposure show less preparedness effort compared to all other populations, *ceteris paribus*.

Conclusions and Implications

Clearly, some of the populations most at risk of not being prepared for future disasters can be characterized as already vulnerable (renters, immigrants, households with children, and low-income families). For those populations, disaster preparedness officials should concentrate more intensive communication efforts on these households, even if it means overcoming decreased levels of trust in government officials.

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Toward New Ambient Intelligence Technology of Lighting System in Senior Housing Facilities

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Keywords: smart home; older adults; lighting; independent living

Background and Purpose

A challenge is that as older adults age in place, the living environment may not support their changing needs failing to counter physical and psychological challenges (Golant, 2011). Especially, reduced vision negatively affects general health and many tasks of everyday life, which cause limited activities, falling, loneliness, depression, anxiety, and a less sense of control (Brown & Barrett, 2011). Much research emphasized that older people need more light to achieve the same visual level as young people and to safely perform routine daily activities (Boyce, 2014). However, many older adults are not exposed to high-enough illuminance levels in their home because of a poorly installed lighting system and misplaced environmental adaptation, which can lead to adverse events such as falls (McMurdo et al., 2000). Also, most previous studies measured the lighting condition of older adults' homes during the daytime. Still, this assessment has a critical limitation to fully understand a full spectrum of the lighting condition due to ever-changing daylighting. The primary purpose of this research is to explore various lighting conditions in senior housing facilities and propose a new lighting system using ambient intelligence technology.

Methodology

The research team visited 58 senior housings in two large retirement communities in the Midwest and examined older residents' perceptions and behaviors related to lighting in their homes. Also, the types of lighting features and illuminance of the lighting systems were measured. The research findings provide empirical evidence regarding lighting preferences, needs, and challenges in senior housing facilities.

Findings

The number of research participants was 58 senior residents (average age = 83.74), and more than 68% of the research participants were female. The lighting assessment showed that the lighting levels were significantly lower than the recommended levels in all rooms. The qualitative analysis showed that one-third of residents were dissatisfied with their homes' lighting system. For example, 23 residents described that there is not enough lighting to read a book or newspaper and lack of natural lighting in their living room. Many residents (n=28) frequently closed a blind or shade in a living room because of glare and privacy issues even though they want to get more daylight. The most common leisure activities were reading (n=33), computer (n=21), watching TV (n=17), play games (n=15), and writing (n=10) in a living room.

Conclusions and Implications

Research findings support the need for new lighting technology. This approach promotes integrated lighting solutions that automatically maintain proper lighting levels to support seniors' different needs to accommodate various functional routines. The new lighting solutions should combine all light sources, including daylight and artificial light, smart sensors that measure the quality and quantity of light needed at a specific moment for a specific individual. Thus, multiple technologies, including lighting detection, smart blinds, smart lighting fixtures, real-time positioning, control panel, and control hub should be integrated. Such a smart platform is proactive and can dynamically adjust the smart devices or lighting fixtures in situ while older adults perform specific tasks so that proper lighting levels can be achieved.

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Home Modifications for Accessible Housing of Older Adults in Korea

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Keywords: home modifications; health belief model; older adults in Korea; accessible housing

This study aimed to understand better older adults' intention to choose home modifications for accessible housing within an extended Health Belief Model (HBM) (Janz & Becker, 1984) incorporating knowledge of accessible housing and exiting home conditions (housing suitability). In this study, three HBM constructs (perceived benefits, threats, and barriers) were included in the research framework. HBM has been originally developed for understanding one's health-related behaviors to prevent health deterioration (e.g., quitting smoking) or to improve health conditions (e.g., taking vitamins). This theory has been also applied for understanding the behavioral intention of environmentally-friendly product consumption (Yoon & Kim, 2016) and predicting recycling behavior (e.g., Lindsay & Strathman, 1997). We posited older adults' home modification behavior for accessible housing as their health-related behavior and tried to understand their intentions based on the conceptual frame of the HBM.

To this end, we developed a conceptual model and related hypotheses to investigate direct and indirect influence of knowledge and home conditions on the intention to choose home modifications through the HBM components. The main constructs were knowledge of accessible housing, housing suitability, and three HBM components (perceived benefits, perceived threats, and perceived barriers). The target population was people aged 65 and older living in their homes in Busan, Korea. Data were collected through a face-to-face survey by a professional survey company during December 2020. Survey participants were randomly selected based on the age and living situation criteria by a survey company. A total of 400 responses (N=400) were used for this study. Path analysis using AMOS 26 was employed to test the proposed research model.

