

authors wanted to know what health resources are of interest to the community, what patrons' perceptions of their experience at the center are, and finally, how staff can increase utilization of the center. In general, perceptions of the center were positive. The findings support that participants appreciate efforts to provide health information in the public library setting and that utilization could be improved through marketing and outreach.

Problems with health literacy—one's ability to obtain, process, and understand basic information and services needed to make appropriate health decisions [1, 2]—significantly limit effective dissemination and understanding of relevant health information, especially among racial and ethnic minorities where health literacy challenges are pervasive [3–5]. People with limited health literacy skills have higher medical costs and use an inefficient mix of medical services [3, 6–13]. This compromises their health and is a major source of economic inefficiency in the US health care system. Efforts to address low health literacy may result in reductions of health inequities, decreased medical costs, and enhanced quality of life [14]. However, efforts to promote health literacy that seek to empower individuals to understand health information and act in their own interest remain an underexplored pathway to improved health outcomes [9].

The National Network of Libraries of Medicine (NN/LM) encourages libraries to reach out to low literacy groups in their surrounding communities to address literacy challenges [15–17]. These actions have resulted in development of consumer health libraries, centers where patrons can get accurate and timely health information. Preliminary investigations of consumer health libraries have reinforced the value of these services [18, 19], but there is little information regarding the provision of similar services in other public settings.

The Healthy Living and Learning Center (HLLC), located in a public library in Petersburg, Virginia, was established in 2012 to provide one-on-one assistance in accessing health information and community resources. According to 2010–2013 census data, 25% of Petersburg residents are below the poverty line [20]. Localities surrounding the HLLC experience some of the most unfavorable health outcomes in

Community perceptions and utilization of a consumer health center*



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The purpose of this study was to understand factors that may affect the usage of a consumer health center located in a public library. More specifically, the

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A supplemental appendix is available with the online version of this journal.

Virginia [21]. In addition, 16%–24% of citizens in the surrounding localities are illiterate [22].

The public library setting provides an appropriate context to initiate consumer health centers outside of medical settings. Librarians are already being asked to meet consumer demands for health information [15–17], and the provision of accurate health information is a natural extension of the services that public libraries provide. The American Library Association reports that 62% of libraries report that they are the only source of free public access to computers and the Internet in their communities [23]. According to a recent study from Pew, 35% of Americans 16 and older say they have used free Internet access points, 47% of whom have used these services to get health information [24]. For a number of minorities, the public library is the only place they have Internet access [25]. Thus, libraries not only remain a critical resource among the public, but may also have unique access to populations who are more vulnerable to health inequities.

OVERVIEW OF THE HEALTHY LIVING AND LEARNING CENTER

The HLLC is a collaborative effort between Virginia Commonwealth University's (VCU's) Massey Cancer Center, the Petersburg Library, and Petersburg Health Department. The HLLC is located in an open room in the public library and consists of a desk with computer, bookshelves, and various health displays. Supplies have been purchased through various grant monies. The HLLC is open twenty hours a week. During those times, a team member who has been trained in and certified by the Medical Library Association's Consumer Health Information Specialization program oversees the HLLC and assists patrons with health information requests. The HLLC also has a mobile unit consisting of a computer tablet, signs, books, and handouts, whereby HLLC staff can bring the "center" to various community events.

All HLLC activities focus on providing up-to-date and accurate health information in an environment that is easy to access, comfortable, and without cost to the citizen. HLLC staff perform searches from reputable health sites for patrons, while connecting them with appropriate community resources. For example, a patron may come in asking for information about breast cancer, and she may be referred to a community breast cancer support group. Books written at a layperson's level provide more in-depth information, and patrons can check out videos or stream them online. The HLLC also provides informational pamphlets, handouts, and posters related to key health issues that patrons may take even when the HLLC is closed.

STUDY OBJECTIVES

Because the HLLC is new, it might not be fully utilized by the community. Moreover, evidence of adequate utilization and satisfaction is needed to

garner support for similar health programs [26]. Thus, a formative study was conducted to explore factors that may affect usage of the HLLC. This research had the following objectives: (1) understand what resources community members use and want access to, (2) improve services provided based on patrons' perceptions, and (3) identify ways to increase community utilization of the HLLC.

METHODS

Study design

The authors relied on the triangulation of qualitative and quantitative data from multiple sources to understand consumer preferences for health information sources [27–29], with emphasis given to perceived benefits of and barriers to using the HLLC. Data were collected from August 2012 (when HLLC opened) through August 2013. Survey materials were adapted from a previous study of utilization and satisfaction with a community health education center located inside a university-affiliated hospital [18]. Questions were expounded and adjusted to make them appropriate to the public library setting. Only English-speaking adults over the age of eighteen years were eligible to participate. Several survey instruments were used and are provided in the online only appendix. The study procedures were exempt from VCU's Institutional Review Board.

