

Exercising at the Library: Small and Rural Public Libraries in the Lives of Older Adults

Noah Lenstra, Fatih Oguz, Christine D'Arpa, and Lindsey S. Wilson

ABSTRACT

Public libraries are often regarded as having the potential to support healthy aging. Past work has shown that public librarians increasingly endeavor to offer programs and services for those aging in place. However, research about the effects that public library services and spaces have on the lives of older adults and the affordances they bring is limited. This article presents the results of a nationwide study in which 49 public libraries participated—most from rural and small towns across the United States. More than 535 older adults engaged in a 12-week strength-training program in these libraries. Results of the study indicate that health outcomes for participants can be grouped into three interconnected categories: physical health, mental health, and social health. Results also suggest that the program influenced the participants' perception of the public library as a social space. Implications for research on aging in place and public librarianship are highlighted and discussed.

For many older adults, the public library functions as an essential community space (Klinenberg 2018; Dalmer et al. 2020). Some public librarians declare their libraries, particularly in small and rural communities, to be “de facto senior centers” (Cline and Jarvis 2019). There is increasing scholarly recognition that public libraries, as trusted spaces, support health among older adults in multiple ways, including social well-being (Dalmer et al. 2020), mental health (Wynia Baluk et al. 2020), and physical health (Matz-Costa et al. 2019).

Given this scholarly and practical interest in how public libraries support aging, it is notable that few previous studies have analyzed the effects of public library services and spaces on the lives of older adults and the affordances they bring. To begin to fill this gap, this article presents the results of a nationwide study that took place between January and April 2019 in 49 public libraries across the United States. More than 535 older adults engaged in a 12-week strength

This study received no funding. The success of the endeavor depended on in-kind contributions from both public librarians and Geri-Fit. Geri-Fit donated public performance rights in perpetuity to its entire collection of fitness videos to all libraries that participated in this project. Public librarians took on the challenge of administering the survey, on top of their many other duties. Follow-up research in fall 2020 was supported by the Institute of Museum and Library Services-funded (RE-246336-OLS-20) HEAL (Healthy Eating and Active Living) at the Library.

The Library Quarterly: Information, Community, Policy, volume 92, number 1, January 2022.

© 2022 The University of Chicago. All rights reserved. Published by The University of Chicago Press. <https://doi.org/10.1086/717232>

training program in these libraries. By analyzing how participants engaged with this program—itsself a unique cross-sector partnership—this study sets the stage for future research on public libraries in the lives of adults aging in place, particularly in small and rural communities.

Literature Review

This study addresses two major gaps in the research literature: How do older adults engage in library services designed for them, and what are the health impacts of library services on the lives of adults aging in place? Beyond addressing these two questions, this study also raises a call for more research on these topics, particularly in small and rural communities, which, as will be shown, are understudied. As trusted public spaces at the heart of their communities, small and rural public libraries are well situated to support aging in place, defined by the US Centers for Disease Control and Prevention (CDC 2009) as “the ability to live in one’s own home and community safely, independently, and comfortably, regardless of age, income, or ability level.”

A significant body of research demonstrates the benefits of aging in place, including increased autonomy and a general sense of well-being (Rosenwohl-Mack et al. 2020). In the United States, nearly 90% of older adults report a strong desire to remain in their homes for as long as possible (Farber et al. 2011). This preference has resulted in policy work focused on how to most effectively foster age-friendly and dementia-friendly communities (Buckner et al. 2018).

Currently, however, not all who wish to age in place are able to do so. Prominent among barriers is a lack of community services, including “exercise programs,” which are essential to building physical capacity and skills (Brim, Fromhold, and Blaney 2021, 5). These barriers are compounded in rural communities. Rural Americans tend to frame aging in place “within a more holistic context of health,” which goes beyond access to services to include access to “social interaction” (Bacsu et al. 2014, 328). This study builds on these findings by framing the challenges faced by people aging in place as multifaceted. Too often the focus is on physical ability, but we argue that there are three interconnected aspects: social, physical, and mental.

As they endeavor to age in place, older adults in the United States often struggle with issues related to each of those three areas. According to the World Health Organization (2017), the most common mental health issue among people age 60 and older is depression. In the United States, at least 15%–20% of adults older than 65 have experienced depression (CDC 2010). Among older adults, depression is often associated with loneliness and social isolation (O’Rourke, Collins, and Sidani 2018). In terms of physical health, as few as 27% of people age 65 years and older in the United States meet recommended minimal physical activity guidelines (Matz-Costa et al. 2019, 1007). To address these public health issues, gerontologists argue for developing new strategies that are “health-promoting on multiple levels (i.e., physically, cognitively, socially, emotionally)” (Matz Costa et al. 2019, 1008). These strategies are recommended to be implemented in safe, trusted, community spaces, such as a “public library” (Matz Costa et al. 2019, 1011). The challenge for public libraries, and for other community-based institutions supporting aging in place, is to

consider how to develop services and programs that address or embrace these many aspects of health, that frame them as interconnected, and that are focused on supporting aging in place.

Public Library Services for an Aging Society

Although there has been a strong focus on older adults and public libraries in scholarship over the past decade, much of this literature is focused on what public libraries offer older adults rather than on how older adults use and experience library services. Nicole Dalmer and colleagues (2020) examined how public libraries in Canada function as third places among older adults through public programs and found that the 691 programs for older adults they analyzed encompassed everything from “reading and writing” (18%) to “fitness” (3%). None of the program types in their study encompassed more than 20% of their sample; it is significant or notable that public libraries offer a multitude of services and programs to support aging in place.

Others have examined what libraries offer older adults by analyzing websites (Charbonneau 2014), programming calendars (Sabo 2017; Wynia Baluk et al. 2020; Dalmer et al. 2020), digital inclusion efforts (Xie and Bugg 2009), outreach services (Sikes 2020), information services (Perry 2014), and library services for older adults more generally (Bennett-Kapusniak 2013; Lenstra, Oguz and Duvall 2020). Nicole K. Dalmer (2017) examined documents and websites from public library systems to discern how they frame and operationalize library services for older adults.