The overall model fit met acceptable values (Goodness of Fit Index=0.998; Comparative Fit Index=0.992; Normed Fit Index=0.988; Root Mean Square Error of Approximation=0.066). Significant positive direct effects between knowledge of accessible housing and perceived barriers, and behavioral intention to choose home modifications were found. Housing suitability was significantly negatively impacted on perceived threats and significantly positively influence perceived barriers. There was a significantly positive relationship between perceived benefits and behavioral intention to choose home modifications, and a significantly negative relationship between perceived barriers and behavioral intention to choose home modifications.

Although all hypothesized relations based on the original HBM were not fully supported for our sample, our findings have important implications in home modification research. In predicting the behavioral intention to modify one's home, knowledge of accessible housing had direct and indirect impacts mediated by perceived barriers. These barriers included multiple layers of the built environmental aspects such as available resources at the individual level and available information and policy at the macro level for home modifications. Although it is important to educate benefits of home modifications as we

experience changing needs across the life course, our findings show that identifying and removing what existing barriers are cannot be ignored. A loose connection between perceived benefits and intention to choose home modifications within the HBM will be further discussed.

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Neighborhood Poverty and Residential Mobility of Older Households

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Keywords: older households; residential mobility; neighborhood quality; poverty; social equity

In this paper, we examine household mobility among older adults, focusing on the neighborhoods to which older adults relocate. It begins with an analysis of the geographic distribution of U.S. households by age of householder and neighborhood poverty and its changes over time from 1990 to 2018. Using census tracts as proxies for neighborhoods, we classify the census tracts by the rank of poverty and analyze the number of households by poverty quintiles and age of the householder. That is, we sorted those neighborhoods into quintiles according to the rank of poverty within the Metropolitan Statistical Area (MSA) in which the census tract is located or non-MSA portion of the state if those neighborhoods are not located in a metropolitan area. The households are also grouped by age of householder: 15 to 24 years old, 25 to 44 years old, 45 to 64 years old, and 65 and older.

The descriptive analysis is followed by an examination of logistic and multinomial regression models. We use a set of regression models to identify the household and neighborhood characteristics associated with (a) moving or staying and (b) making moves to lower-poverty neighborhoods, moves to a neighborhood with similar poverty, or moves to higher poverty neighborhoods among older adult households headed by adults 50 years and older. Our analysis of mobility patterns relies on the geocoded version of the 2008–2018 American Community Survey (ACS) microdata sample at the Federal Statistical Research Data Centers (FSRDCs).

When we analyze the number of households and their growths by neighborhood poverty, most of the growths could be found in the least poverty concentrated neighborhoods, especially in the most recent period. However, the household growth across poverty quintiles have been uneven between racial/ethnic groups; that is, racial minority household growth has been disproportionately concentrated in the most disadvantaged neighborhoods, while white households have been rapidly growing in the least poverty concentrated areas. The results raise serious concerns about the neighborhood quality among older adult households, especially among those racial/ethnic minorities.

When we examine the determinants of residential mobility among older adult households by using the logistic and multinomial regression analysis, we find that white, well-educated, and those residing in suburbs are more likely to move to less poverty concentrated neighborhoods compared to origin neighborhoods, while racial/ethnic minorities, less-educated, and those residing in downtown areas are more likely to move into the areas with high poverty rates, controlling for other household and

neighborhood covariates. The results have important implications for equitably planning healthy and livable communities for the nation's growing older adult population.

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Housing Satisfaction of Older Adults in Rural North Carolina

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Keywords: housing satisfaction; rural older adults; North Carolina

Recent estimates indicate that 57% of older adults currently living in North Carolina (NC) rural counties are lacking access to services (NC Center for Public Policy Research, 2011; Rural Health Information Hub, 2018). Several studies indicate that dissatisfaction of older adults' housing or residential environment can lead to negative outcomes such as chronic stress (Kahana & Kahana, 1996; Lawton, 1980). Housing satisfaction has been most associated with Morris and Winter's Housing Adjustment Theory (HAT) (1975, 1978, 1988). The theory explains American housing norms are important influential forces when household members need to decide about their housing. Also, HAT explains constraints that may interfere with people's ability to live in normative housing conditions. This study examined housing satisfaction of older adults in rural NC, relating to their housing characteristics (housing norms including tenure, structure type and size, housing quality, and neighborhood) and demographic characteristics (constraints including age, race, education, income, household size, gender, marital status, and health status).