Materials and procedures

Nonuser survey. HLLC staff conducted two-minute, structured interviews with "nonusers," who were patrons of the library but did not visit the HLLC. The interviewers completed short, paper-and-pencil interview records. If the interviewees were unaware of the HLLC, they were provided a brief description of the center.

Healthy Living and Learning Center user-tracking data. Services provided to patrons of the HLLC, including the type and frequency of health information and resources received, are tracked daily. After a patron is helped, HLLC staff record the interaction via an online survey platform (Qualtrics). Recorded information includes approximate age, sex, topics of interest, resources used, and whom the information was for. During community events using the mobile unit, HLLC staff track their interactions with individuals. Individualized health information provided to someone at an outreach event is entered into the user tracking system.

User follow-up survey. Patrons of the HLLC were asked to participate in a brief interview regarding their utilization of and satisfaction with the HLLC. After consenting to participate in the follow-up interview, participants were given the option to complete the form online or have a librarian read them the questions.

Data analysis

Survey responses were validated for data integrity and reported in aggregate form. Closed-ended responses were entered into the Statistical Package for Social Sciences (SPSS21). Descriptive analyses were conducted to determine the frequency of categorical data. Mean and range of possible responses were reported when the survey responses were continuous. Open-ended questions were coded and analyzed according to grand thematic areas by the primary author (Ports).

RESULTS

Nonuser survey

Ninety-three brief intercept interviews were completed with nonusers of the HLLC; only 18 respondents (19.4%) were familiar with the HLLC. When asked, nonusers mostly said they thought the HLLC would provide health information but did not guess it would offer referrals to community resources. Nonusers offered a variety of suggestions about how the HLLC could be advertised.

Nonusers indicated that they would use the HLLC in the future ($M=6.30$, $SD=2.72$) and would refer a family member or friend to use the HLLC (94%; $M=7.92$, $SD=2.07$). Scale anchors ranged from 1 to 10, with higher scores reflecting more positive perceptions. Those who reported lower scores tended to explain that they did not live in Petersburg and, thus, would not likely use the HLLC again. Most respondents ($n=63$, 74%) indicated that knowing that the HLLC was located in the library made them feel more positively about the library.

User tracking data

Over 12 months, 112 HLLC patron interactions were documented in the "user" tracking system: 93 (83%) visited the HLLC at the library, and 19 (17%) received assistance during outreach events. From April to August 2013, HLLC staff participated in numerous outreach events and interacted with at least 1,354 community members. During these events, approximately 100 people used the tablet with HLLC staff to address their health-related questions or concerns, but only 19 ($n=19\%$) were entered into the user tracking system.

Of the 112 documented users of the HLLC, approximately 65% ($n=71$) were female and 50% ($n=55$) were over the age of 55 years. Center users were aware of the HLLC through various sources and requested information about various topics (Table 1). Approximately half of HLLC users ($n=57$, 51%) were referred to additional health resources available in the community. Referred community resources included Virginia Department of Health programs, support groups, health care providers, yoga classes, research programs, cancer screening programs, and the HLLC's monthly health events.

Table 1
Description of patron interactions at the Healthy Living and Learning Center

	Percent	n
Patrons knew about the center through:		
(They) walked by*	46.4%	52
Librarian referral*	17.0%	19
Referral from other community program*	12.5%	14
Attended a center outreach event*	11.6%	13
Other/unknown*	12.5%	14
Patrons' information requests by topic		
Diet and nutrition*	11.6%	13
Cancer*	9.0%	10
Medication and supplements*	9.0%	10
Heart disease*	7.1%	8
Diabetes*	6.3%	7
Sexual health*	5.3%	6
Mental health*	5.3%	6
Patrons sought information for:		
Themselves*	63.4%	71
A family member*	13.4%	15
Work/school*	9.8%	11
A friend*	6.3%	7
Other/unknown*	7.1%	8
Resources used to address patrons' questions		
MedlinePlus*	54.5%	61
Brochures, pamphlets, flyers*	46.4%	52
Books*	25.9%	29
Other online resources*	17.0%	19
Patrons used or will use information to:		
Learn about a health or wellness issue†	44.4%	8
Change/consider changing behavior†	27.8%	5
Inform a friend/family member†	27.9%	5
Talk with their doctor and make decisions about treatment options†	22.2%	4

* Data reported are from user tracking system ($n=112$).