Still others have used needs assessment research to evaluate what older adults seek in public libraries. Yanxia Shi and Lili Luo (2020) engaged older Chinese individuals in focus groups to better understand their health information needs and how public libraries could support them. Mary F. Cavanagh and Wendy Robbins (2012) used interviews with baby boomer caregivers to better understand how public libraries could support both caregivers and those for whom they provide care. In Jacksonville, Florida, the public library developed the JPL50+ project based on a review of previous program evaluations, conversations with patrons age 50 and older, and observations of successful programs at other libraries (Landgraf 2016).

Past studies have tended to focus on urban areas (Xie and Bugg 2009; Bennett-Kapusniak 2013; Perry 2014; Dalmer 2017; Dalmer et al. 2020; Wynia Baluk et al. 2020). Only one study explicitly explored how small and rural libraries serve older adults (Hughes 2017), finding that “rural libraries serve as community meeting spaces for older adults” (45) and typically partner with individuals and organizations to host “a variety of programs ranging from . . . weekly senior meals and social groups offering games, exercise, art lessons, and refreshments” (53). This finding aligns with the experiences of public librarians in the small town of Marion, Iowa, who proclaimed in a national webinar that small and rural libraries are “de facto senior centers” (Cline and Jarvis 2019).

The push to offer more social programming in libraries of all types may also result from changing demographics. Emy Nelson Decker (2010) speculates that as the baby boomer generation ages, there will be an increasing need for public libraries to be “hosting club and group meetings” (615) and collaborating with “area health clubs” (610) to support the needs of this

growing demographic. To fill this need, Dalmer (2017) finds “the need for an older adult liaison public librarian position to oversee, coordinate, and advocate for the library’s activities and materials created for older adults” (17). Whether such a role is possible in the domain of small and rural public librarianship is unknown. In this context, this service area could potentially be developed through partnerships rather than through new positions.

Libraries as Places

Over the past 20 years, the theme of “library as place” has produced a body of scholarship focused on understanding the kinds of places that libraries are, and have been, and how those places are socially constructed by a multitude of stakeholders (Wiegand 2015). The library has been studied as a low-stakes meeting space (Aabø, Audunson, and Vårheim 2010) that produces social trust (Vårheim 2014) and social capital (Johnson 2012), especially among marginalized and vulnerable populations (Fisher, Durrance, and Hinton 2004). Notably, however, few studies have considered how these processes work among older adults. One exception is a study by Patrick Lo, Minying He, and Yan Liu (2019), who found that elderly residents of Shanghai tended to perceive the public library as having the capacity to produce social capital. This study’s approach extends previous work on the public library as a place that produces social capital by considering social health alongside physical and mental health.

In any case, the finding that the public library as a community place brings people together for a multitude of reasons has led to the idea of libraries as information grounds—spaces that facilitate the spontaneous sharing of information among people who happen to be sharing the same space (Fisher et al. 2004). The contemporary public library is increasingly seen by the public and by policy makers as a community space that offers myriad services (OCLC and American Library Association 2018).

As with the literature on aging services in libraries, these conversations tend to focus on urban libraries. Despite their smaller budgets, programming in rural libraries may actually be more important. In a study of social capital formation in Ontario (Canada) public libraries, Catherine A. Johnson and Matthew R. Griffis (2014) found rural library users to be more than twice as likely as urban library users (40.4% vs. 15.3%) to have “attended a community programme [at a community or recreation center] within the last month” (185). At the same time, Johnson and Griffis (2014) found urban libraries much more likely than their rural counterparts to offer a multitude of programming opportunities (188). The conclusion from their study is that more work is needed to help prepare small and rural libraries to offer an expanded variety of programs, which, they suggest, is what these communities want.

Health Impacts of Library Services

Although public libraries are frequently framed as having the potential to support healthy aging, little is known about how that occurs. Part of the challenge relates to confusion around

what constitutes “health.” The US National Institutes of Health (2020) defines “Your Healthiest Self” as being composed of five dimensions: “Your Surroundings, Your Feelings, Your Body, Your Relationships, and Your Disease Defense.” Drawing on that definition, this article examines three aspects of the NIH definition of health: feelings (mental), body (physical), and relationships (social).

Scholarly and practical interest has increased in the public library as a space that fosters health (Shi and Luo 2020). Regarding mental health, Kaitlin Wynia Baluk and colleagues (2020) look at mental health issues caused by social isolation and how public libraries could intervene. Regarding physical health, the 2020 meeting of the National Council on Aging (NCOA) featured three different sessions that examined how public libraries in three states (California, Oklahoma, and North Carolina) are supporting physical health through programming focused on increasing balance and decreasing falls (Campbell et al. 2020; Fisher, Lenstra, and Van Ryzin 2020; Lau and Mai 2020).

Dalmer et al. (2020) conclude that public libraries should be seen as part of the infrastructure of social health among older adults. This framing builds on the work of sociologist Eric Klinenberg (2018), who in *Palaces for the People* explored the social consequences of public library programs and spaces, particularly among older adults aging in place. He found that New York City public library programs that are popular among the city’s diverse older adult users (e.g., Xbox Kinect Bowling and karaoke clubs) create meaning and purpose by connecting them with others in the community, including other older adults.

Although not framed as a study of aging in place, Elena Prigoda and Pamela J. McKenzie’s (2007) study of information behavior among participants in a public library program offers some insights into how libraries as community spaces support healthy aging. When asked what they got out of their library knitting group, one member stated, “When you’re a senior it’s kind of hard to make contact [with] people of similar interest. But the library has been our home away from home” (102).

Research studies in gerontology further demonstrate the effectiveness of weaving together different dimensions of health promotion in holistic, community-based programming. Carri Casteel, Maryalice Nocera, and Carol W. Runyan (2013) concluded that a key attribute of successful programs is that they allow for socialization among participants. Other studies have found that equitable access and community and social support are important facets of successful programming (Tzeng, Okpalauwaekwe, and Yin 2019).