To recruit study participants, we conducted convenience sampling using rural NC service providers who participated in our previous study. A structured, face-to-face survey (N=158, adults 55 and older) was conducted between 2019 and 2020. The responses were coded and analyzed using IBM SPSS version 26; descriptive statistics and simultaneous multiple regression were employed for data analysis.

Regarding demographic profiles, the average age was 74 years; 55% were Caucasians and 39% were African Americans. Education and income levels were relatively low as over half reported education levels as a high school graduate or less, and earned less than \$25,000. Household size was relatively small with $M = 1.71$ persons. Among the respondents, 73% were female and 31% were married; and health condition average score was 3.03 (1 to 5 range). Regarding housing features, 67% were homeowners and lived in a single detached home. Average structure size was 2 to 3 bedrooms and most (96%) believed their homes were healthy. Their neighborhood satisfaction average score was 3.78; and housing satisfaction average score was 3.65 (1 to 5 range). Regression analysis showed that 38% of the total variance of housing satisfaction was accounted for by the factors ($R^2 = .383$, $p < .05$). The model was statistically significant with $F(13, 144) = 6.884$, $p < .05$. Significant housing variables relating to housing satisfaction included structure size ($\beta = .211$), housing quality ($\beta = .152$), and neighborhood satisfaction (β

= .404) while demographic variables included race (Caucasian, $\beta = .163$) and gender (male, $\beta = -.138$). Neighborhood satisfaction was the strongest factor in housing satisfaction.

This study has a generalization limitation due to the nature of convenience sampling. However, this study is meaningful in that some of the aging/housing service providers may further consider older adults' housing quality, structure size, neighborhood satisfaction, gender or race, when providing supportive services, impacting older adults' housing satisfaction. The researchers will continue to collect survey data to increase the sample size and statistical power. In our presentation, we will share details in study methods (e.g., variable measurements) and regression analysis interpretation.

Acknowledgment

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Disaster Readiness of Elderly Households: Using 2017 American Housing Survey

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Keywords: elderly; disaster readiness; American Housing Survey

Natural disasters have negatively influenced all regions in the United States, leading to more attention to disaster planning or readiness for vulnerable regions and populations (Cutter et al., 2008). Several studies have revealed that age is one of the factors affecting vulnerability to disaster hazards and that older adults are more vulnerable than other younger counterparts (Flanagan et al., 2011; Van Zandt et al., 2012). However, few studies have focused on disaster readiness of elderly households. Thus, the purpose of the study was to examine U.S. older adults' disaster readiness, by relating to their demographic and housing characteristics.

This study employed the 2017 American Housing Survey (AHS) data, sponsored by the U.S. Department of Housing and Urban Development and conducted by the U.S. Census Bureau. The sample ($N = 7,153$) was selected based on age (65 and over) and if they answered the disaster planning questions. The disaster readiness score was calculated based on 13 variables (lowest 0 and highest 13). With SPSS version 26, descriptive statistics were used to define the current disaster planning status of elderly householders. ANOVA, t-test, and correlation were employed to compare the disaster readiness score by housing (region, house type, and tenure) and demographic characteristics (age, race, and household size).

Descriptive analysis (Table 1) showed that elderly householders were not prepared for disasters in terms of flood insurance, and relatively well prepared in terms of knowing evacuation locations and information sources. Comparison analysis revealed statistically significant relationships between disaster readiness score and region ($F(3, 7149) = 13.850, p < .001$), house type ($F(4, 7148) = 180.997, p < .001$), tenure ($t(7151) = 26.614, p < .001$), age ($F(4, 7148) = 17.388, p < .001$), and race ($F(4, 7148) = 17.388, p < .001$). The score and household size showed a weak relationship ($r = .172, p < .001$). Highest readiness scores were found in the South region; detached one-family house; homeowners; age group of 65-69; and White. Lowest readiness scores were found in the Northeast region; apartment; renters; age group of 85 and above; and Black.