Despite increasing scholarly attention to the public library as a place that offers an array of programming for older adults—from balance classes to bowling leagues to knitting groups—few studies have examined the impacts of these programs and spaces on their lives or their health, with the latter understood as having physical, mental, and social dimensions.

Methods

This study involved three different sectors working together toward the common goal of supporting aging in place in small and rural communities. The three sectors included LIS research,

small and rural public libraries, and the fitness industry. Following the model set by Teresa Liu-Ambrose and colleagues (2010), we launched a “proof of concept” study to demonstrate how cross-sector partnerships of this sort have the potential to increase the capacity of public libraries to support healthy aging. The three sectors represented in this partnership are (a) small and rural public libraries, (b) the private health sector, and (c) library and information science research.

Geri-Fit is an evidence-based strength training program that has been approved by the US government’s Department of Health and Human Services as safe and effective for older adults (Administration for Community Living 2021, 50). The program has also been endorsed by the NCOA as a “highly effective evidence-based exercise program for older adults” (Brewer, Patterson, and Ray 2018, 490).

The Geri-Fit program consists of chair-based exercises done for 45 minutes, twice a week, typically in a group setting, with progressive levels of difficulty over time. The program starts with the assumption that participants are not currently doing in any regular strength-training exercises. One participating public librarian published her story on the American Library Association’s website, where additional details on the program can be found (Bosch 2019).

The researchers connected with Geri-Fit through meetings convened in 2017 by the National Institute on Aging’s (NIA) Go4Life campaign, an initiative that sought to better connect those working across the country on increasing community-based physical activity among older adults. The relationship was nurtured through a series of meetings focused on the roles of public libraries as partners in the promotion of physical activity programming for older adults. Those meetings resulted in a white paper on public libraries published on the NIA’s (2018) website and the idea of working together to create new opportunities for physical activity in small and rural communities.

Public librarians were invited to participate in the Geri-Fit study through the networks of the Association for Rural and Small Libraries (ARSL) and Let’s Move in Libraries (LMiL) in fall 2018. The self-selecting sample of small and rural public libraries was recruited through electronic messages distributed through the electronic mailing list of the ARSL and the monthly newsletter of LMiL. Any public library that self-identified as small and rural, that had approval from the library administration to participate, and that agreed to go through the Geri-Fit training was eligible to participate in the study. In exchange for their time, participating libraries received public performance rights in perpetuity for the entire Geri-Fit catalog (Geri-Fit 2021).

To participate, a library representative, typically the library director, had to complete online training modules prepared by Geri-Fit for community-based hosts before the commencement of the program. These training modules helped to ensure that the program was being adhered to in the way it was developed and intended. The training modules also included information on securing informed consent before the distribution of the postprogram questionnaire. The study was reviewed and approved by the institutional review board office at the University of North Carolina at Greensboro.

After completing the online training program facilitated by Geri-Fit, a total of 49 public libraries from 17 states participated in the study. Each participating library administered the 12-week (two classes per week), video-based program at its site. The programs were administered in the library by library staff, typically the library director. At the conclusion of the 24 classes, library staff handed out a paper questionnaire, developed by Geri-Fit, to participants. The questionnaires were filled out by participants, using pencil or pen, and returned anonymously to the library staff, who sent them to Geri-Fit, who in turn forwarded the completed questionnaires to researchers for analysis. Through these multiple layers of protection, it was not possible for the researchers to discern the identities of any participants. The 32-item questionnaire used in this study has been used and tested in previous studies of Geri-Fit (Goble, Hearn, and Baweja 2017). A majority of the questions (appendix) on the questionnaire are closed-ended prompts focused on physical health. This unobtrusive questionnaire did not collect any biomedical information except for participant height and weight, used to calculate participants' body mass index (BMI). Two open-ended prompts elicited additional benefits from participants.

For analytical purposes, participating communities were categorized based on the National Center for Education Statistics locale framework (IMLS 2020). Demographic data from the 2014–18 American Community Survey 5-year estimates (US Census 2019) were incorporated into the data set to determine age characteristics of the communities that contributed to the study. Because the total number of participants ($N = 535$) in the program was a convenience sample, a nonprobability sampling strategy was used. The research team identified a total of 524 usable responses from those received.

After initial processing of the data, the researchers engaged in an iterative analysis process in which relationships among demographic variables and health and wellness outcomes were examined using descriptive and inferential statistics. BMI is considered a reliable measure of body fat for most adults and is used by the CDC (2020) as a screening tool to identify potential health risks. Therefore, using the data from participant responses, BMI was calculated using the following formula (CDC 2020): $BMI = \text{weight (lb)} / [\text{height (in)}]^2 \times 703$. Corresponding weight categories were assigned following the CDC (2020) categories for BMI ranges and used in data analysis for this study.

In addition, the researchers closely examined the open-ended responses ($n = 327$) included in the survey. The length of open-ended responses ranged from a single word to 96 words, with an average length of 12.6 words ($SD = 12.3$). These responses offered insight into what participants perceived as benefits of this program. After engaging in open coding of open-ended responses (Holton 2007), the researchers developed categories (e.g., socialization, improved strength/tone, increased mobility) from the data into which all open-ended responses could be organized.

Limitations

Findings of the study cannot be generalizable due to the sampling strategy. The concept of “older adult” was deliberately left undefined during the study. For analytical purposes, we

defined older adults as persons aged 60 and older. No demographic information on race or ethnicity was collected from study participants. Given the increasing diversity of the population of older adults in the United States, future studies would be significantly enriched with the inclusion of information about racial and ethnic identity and a nonbinary gender category (Decker 2010).

Results

Demographics of Study Sites and Participants

The large majority of people who participated in this study were from rural and small towns: 92% of the public libraries that partnered on this study serve communities with populations of less than 13,000 people (IMLS 2020). Although the study targeted its call for partners to rural and small libraries, some libraries from small cities (none of which has a population of more than 100,000) also participated in the study. Most program participants identified themselves as female (87.5%), were age 70 or older (68.5%), and were overweight or obese (70.2%), as shown in table 1.