Table 1. 13 Disaster Readiness Variables and Responses

Disaster readiness variables	% of those being ready
Flood insurance	10%
Tornado shelter	11%
Generator	20%
Communication plan	27%
Meeting spots	34%
Emergency kit	55%
Water	65%
Financial resources	81%
Financial information	82%
Emergency food	86%
Vehicles	89%
Evacuation location	99%
Disaster information source	99%

The increasing older population which would be more vulnerable to disaster hazards requires more demand for public policy and support in disaster planning. The results revealed region, house type, tenure status, age, and race are related to older adult's disaster readiness. The study findings suggest educational and outreach activities for those who live in Northeast or apartment; and who are renters,

oldest old, or people of color. Strategies, such as having a flood insurance, preparing a generator, setting a communication plan and emergency meeting spots can be considered to assist the older adults with relatively lower disaster readiness score. Knowing the more vulnerable groups, the government and policy makers need to further effectively target and support elderly households to mitigate and prepare for natural disasters.

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National Mapping: Home Modification Services

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Keywords: home modification; veterans; housing

Purpose

Performing a home modification (e.g., ramp, rolling shower) to a living environment may delay institutionalization for individuals with disabilities (Semeah et al., 2017, 2019). This study offers a pictorial landscape of the utilization patterns of the Veteran Health Administration's (VHA) home modification (HM) services known as the Home Improvements and Structural Alterations (HISA) program by rural Veterans with disabilities (VwDs). To better understand HISA utilization patterns and "rural HISA users" (RHUs) at the U.S. county level, geospatial mapping and analyses in a geographic information system (GIS) were used. Comparisons of RHUs by county between fiscal year (FY) 2015 and FY 2018 were made to determine how clusters of high numbers of RHUs (hot spots) and low numbers of RHUs (cold spots) shifted.

Methods

Several VA administrative databases were used (e.g., Veterans Service Support Center, National Prosthetics Patient Database [NPPD]). In the analysis, counts of HISA users by county were extracted from the NPPD. A HISA user's rurality status was derived from the *rural-urban commuting areas* system. **Research question:** What do the maps show as to where the HISA service is being prescribed to VwDs? This study received Institutional Review Board approval. **Data Analysis.** GIS was used to create national

U.S. scale choropleth maps which display the full cohort of HISA users from FY2015 to FY2018 (N=30,763), as well as the subset of RHUs for comparison, broken down to the U.S. county level.

Results

Counties with HISA users are displayed in five natural breaks groupings. There are 855 counties with no available data (nulls). The minimum number of HISA users in a county was 1 (which occurred in 434 counties, which was the next highest frequency following the frequency of nulls) and the maximum number of HISA users in a county was 981. Counties with RHUs will be represented showing breaks of 1-10 RHUs, 11-16, 17-24. Any county with 25 or greater (up to and including 77) RHUs will also be depicted. The pockets where populations of higher numbers of HISA users concentrate are indeed near more urban areas; however, not all urban areas have these pockets – which prompted further analyses. The Rural HISA user map (map #2 on the poster) lines up quite similarly in distribution to the Total HISA user map above (map #1 on the poster).

Implications

Previously, we found that both hospitalization rate and outpatient encounters are likely impacted by HMs with hospital visits reductions after the receipt of a HISA HM (Semeah et al., 2021). High percentages of hospitalization are costly yielding low patient satisfaction and reduction of independence (Conley et al., 2016; Semeah et al., 2021). Sixty-three percent of rural homes require plumbing or kitchen alterations (Pendall et al., 2016). The population of rural veterans is growing (Holder, 2017). Increasing funding for the HISA program implementation can help address these challenges and decrease overall cost to both healthcare institutions and patients.

Conclusion

Findings provide details on the national utilization patterns for the HISA program by VwDs. Administrators and policymakers can use the HISA maps as a tool to tell a complete story of program utilization and trend data. Larger-scale (regional, State) geographic areas can then be properly targeted to increase marketing efforts and to assess facilitators and barriers to accessibility of HISA utilization.

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Nowhere to Go: Housing Experiences of Vulnerable College Students

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Keywords: homelessness, housing insecurity, foster care, college students

While balancing housing and other basic needs in college is a challenge for most low-income students, it may present a more profound barrier for young adults who experienced foster care or homelessness in late adolescence. The majority of homeless and foster youth come from low-income households and often lack emotional and financial support from parents (United States Government Accounting Office, 2016). While there is limited information available about college enrollment among youth who have experienced foster care or homelessness, federal student aid data suggests that at least 72,000 youth with foster care experience attended college in 2013-2014 (United States Government Accounting Office, 2016). Youth who have experienced homelessness are thought to have college enrollment patterns that are similar to youth with foster care experience (United States Government Accounting Office, 2016).

An emerging body of research highlights the housing insecurity experienced by college students in the United States. Broton and Goldrick-Rab (2018) estimate that one-third of two-year college students and as much as 19% of four-year college students experience housing insecurity. Current and previous trauma related to homelessness and the challenge of balancing academics while trying to maintain basic needs are predominant themes in the limited body of research on homeless college students (Bowers and O'Neill, 2019). Colleges are beginning to recognize and respond to the needs of a growing homeless student population by offering programs that address material needs, however the limited resources in this area often mean that students are "left to fend for themselves" (Klitzman, 2018). While these studies provide insight into problems of housing insecurity among low-income college students, most do not examine the housing experiences of students prior to entering college.

The research uses a life course theoretical perspective and a qualitative research design, with semi-structured, in-depth interviews, to explore the housing experiences during high school and college of 27 young adult students with a history of homelessness or foster care enrolled in several different four-year colleges in one Southeastern state. After receiving IRB approval, eligible youth were recruited by distributing a flyer and email messages to designated points of contact for homeless and foster youth at academic institutions, a network of group home service providers, and staff of a state-funded independent living program. Prospective participants completed a screening tool for study eligibility, which included being age 18 or older, having experienced foster care any time after 14 years of age, or having experienced homelessness or a precarious living situation (a list of situations was provided).

This research is part of a larger study designed to examine the life pathways and experiences of young adults who were either homeless or in foster care during high school. The primary research question for this research is "What are the housing experiences in high school and during college for students with homelessness and foster care experience?" We began our data analysis process by reading through the interview transcripts. We then used content from the interviews to construct a housing pathway for each participant, which resulted in a timeline containing the housing accommodations and living arrangements beginning at age 15 and extending to their college years. Using Atlas.ti software, we developed a coding structure to analyze themes within students' housing pathways in high school and college within the context of family circumstances and educational events and changes. This allowed us to identify patterns of stability and change across housing, education and family biographies.

The housing pathways of the students in the study were defined by family relationships. Many of the students in the study were on their own, independent of parents due to experience in foster care or as unaccompanied youth, and meeting their own basic needs as teenagers. Housing insecurity for these students began in high school or earlier and persisted while attending college. The students in the study described a fragile and seemingly unsustainable balance between housing and other material needs and academic demands. Some students experienced extreme hardships, having nowhere to go in high school

due to parents' financial circumstances, being kicked out by parents, or due to the death of a parent. In college, the inability to balance the financial costs of tuition and basic needs without the financial support of parents often resulted in homelessness when dorms closed for holidays and summer breaks or loss of housing through eviction. Further research that examines a larger number of students in different educational contexts would add to our understanding of how students with homelessness and foster care experience balance academic and material needs in the absence of parental and adequate financial support.

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Improving Health and Indoor Air Quality for Asthmatic Older Adults

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Keywords: healthy homes; asthma; housing; environmental health

Research Rationale and Objectives

Research has documented that housing conditions can negatively impact the health of residents, particularly vulnerable populations, such as low-income older adults with asthma (Northridge, 2010). Asthma has many known indoor environmental triggers, as evidenced by approximately 7.1 million children (U.S. EPA, 2013) and 18 million adults (CDC, 2014) of the U.S. population who have asthma. Home intervention studies have demonstrated that air purifiers with HEPA/carbon filters reduce indoor nitrogen dioxide (NO₂) concentrations more effectively than ventilation hoods (Paulin et al, 2014), and HEPA air filter interventions effectively reduce indoor particulate matter (PM) (Maestas et al, 2019; Cox et al, 2018; Rice et al, 2018). However, a major gap in these findings is the absence of any study measuring both PM and NO₂ concentrations from cooking with gas stoves, as well as measuring the concurrent reduction in both pollutants when using HEPA/activated charcoal purifiers. The objective of this new research project is to test the hypotheses that: 1) use of HEPA/charcoal filtration will decrease NO₂ and PM levels emitted from cooking in homes with gas stoves; 2) reduction in PM and NO₂ will improve respiratory symptoms and reduce health care utilization in older adults with asthma; 3) adding the typical multifaceted environmental and educational interventions conducted by Community Health Workers (CHWs) will further improve respiratory symptoms and reduce health care utilization in older adults with asthma. One area that has been difficult to address in our previous intervention projects is the emissions

from gas stove cooking. Our study would provide environmental data on the effectiveness of air purifiers, document changes in respiratory health measures following the air purifier intervention, as well as the benefit of adding subsequent standard multifaceted environmental and educational interventions.