Table 1. Descriptive Statistics

	<i>n</i>	%
Age-group: ^a		
60–64	16	3.1
65–69	149	28.4
70–74	140	26.7
74–79	113	21.6
≥80	106	20.2
Gender: ^b		
Male	65	12.5
Female	453	87.5
Weight: ^c		
Underweight	2	.4
Normal	138	29.4
Overweight	180	38.3
Obese	150	31.9
Community type: ^d		
City	33	6.3
Suburban	47	9.0
Town	154	29.4
Rural	290	55.3
Program attendance, weeks: ^e		
3–7	21	4.2
8–11	54	10.8
12	424	85.0

^a Data were collected as continuous variables. $n = 524$, $\bar{x} = 73.77$ years, $SD = 6.7$.

^b $n = 518$.

^c Data were collected as continuous variables. $n = 471$, $\bar{x} = 168.87$ lbs., $SD = 36.4$.

^d $n = 524$.

^e $n = 499$.

Six individuals older than age 90 completed the program, and all six participated in this program at public libraries that served very small communities. The percentage of those library service areas with populations aged 60 years and older was higher than the US average, at about 80% of the participating locales. The library partners in this study are located in communities that are statistically older than the rest of the United States.

Outcomes on Aging in Place

Physical Health

After a comprehensive analysis of the relationships among the different variables collected that related to physical health outcomes, this study identified the following statistically significant associations: (a) BMI and weight loss, (b) BMI and overall health, (c) BMI and one’s ability to stand up and walk, (d) weight loss and strength gain, and (e) age and weight loss.

Study participants’ weight and height information was used to calculate BMI and assign weight categories (CDC 2020). Those who were younger tended to have higher BMI (overweight or obese) than their older peers ($p < .05$), as shown in table 2. Twenty percent of participants reported losing some weight. Those who were classified as obese lost significantly more weight than their peers with lower BMI ($p < .05$), as shown in table 3. Participants lost about 4.2 pounds ($n = 135$, $SD = 4.2$) on average.

Using analysis of variance, results show that participants who were overweight or obese at the end of the study reported losing approximately 2.35 pounds on average over the course of the study. Overall, about 50% of the participants in each age-group reported improvements in their heart disease, diabetes, or arthritis condition. Nevertheless, no statistically significant association was detected among these variables.

Because younger participants tended to have higher BMI, weight loss was most common in that group, and the difference between those aged 60–74 to those aged 74 and older was statistically significant ($p < .05$). In addition, those who were in the higher BMI category (obese) rated their ability to stand up ($p < .05$) and walk ($p < .05$) without assistance after the program at a statistically higher level than those in lower BMI categories. Participants who were classified

Table 2. Age-Group (%) and Body Mass Index ($n = 470$)

Body Mass Index	Age-Group			
	60–69 ^a	70–74	74–79	≥80
Normal	24.30	22.90	22.90	30.00
Overweight	30.60	24.40	23.90	21.10
Obese	37.30	29.30	18.70	14.70

^a Age categories were combined for statistical analysis purposes.

Table 3. Weight Loss (%) and Body Mass Index ($n = 456$)

Body Mass Index	Was Weight Lost?	
	Yes	No
Normal	17.50	82.50
Overweight	14.90	85.10
Obese	28.30	71.70

as obese rated their overall health as improved after the program more often than those were overweight or normal weight ($p < .05$). Furthermore, younger participants reported improvement in their overall strength after starting the program at higher rates than older participants, as shown in table 4. The difference among age-groups was statistically significant ($p < .001$).

Mental and Social Health

Although primarily focused on physical health outcomes, the questionnaire included some questions related to mental and social health. More than 90% of participants in each age-group reported that the program helped “lift their spirits” or put them in a “better mood.” Although the difference among the age-groups was not statistically significant, those who were in their seventies reported the highest (94.9%) level of perceived improvement in their mental health.

To further understand outcomes that went beyond physical health, the questionnaire concluded with an open-ended prompt that elicited relevant results. Sixty-one percent ($n = 327$) of participants responded to the open-ended prompt, with responses that ranged from a single word to 96 words and an average length of 12.6 words. Coding those responses revealed that the most commonly reported results centered around socialization—that is, having opportunities to interact with others. The open-ended responses also offer evidence of ways that the physical, mental, and social health domains overlap in how many participants characterized their experiences

Table 4. Overall Strength Improvement (%) and Age-Group

Age-Group	Overall Strength	
	No Change	Better
60–69	10.50	89.50
70–74	22.40	77.60
74–79	19.40	80.60
≥80	31.40	68.60

in the program. Finally, results show how experiences of socializing shaped participants' perceptions of the public library itself. The words of the participants carry important meaning and are worth quoting directly.

As participants commented on the benefits of socialization, they highlighted the value of having a space where they could meet and mingle with others in similar situations. One wrote, "I did not want a program with individuals more physically fit than me!" Another stated that it was "nice to be with other people also interested in keeping themselves [as] flexible and fit as possible. Good alternative to gyms for older people." A third wrote that a positive benefit was "knowing other people have physical issues also." A fourth wrote, "We shared coffee and fellowship each week, which added to the fun of being here twice a week. We shared a lot of laughs, so hopefully others shared such fun." A fifth wrote that a key benefit was "making new friends! :)" (emoji in original).

In addition to finding new friends, respondents reported that, for them, the social benefits overlapped with other health outcomes. One participant wrote that the program "really helped my depression and attitude about living. Thankful that the library offered it." Another wrote, "I feel Geri-Fit has helped me psychologically. I enjoy socializing while exercising." The routine of the program, offered twice a week at the library, seems to have had a large influence on some. One participant wrote that the "routine of coming gets me motivated to start the day." Another wrote that outcomes for them included "thinking positive. Enjoying others. Willing to try again and again." Connecting the mental, the physical, and the social, one participant wrote, "It was a social time as well as physical exercise time. We all need each other as well as a physical time for our bodies!"

Situating Fitness in the Library

In addition to socializing with others, participants also reported increased awareness of what the library has to offer and a new perspective on the library as a community space. One participant wrote that a benefit was "meeting new people and finding out [about] more programs at the library." Another wrote that a benefit was "good community building. Increased activity in the library." A third wrote that a positive benefit of the program was that "I really enjoy seeing the library being used," implying that the program brought vitality to the library space.

Some participants used the program as a type of "information ground," a space in which information is organically shared among individuals gathered for purposes not centered around information exchange (Fisher and Naumer 2006). A respondent wrote that they "made new friends [and got] New ideas." One of the public library partners also participated in HEAL (Healthy Eating and Active Living) at the Library, an Institute of Museum and Library Services–funded project. A library director interviewed in the course of that project shared that she had hosted the Geri-Fit program at her library. She noted that she was nearing retirement and attended every class offered at her library. She stated that participants shared information throughout the classes,

and one participant in particular, a retired dietician, regularly shared nutrition tips and suggestions for how to stay active, including information about free weekly yoga classes at a local church. The library director stated, “We did a lot of exchanging information about that kind of thing. . . . [The participants] started forming relationships based on that. They didn’t necessarily know each other before the class but through the class, they got to know [each other and they got to know] about other exercise opportunities.”

Discussion

Public Libraries and Aging in Place

This research found that participants were generally appreciative of the opportunity to engage in a structured strength-training program offered twice a week at their public library. By bringing together older adults on a regular basis, participants in this program got to know each other and build trust, which resulted in them organically sharing information and social support. Additional work could build on these results and further examine how relationships develop among participants in recurring programming offered in public libraries for those endeavoring to age in place (Prigoda and McKenzie 2007).

Developing a more thorough understanding of how individuals make a program like this one “theirs” could inform future program design and delivery. This need connects to previous literature on the public library as a place that supports social capital (Fisher et al. 2004; Varheim 2014). Past studies suggest that social capital in public libraries emerges in part through the programming that libraries offer (Johnson 2012, 58), but the relationships among public library programming, the public library as a shared place, and social capital formation remain poorly understood. How public library programming contributes both to social capital and to the perception of the library as a shared community space deserves further study.

Additional work is needed to better understand not just how public libraries fit into the infrastructure that supports aging in place but also their unique contributions to this infrastructure, particularly in small and rural communities. It could be that what sets public libraries apart from other spaces like senior centers (where they exist) is the fact that they are open to all ages—a conclusion that Klinenberg (2018) discusses in his work on public libraries and aging in place (134).

We need to better identify, understand, and support the work that libraries are doing to assert and exploit their critical place in community infrastructure with respect to aging in place. Those older adults serving organizations outside of libraries increasingly look to libraries as partners in support of healthy aging (Matz-Costa et al. 2019; NCOA 2020). By more closely examining programs and partnerships like the one at the center of this study, we can develop a body of knowledge that demonstrates the value of public libraries in communities and the many ways they serve as unique and trusted resources for individuals aging in place. Dalmer (2017) suggests that this role could be developed through the hiring of specialized public library staff focused on aging. In small and rural communities, this need may instead be addressed through innovative partnerships such

as this one, supplemented by master's degree-level and continuing education on the importance of understanding aging communities in small and rural contexts. More work is needed to create the support infrastructure required for these types of programs and partnerships. Additional research is also needed on the roles that public libraries and librarians can and do play in local and national plans and policies for aging in place.

Generally, research on public libraries and aging needs to move beyond studies of what libraries offer, or could offer, to include studies of how library workers conceptualize aging and older adulthood in their communities and how those conceptualizations influence the types and variety of programs offered to that demographic. Anecdotally, we heard that the librarians who administered the survey for this study faced a number of challenges, including learning how to set up spaces for fitness classes that did not have live instructors in the room. An added challenge was that for some librarians, this was their first foray into programming for older adults. Future research needs to analyze how public library programming for aging in place emerges, particularly in small and rural communities.

Health Impacts of Library Services

Past research on what is needed to help older adults stay strong and physically fit as they age examines some of the many factors that contribute to successful interventions (Casteel et al. 2013; Tzeng et al. 2019). Some work suggests these interventions, particularly in rural communities, embrace a "holistic view of health" (Bacsu et al. 2014, 328), but exactly what that holistic approach looks like in practice remains underanalyzed. This study adds to that body of literature with the finding that outcomes of public library health programming are multifaceted and interconnected in ways that encompass physical, mental, and social dimensions. The open-ended comments offered by participants in the Geri-Fit programs support this conclusion. Participants characterized their experiences in ways that suggest health outcomes overlapped and were interdependent. Additional work is needed to rigorously and statistically test the premise that successful healthy-aging interventions could be structured such that these three components of health are addressed and supported through programming in public libraries that affirms the ways they are interconnected.

At the same time, the study shows that, as it relates to physical health, the benefits of a program such as this one may be especially marked for specific types of individuals. In particular, "younger" older adults, below the age of 80, who have high BMI may be more likely than other participants to experience greater or more significant physical benefits from this type of program.

Conclusion

This study seeks to raise awareness of a number of blind spots in our collective understanding of public libraries in contemporary society—blind spots that need to be more directly addressed in

future research. Although it is known that public librarians increasingly offer services for older adults who are aging in place, the design considerations and the outcomes of those efforts remain poorly understood. We know that public libraries are unique and valued community spaces for those aging in place, but more needs to be understood about how the space of the public library fits into the overall infrastructure of aging in place, particularly in small and rural communities. The general conclusion of this study is that there is strong evidence that many individuals aging in place in small and rural communities look to their public libraries for information and programming. We need to do much more to understand how public libraries and librarians support aging in place and the effectiveness of those efforts from the points of view of both the library and the program participants. The knowledge gained will help identify how library and information science education and scholarship can support librarians in their efforts.

COVID-19 Addendum

In February 2020, an informal poll of the librarians who participated in this study revealed that 76% continued to offer Geri-Fit at their libraries. A month later, the COVID-19 pandemic affected communities across the United States. Geri-Fit created a virtual platform to try to continue to engage older adults in the program from private homes, but the platform was asynchronous and anonymous, with none of the social dimensions present. Email exchanges with some librarians suggested that they attempted to support older adults using the virtual platform, but how, or if, older adults remained engaged in the program following the shift to the virtual is unknown. As public libraries reopen and rebuild from the COVID-19 pandemic, a major challenge will be reconnecting with older adults who have been cut off from a vital support for social, mental, and physical health.