Methodology and Procedures

We use a stepped wedge design that allows a control period where no intervention occurs to evaluate the impact of this intervention separately and in combination with the well documented improvements seen with our typical multifaceted educational and environmental interventions. Health assessment includes collecting data on respiratory health outcomes before and after healthy homes intervention (questionnaires on symptoms, quality of life, medication use, and doctor/ER/hospital visits). Environmental assessment includes evaluation of PM and NO levels, asthma trigger activities (ATAs) and exposures before and after healthy homes intervention (questionnaire, home survey, environmental samples). Assessments are conducted in English, Khmer and Spanish. Major analysis includes health effects on medication use, wheeze, asthma attacks, doctor and ER visits and hospitalizations and asthma scale assessment on emotional/physical health, physical/social activity.

Results

Data collection is ongoing, but we anticipate results from the use of HEPA/charcoal filtration will decrease NO₂ and PM levels emitted from cooking in homes with gas stoves, improve respiratory symptoms and reduce health care utilization and adding the typical multifaceted environmental interventions will further improve respiratory health in older adults with asthma.

Conclusions and Implications

In many public and subsidized housing units, the electrical system upgrades needed to move to electric stoves are beyond the capacity of the housing unit and not economically feasible for the housing authority or management. This study will fill a major knowledge gap by measuring both PM and NO₂ concentrations in homes that cook with gas stoves and documenting the reductions in both pollutants when using HEPA/activated charcoal air purifiers. Perhaps more importantly, no studies have linked indoor reductions in PM and NO₂ when using air purifiers with improvements in respiratory health outcomes. This study will also add to the limited knowledge base on home interventions with older adults with asthma.

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Sydney Alternative Housing Ideas Challenge: Reimagining the Way We Live

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Keywords: housing, smart cities, affordability

The unbuilt design presented here was a winner of the 2019 Sydney Alternative Housing Ideas Challenge international design competition. At its heart, the scheme recognizes that data is becoming as impactful on the way we configure cities as water and electricity were 100 years ago. We are currently developing a multifamily prototype housing unit that demonstrates best practices in aging-in-place strategies and telehealth technology. We are also investigating prefabricated construction methodologies that will be utilized to bring plug-and-play technology infrastructure to the exploding senior housing demographic.

Gigabit networks allow Smart Cities to collect and analyze vast amounts of data. Sensors embedded in the built environment are able to collect such information as:

- Human Vital Signs (heart rate, breathing, body temperature, weight, blood pressure, hydration)
- Physical Activity (Activities of Daily Living, falls, gait, sleep)
- Environmental Factors (temperature, humidity, air quality, water quality, weather)
- Pharmaceutical Regimens (over dosing, missing doses)

Population Health strategies utilize the collection and analysis of such data to deliver health care more affordably, affectively, and sometimes before we know we need it. Some of the more advanced technologies include: Motion Sensors/Fall Detection, Gait-Analysis (determination of early onset Alzheimer's and Parkinson's), Automated Light-Emitting Diode (LED) Smart-Spectrum Lighting (optimizing circadian rhythms), Smart Mirrors, Smart Toilets (hydration monitoring/diuretic dosage), Sleep Sensors (ballistic cardiogram), and Automated Medicine Dispensers (coupled with Smart Toilet for heart medication).

Perhaps the furthest we have been able to take a Smart Home feature has been gait analysis. We have installed simple accelerometers and strain gauges into a typical wood-framed residential floor and calibrated the sensors to record heel strike. At two-hundred readings per second, the data is not only able to detect a fall but it can record data patterns that may indicate a limp or stagger. The data can be fine-tuned to detect shuffling and even tremor.

The implication is that this "smart floor" could be used to detect symptoms of early onset Parkinson's and Alzheimer's disease. We are working with scientists who are developing predictive algorithms capable of processing the patterns of widening stance, often a sign of hydrocephalus, a form of dementia. We are

also exploring patterns related to the ball of the foot striking close to the timing of the heel, a potential sign of neuropathy, a symptom of diabetes.

Dwelling units that are designed to collect activity and biometric data and transmit this information to an on-site clinic or Living Lab reimagines the home as a medical device that is able to care for you.

Once Lost, Now Found: FIND – A Solution to Reduce Clutter

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Keywords: clutter; healthy home; mental health

The popularity of the book *The Life-Changing Magic of Tidying Up* by Marie Kondo took an age-old concept and gave it new life. The author focuses on the uplifting benefits of de-cluttering that envelope popular themes like consumer restraint, environmentalism, psychological well-being, simplifying life, and owning the choices one makes. The presence of clutter does not imply that a person is a hoarder. A person with a hoarding disorder excessively saves items that may or may not have a value, and the person has difficulty parting with the items. Only 2 to 6 percent of the population have a hoarding disorder that leads to distress and problems functioning (American Psychiatric Association, 2017).

Reducing clutter in a home is about eliminating things that no longer have a place in one's life and may be producing negative emotions and impacting well-being. Roster et al. (2016) conducted an online survey to examine the impact of clutter on the psychology of home and subjective well-being. They reported that possession clutter had a strong negative impact. Researchers also found that the presence of clutter was a predictor of procrastination among young adults, but the results were not clear if clutter led to procrastination or if procrastination led to clutter. However, chronic procrastinators reported having too much clutter and that it negatively impacted their identity (Ferrari et al., 2018). An examination of generational differences, found that among older adults, clutter problems led to a significant decrease in satisfaction with life (Ferrari & Roster, 2018).

A healthy homes curriculum called *FIND – Focusing on Important Necessities in Your Dwelling* – was developed to help educate people about the health and wellness benefits of reducing clutter and increasing organization at home. Program participants identify their “Clutter Personality” using a short quiz to determine the amount of clutter they are comfortable with, after which the presenters discuss the physical and mental benefits of reducing clutter, barriers people deal with, five different implementation strategies, and how to maintain a clutter balance in one's home.

Originally designed to be a face-to-face program, the COVID-19 pandemic led to it being transformed into a virtual program. The evaluation was adapted to multiple-choice questions that are completed in polls during the Zoom webinar. Two to three months after the program, participants receive a link to a short online survey to learn what changes they made. To date, 148 people have taken part in trainings, with 71 completing the evaluation. The majority of respondents indicated that their main clutter reduction strategy would be donating (90%). When asked about their number one barrier, responses were: Time Management (27%), Decision Making (23%), Memories or Disorganization (17%), and Overwhelming (17%). A primary focus of FIND is on maintaining a clutter-free life. Clutter is defined differently for each person and one should not be made to feel guilty, but rather empowered to reach their goals.

Acknowledgment

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Housing and Community Development: Learning in the Field

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Keywords: community-based learning; housing condition; community development

Students in the course, Housing and Community Development, develop an understanding of the linkages between housing and neighborhood conditions and change. To apply their learning, student teams conduct housing condition assessments in a community as the major class project. The presentation will discuss the project and how it meets course objectives.

The class partnered with a community organization concerned about the impact of a proposed modern streetcar project. As had occurred in other neighborhoods in the city when a major transportation system upgrade occurred, the organization feared that vulnerable properties would be purchased speculatively for development, resulting in gentrification. As a base-line measure, the organization asked that the housing assessment focus on residential properties located on adjoining blocks to the proposed transit thoroughfare.

A student workbook served as a guide for the project (Yust, 2019, based on Bruin et al., 2007; Crump, 2001; Merrill, 1998). Students first visited the neighborhood and completed a "first impressions" questionnaire to familiarize themselves with the neighborhood, identify their biases, and consider the community context. A class session focused on a norming exercise to ensure that students' housing condition assessments would be as consistent as possible. Photographs of typical housing structures in the neighborhood were used to identify characteristics that would be assessed as good, fair, poor, or deteriorated. Students were assigned to teams and each team was provided a map showing the blocks for which they were responsible. The housing components assessed were those visible from the sidewalk: the foundation, roof, chimney, outside walls, siding, doors/windows, and garage. They also noted building materials, occupancy status, and if recent improvements had occurred. The teams organized their own schedules to meet and assess housing in their assigned areas and completed over 350 housing condition assessments in four weeks. Finally, each team was assigned to write a chapter of the final report with one team responsible for the oral presentation to representatives of the community organization.