Appendix

Questionnaire

Survey results are anonymous.

City and state where you participated in Geri-Fit: _____

Your Age _____ Height _____ Weight _____ Male Female

1. How many weeks have you taken Geri-Fit? 4 weeks 8 weeks 12 weeks
2. Have you had a hip or knee replacement in the past 5 years? Yes No
3. Do you use a cane, walker, or wheel chair to get around? Yes No
4. Since starting Geri-Fit, my mobility Improved Did not improve Is the same
5. Do you have heart disease? Yes No
6. Do you have diabetes? Yes No
7. Do you have arthritis? Yes No
8. If you answered yes to any of the questions above, would you say that any of these conditions have improved since starting Geri-Fit? Yes No

9. Did Geri-Fit help lift your spirits or put you in a better mood? Yes No
10. Did you lose any weight while enrolled in the Geri-Fit program? Yes No
11. If yes, how much weight did you lose? _____
12. How many of the 24 classes did you attend at the library? _____
13. If you missed any classes that were held at the library, did you make them up by exercising at home? Yes No
14. If yes, how many classes did you make up at home? _____
15. If you exercised at home, did you use the handouts so that you'd remember how to do the exercises and stretches? Yes No
16. Did you find the handouts were: Useful Not useful Non-Applicable
17. Are you able to raise your arms overhead better than when you first started in the Geri-Fit program? Yes No
18. Since you started Geri-Fit, how would you rate your overall health?
 Gotten better Stayed the same Gotten worse
19. How would you rate your overall strength?
 Gotten better Stayed the same Gotten worse
20. How would you rate your balance?
 Gotten better Stayed the same Gotten worse
21. How would you rate your ability to stand up without assistance?
 Gotten better Stayed the same Gotten worse
22. How would you rate your ability to walk without assistance?
 Gotten better Stayed the same Gotten worse
23. How would you rate your ability to walk up and down stairs?
 Gotten better Stayed the same Gotten worse
24. In terms of generalized well being, how do you feel?
 Better Same Worse
25. How would you rate your energy level?
 Gotten better Stayed the same Gotten worse
26. Would you say your physical activity level has . . .
 Gotten Better Stayed the same Gotten worse
27. Besides doing the exercises in this study, did you do any other forms of exercise?
 Yes No If yes, please explain what you did/do: _____
28. Since you've started Geri-Fit, would you say your fear of falling down has:
 Lessened Increased Stayed the same
29. If offered, do you plan on continuing Geri-Fit DVD Fitness? Yes No
30. If no, why:
31. Would you recommend the Geri-Fit program to your friends and family members?
 Yes No

32. We'd like to know of any other positive results you have seen since taking Geri-Fit: Please hand in the completed survey and Thank You for your participation!

References

- Aabø, Svanhild, Ragnar Audunson, and Andreas Vårheim. 2010. "How Do Public Libraries Function as Meeting Places?" *Library and Information Science Research* 32 (1): 16–26.
- Administration for Community Living. 2021. *2021 Empowering Communities to Address Behavioral Health and Chronic Pain through Chronic Disease Self-Management Education Programs*. <https://www.grants.gov/web/grants/view-opportunity.html?oppId=329787>.
- Bacsu, Juanita, Bonnie Jeffery, Sylvia Abonyi, Shanthi Johnson, Nuelle Novik, Diane Martz, and Sarah Oosman. 2014. "Healthy Aging in Place: Perception of Rural Older Adults." *Educational Gerontology* 40 (5): 327–37.
- Bennett-Kapusniak, Renee. 2013. "Older Adults and the Public Library: The Impact of the Boomer Generation." *Public Library Quarterly* 32 (3): 204–22.
- Bosch, Jean. 2019. "Program Model: Get Fit with Geri-Fit." *Programming Librarian*, May 2. <https://programminglibrarian.org/programs/get-fit-geri-fit>.
- Brewer, Wayne, Mindy A. Patterson, and Christopher T. Ray. 2018. "Health and Wellness Programs for Older Adults." In *Handbook of Rehabilitation in Older Adults*, edited by Robert J. Gatchel, Izabela Z. Schultz, and Christopher Ray. Cham: Springer.
- Brim, Brianna, Stacy Fromhold, and Shannon Blaney. 2021. "Older Adults' Self-Reported Barriers to Aging in Place." *Journal of Applied Gerontology*. <https://doi.org/10.1177/0733464820988800>.
- Buckner, Stefanie, Calum Mattocks, Melanie Rimmer, and Louise Lafortune. 2018. "An Evaluation Tool for Age-Friendly and Dementia Friendly Communities." *Work Older People* 22 (1): 48–58.
- Campbell, Janis, Omolara Henley, Lee Jennings, Keith Kleszynski, and Dorothea Vafiadis. 2020. "Oklahoma Healthy Aging Initiative: A Rural Falls Prevention Program for Older Adults." Presented at Age + Action Virtual Conference, National Council on Aging, June 9. <https://ncoa.elevate.commpartners.com/products/oklahoma-healthy-aging-initiative-a-rural-falls-prevention-program-for-older-adults>.
- Casteel, Carri, Maryalice Nocera, and Carol W. Runyan. 2013. "Health Promotion and Physical Activity Programs in Senior Centers." *Activities, Adaptation and Aging* 37 (3): 213–23.
- Cavanagh, Mary F., and Wendy Robbins. 2012. "Baby Boomers, Their Elders, and the Public Library." *Library Review* 61 (8/9): 622–40.
- CDC (Centers for Disease Control and Prevention). 2009. "Healthy Places Terminology." <https://www.cdc.gov/healthyplaces/terminology.htm>.
- CDC (Centers for Disease Control and Prevention). 2010. "CDC Promotes Public Health Approach to Address Depression among Older Adults." https://www.cdc.gov/aging/pdf/cib_mental_health.pdf.
- CDC (Centers for Disease Control and Prevention). 2020. "Body Mass Index (BMI)." <https://www.cdc.gov/healthyweight/assessing/bmi/index.html>.
- Charbonneau, Deborah H. 2014. "Public Library Websites and Adherence to Senior-Friendly Guidelines." *Public Library Quarterly* 33 (2): 121–30.
- Cline, Dawn, and Madeline Jarvis. 2019. "From Movies to Meals: Senior Services and Spaces at Your Local Library." Webinar presented by Network of the National Library of Medicine, Bethesda, MD, January 23. <https://nnlm.gov/class/from-movies-to-meals>.
- Dalmer, Nicole, Meridith Griffin, Kaitlin Wynia Baluk, and James Gillett. 2020. "Aging in (Third) Place with Public Libraries." *Public Libraries* 59 (4): 22–30.