There were limitations of the project that were noted by both students and the instructor. First, even after a norming session, the teams likely varied in their perceptions of housing conditions. Second, assessment of an individual structure could have been influenced by the condition of the adjacent structures. Third, some exterior features such as fences and vegetation blocked views of the structure's components making it hard to assess their condition. Fourth, students' knowledge of housing components and materials varied and limited their assessments. Fifth, if it were cold or raining on the day of completing the assessments less time was spent assessing individual properties. Finally, based on a recommendation of students who completed the class the previous year, the first impressions and the assessment forms were electronic and some students complained that it took too long to complete them on a smart phone.

In summary, assigning a community-engaged housing project conducted by students who had never had a housing course was sometimes problematic to ensure that sufficient background was provided. However, the students enjoyed completing a project that had a purpose and that put into practice the theories discussed in class.

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Conference Locations & Dates

Conferences held prior to formalization of the organization, AAHE

1946 Urbana, IL: April 1-4
1948 West Lafayette, IN: October 17-19
1957 Urbana, IL: October 9-12
1958 Ames, IA: October 22-25
1959 Stillwater, OK: October 7-10
1960 Ithaca, NY: October 12-15
1961 Manhattan, KS: October 11-14
1962 Minneapolis, MN: October 18-20
1963 University Park, PA: Oct. 30- Nov. 2
1964 East Lansing, MI: October 14-17
1965 Columbia, MO: November 3-6

American Association of Housing Educators (AAHE)

1966 Urbana-Champaign, IL: October 26-29
1967 Lafayette, IN: October 11-14
1968 Athens, GA: October 27-29
1969 Davis, CA: October 15-17
1970 Lincoln, NE: October 14-16
1971 Blacksburg, VA: October 17-20
1972 Dallas, TX: October 10-13
1973 Madison, WI: October 10-13
1974 Boston, MA: October 29-November 2
1975 Fort Collins, CO: October 7-11
1976 Columbus, OH: October 12-16
1977 Tucson, AZ: October 19-21
1978 Minneapolis, MN: October 11-14
1979 College Station, TX: October 16-19
1980 University Park, PA: October 6-8
1981 San Francisco, CA: October 6-10
1982 Knoxville, TN: August 10-12
1983 Lincoln, NE: October 4-7
1984 Washington, DC: August 8-10
1985 Ames, IA: October 15-18
1986 Santa Fe, NM: October 14-17
1987 Newport, RI: November 2-7
1988 Corvallis, OR: October 11-14
1989 Greensboro, NC: October 24-27
1990 Columbia, MO: October 16-19
1991 Durham, NH: October 15-18
1992 Winnipeg, Manitoba Canada: Sept. 16-19
1993 Columbus, OH: October 6-9
1994 Atlanta, GA: October 18-21
1995 Salt Lake City, UT: October 11-14
1996 Manhattan, KS: October 16-19
1997 New Orleans, LA: October 22-25
1998 Seoul, South Korea: August 5-8
1999 Orlando, FL: October 18-23
2000 Stone Mountain, GA: November 15-18
2001 Big Sky, MT: July 22-25
2002 Minneapolis, MN: October 23-26

Housing Education and Research Association (HERA) (name changed)

2003 Washington, DC (w/ AAFCS): June 28-30
2004 Chicago, IL: October 20-23
2005 Denver, CO: October 4-7
2006 Ithaca, NY: October 8-11
2007 Charlotte, NC: October 23-26
2008 Indianapolis, IN: October 7-10
2009 Santa Fe, NM: November 1-4
2010 Portland, OR: November 3-6
2011 Baton Rouge, LA: October 12-15
2012 Roanoke, VA: October 28-31
2013 Tulsa, OK: October 27-30
2014 Kansas City, MO: October 5-8
2015 Springfield, IL: October 11-15
2016 Jacksonville, FL: October 23-26
2017 Lowell, MA: October 8-11
2018 Savannah, GA: October 7-10
2019 Austin, TX: November 10-13
2020 Conference cancelled due to COVID-19
2021 Minneapolis, MN: Oct. 31-Nov. 3