- Dalmer, Nicole K. 2017. "Mind the Gap: Towards the Integration of Critical Gerontology in Public Library Praxis." *Journal of Critical Library and Information Studies* 1 (1): 1–23. <https://ir.lib.uwo.ca/fimspub/136/>.
- Decker, Emy Nelson. 2010. "Baby Boomers and the United States Public Library System." *Library Hi Tech* 28 (4): 605–16.
- Farber, Nicholas, Douglas Shinkle, Jana Lynott, Wendy Fox-Grage, and Rodney Harrell. 2011. "Aging in Place: A State Survey of Livability Policies and Practices." *Research Report by the National Conference of State Legislatures and the AARP Public Policy Institute*. December 2011. <https://assets.aarp.org/rgcenter/ppi/liv-com/aging-in-place-2011-full.pdf>.
- Fisher, Francesca, Noah Lenstra, and Jean Van Ryzin. 2020. "Partnering with Public Libraries to Offer Physical Activity Programs for Older Adults." Presented at Age + Action Virtual Conference, National Council on Aging, June 9. https://ncoa.elevate.commpartners.com/products/partnering-with-public-libraries-to-offer-physical-activity-programs-for-older-adults?packages%5B%5D=42016&in_package=42016&sort_by=package_order&ref=package&ref_id=42016%20/#tab-product_tab_overview.
- Fisher, Karen E., Joan C. Durrance, and Marian Bouch Hinton. 2004. "Information Grounds and the Use of Need-Based Services by Immigrants in Queens, New York: A Context-Based, Outcome Evaluation Approach." *Journal of the American Society for Information Science and Technology* 55 (8): 754–66.
- Fisher, Karen E., and Charles Naumer. 2006. "Information Grounds: Theoretical Basis and Empirical Findings on Information Flow in Social Settings." In *New Directions in Human Information Behavior*, 93–111.
- Geri-Fit. 2021. "Products, Courses, DVDs and e-Workouts Designed for the Senior Population!" https://www.geri-fit.com/store/storeitems_v.asp.
- Goble, Daniel J., Mason C. Hearn, and Harsimran S. Baweja. 2017. "Combination of BTrackS and Geri-Fit as a Targeted Approach for Assessing and Reducing the Postural Sway of Older Adults with High Fall Risk." *Clinical Interventions in Aging* 12:351–57.
- Holton, Judith A. 2007. "The Coding Process and Its Challenges." In *The Sage Handbook of Grounded Theory*, edited by Antony Bryant and Kathy Charmaz. Thousand Oaks, CA: Sage.
- Hughes, Cynthia. 2017. "Rural Libraries Services for Older Adults: A Nationwide Survey." *Public Library Quarterly* 36 (1): 43–60.
- IMLS (Institute of Museum and Library Services). 2020. *Public Libraries in the United States: Fiscal Year 2017 Report*. Vol. 1. Washington, DC: Institute of Museum and Library Services. <https://www.ims.gov/publications/public-libraries-united-states-survey-fiscal-year-2017-volume-1>.
- Johnson, Catherine A. 2012. "How Do Public Libraries Create Social Capital? An Analysis of Interactions between Library Staff and Patrons." *Library and Information Science Research* 34 (1): 52–62.
- Johnson, Catherine A., and Matthew R. Griffis. 2014. "The Effect of Public Library Use on the Social Capital of Rural Communities." *Journal of Librarianship and Information Science* 46 (3): 179–90.
- Klinenberg, Eric. 2018. *Palaces for the People: How Social Infrastructure Can Help Fight Inequality, Polarization, and the Decline of Civic Life*. New York: Crown.
- Landgraf, Greg. 2016. "An Aging Population Reshapes Library Services." *American Libraries Magazine*. May 31. <https://americanlibrariesmagazine.org/2016/05/31/aging-population-reshapes-library-services/>.
- Lau, Christy, and Michelle Mai. 2020. "Many Hands for Senior Health: How the Paramedics, a Non-Profit, a Hospital, and the Public Library Started a Movement." Presented at Age + Action Virtual Conference, National Council on Aging, June 9. <https://ncoa.elevate.commpartners.com/products/many-hands-for-senior-health-how-the-paramedics-a-non-profit-a-hospital-and-the-public-library-started-a-movement%20>.
- Lenstra, Noah, Fatih Oguz, and Courtney S. Duvall. 2020. "Library Services to an Aging Population: A Nationwide Study in the United States." *Journal of Librarianship and Information Science* 52 (3): 738–48.

- Liu-Ambrose, Teresa, Janice J. Eng, Lara A. Boyd, Claudia Jacova, Jennifer C. Davis, Stirling Bryan, Philip Lee, Penny Brasher, and Ging-Yuek R. Hsiung. 2010. "Promotion of the Mind through Exercise (PROMoTE): A Proof-of-Concept Randomized Controlled Trial of Aerobic Exercise Training in Older Adults with Vascular Cognitive Impairment." *BMC Neurology* 10 (14). <https://doi.org/10.1186/1471-2377-10-14>.
- Lo, Patrick P.C., Minying He, and Yan Liu. 2019. "Social Inclusion and Social Capital of the Shanghai Library as a Community Place for Self-Improvement." *Library Hi Tech* 37 (2): 197–218.
- Matz-Costa, Christina, Elizabeth P. Howard, Carmen Castaneda-Sceppa, Antonia Diaz-Valdes Iriarte, and Margie E. Lachman. 2019. "Peer-Based Strategies to Support Physical Activity Interventions for Older Adults: A Typography, Conceptual Framework, and Practice Guidelines." *Gerontologist* 59 (6): 1007–16.
- NCOA (National Council on Aging). 2020. *Age + Action 2020 Virtual Conference Agenda*. <https://ncoa.elevate.commpartners.com/>.
- NIA (National Institute on Aging). 2018. *Partnering with Public Libraries to Offer Exercise Activities for Older Adults Toolkit*. <https://web.archive.org/web/20210109013428/https://www.nia.nih.gov/health/partnering-public-libraries-offer-exercise-activities-older-adults-toolkit>.
- National Institutes of Health. 2020. "Your Healthiest Self: Wellness Toolkits." <https://www.nih.gov/health-information/your-healthiest-self-wellness-toolkits>.
- OCLC and American Library Association. 2018. *From Awareness to Funding: Voter Perceptions and Support of Public Libraries in 2018*. https://www.oclc.org/content/dam/oclc/reports/awareness-to-funding-2018/2018_From_Awareness_to_Funding_Report.pdf.
- O'Rourke, Hannah M., Laura Collins, and Souraya Sidani. 2018. "Interventions to Address Social Connectedness and Loneliness for Older Adults: A Scoping Review." *BMC Geriatrics* 18 (1): 1–13.
- Perry, Claudia A. 2014. "Information Services to Older Adults: Initial Findings from a Survey of Suburban Libraries." *Library Quarterly* 84 (3): 348–86.
- Prigoda, Elena, and Pamela J. McKenzie. 2007. "Purls of Wisdom: A Collectivist Study of Human Information Behaviour in a Public Library Knitting Group." *Journal of Documentation* 63 (1): 90–114.
- Rosenwohl-Mack, Amy, Karen Schumacher, Min-Lin Fang, and Yoshimi Fukuoka. 2020. "A New Conceptual Model of Experiences of Aging in Place in the United States: Results of a Systematic Review and Meta-ethnography of Qualitative Studies." *International Journal of Nursing Studies* 103:103496. <https://doi.org/10.1016/j.ijnurstu.2019.103496>.
- Sabo, Robin M. 2017. "Lifelong Learning and Library Programming for Third Agers." *Library Review* 66 (1/2): 39–48.
- Shi, Yanxia, and Lili Luo. 2020. "Meeting Chinese Older Adults' Health Information Needs: The Role of Public Libraries." *Library Quarterly* 90 (3): 332–48.
- Sikes, Scott. 2020. "Rural Public Library Outreach Services and Elder Users: A Case Study of the Washington County (VA) Public Library." *Public Library Quarterly* 39 (4): 363–88.
- Tzeng, Huey-Ming, Udoka Okpalauwaekwe, and Chang-Yi Yin. 2019. "Older Adults' Suggestions to Engage Other Older Adults in Health and Healthcare: A Qualitative Study Conducted in Western Canada." *Patient Preference and Adherence* 13:331–37.
- US Census Bureau. 2019. "American Community Survey 5-Year Data (2009–2019)." <https://www.census.gov/data/developers/data-sets/acs-5year.html>.
- Vårheim, Andreas. 2014. "Trust in Libraries and Trust in Most People: Social Capital Creation in the Public Library." *Library Quarterly* 84 (3): 258–77.
- Wiegand, Wayne A. 2015. *Part of Our Lives: A People's History of the American Public Library*. Oxford: Oxford University Press.

- World Health Organization. 2017. "Mental Health of Older Adults." December 12. <https://www.who.int/news-room/fact-sheets/detail/mental-health-of-older-adults>.
- Wynia Baluk, Kaitlin, Scott McQuire, James Gillett, and Danielle Wyatt. 2020. "Aging in a Digital Society: Exploring How Canadian and Australian Public Library Systems Program for Older Adults." *Public Library Quarterly*. <https://www.tandfonline.com/doi/full/10.1080/01616846.2020.1811612>.
- Xie, Bo, and Julia M. Bugg. 2009. "Public Library Computer Training for Older Adults to Access High-Quality Internet Health Information." *Library and Information Science Research* 31 (3): 155–62.
-

Noah Lenstra: assistant professor of library and information science, University of North Carolina at Greensboro. Lenstra started Let's Move in Libraries in 2016 at the University of North Carolina at Greensboro, where he holds an affiliated faculty role in the gerontology program. His research focuses on community engagement and community partnerships in public libraries, particularly around health, digital inclusion, and aging in place. He is currently the primary investigator of the Institute of Museum and Library Services–funded HEAL (Healthy Eating and Active Living) at the Library project (RE-246336-OLS-20), and he serves on the partnerships committee of the Association for Rural and Small Libraries. He earned his PhD in library and information science from the University of Illinois. Email: njlenstr@uncg.edu.

Fatih Oguz: associate professor of library and information science, University of North Carolina at Greensboro. Oguz received his PhD at the University of North Texas. His research focuses on the interactions between people and technology, with an emphasis on the impact of information technologies on human communication behavior and social life. Email: F_OGUZ@uncg.edu.

Christine D'Arpa: assistant professor of information sciences, School of Information Sciences, Wayne State University (Detroit). D'Arpa earned her master of science degree in library and information science and her PhD from the iSchool at Illinois. Her research focuses on the history of libraries, the role of the federal government in information provision, and public libraries and community engagement. Email: Christine.DArpa@wayne.edu.

Lindsey S. Wilson: web designer and web services specialist. Wilson is a recent graduate of the master's degree program in library and information science at the University of North Carolina at Greensboro. Her areas of interest are web services, user experience, programming, and data analysis and visualization. She has supported several research projects on adult programming and active living programs for older adults, and she has examined the diffusion of virtual programming efforts that arose as a result of the COVID-19 pandemic. She is currently working as a web designer and web services specialist at Appalachian State University in Boone, North Carolina. Email: lgswilson@gmail.com.