† Data reported are from user follow-up survey ($n=18$).

User follow-up information

Of the 93 in-center HLLC users, 18 participated in a user follow-up survey. Scale anchors ranged from 1 to 5, with higher scores indicating a more positive perception. Almost all participants were very satisfied ($n=13$, 72%) or satisfied ($n=4$, 22%) with the information they received from the HLLC ($M=4.76$, $SD=0.44$). In addition, the majority of participants were very satisfied ($n=14$, 78%) or satisfied ($n=3$, 17%) with their interactions with HLLC staff ($M=4.82$, $SD=0.39$). The majority of participants ($n=15$, 83%) indicated that they would be very likely to use the HLLC in the future ($M=4.94$, $SD=0.25$). Many participants ($n=15$, 83%) also indicated that they were very likely to tell a friend or family member to use the HLLC ($M=4.4.71$, $SD=0.99$). Table 1 provides a description of how patrons used or intended to use the information they acquired during their interaction.

Ten (56%) participants indicated that someone at the HLLC provided them with information about additional services outside of the HLLC and that they were likely to use these resources in the future ($M=4.40$, $SD=1.27$). Seven (39%) participants indicated that someone at the HLLC showed them how to access health information on the computer; however, self-efficacy regarding ability to look up health information in the future was varied ($M=2.83$, $SD=1.60$). Com-

ments from participants reflected their appreciation of HLLC service: "I'm glad she looked up the information and gave it to me"; "It was very enlightening and informative"; and "Very helpful."

DISCUSSION

To the authors' knowledge, this is the first study to investigate utilization of a consumer health center in a public library setting. The triangulation of data from various evaluations provides a strong sense of how the HLLC is currently being utilized and how efforts to increase utilization should be targeted. The findings from this study suggest that surveyed community members appreciate efforts to provide health information in the public library setting and are receptive to using and recommending the HLLC to their family and friends. In addition, bringing the mobile unit to community events has proved to be effective at reaching a larger audience than the center alone.

While nonusers could guess that the HLLC provides health information, the name does not suggest that the HLLC could provide links to important resources. Advertisements via various media channels and appropriate signage inside and outside of the library could direct people to the HLLC and make them aware that it is unique from traditional services provided at the library. This strategy is similar to suggestions from previous research regarding consumer health centers in medical settings [18].

After nonusers were informed about the HLLC, most reported that they would recommend the HLLC to their family and friends. Thus, discussing the HLLC's services with community members who do not currently use the HLLC may increase utilization via word-of-mouth. Importantly, nonusers generally reported that they felt more positively about the public library after knowing that it housed the HLLC. Public libraries might consider adopting similar centers to engage their communities and increase positive perceptions, which could lead to an overall increase in library utilization.

Nutrition, cancer, and heart disease were the most common information topics that HLLC patrons requested. This information can provide insight into the community's most pressing health concerns and can be used to direct outreach activities and health displays in the HLLC, which could increase utilization. While most HLLC patrons felt satisfied with their experience at the center, some reported that they were not confident in their abilities to look up information on their own. The HLLC should begin to develop workshops to address this need in the community.

While the data collected from this study are informative, the study is not without limitation. All of the participants were English speaking and were generated from convenience samples. The data may be specific to this context and might not generalize to other locations or to the general population in Petersburg. In addition, the sample size for the follow-up user survey was small. Formative research does not typically involve large sample sizes or measures with established reliability or validity, which further limits generalizability; however,

the triangulation from combining different data sources and types generates a fairly accurate sense of what will work and what was perceived as less effective. Another limitation is the consistency of data collection. At times, the HLLC is understaffed, and data collection might have been limited. For example, 100 people used the tablets during outreach events, but only 19 were tracked in the utilization survey. HLLC staff were responsible for initiating requests to complete surveys, and thus, interview bias is a concern. However, attempts to alleviate interview bias were made and consisted of providing surveys via computer or by librarians who were not affiliated with the HLLC.

It is important to note that while the HLLC is typically staffed for twenty hours, the HLLC is open to the public during normal library hours. Patrons have the ability to take informational flyers and pamphlets at any time, which remains unrecorded. One can assume that patron utilization is generally higher than what is reported here. Future investigations should focus on how to more accurately measure the impact of the HLLC, including satisfaction of services, how services are used, and impact on health outcomes.

CONCLUSION

The information presented in this paper sheds light on health-promotion activities that could be useful in other communities that struggle with low health literacy and poor health outcomes. The findings suggest that the HLLC is positively perceived by the community but may remain underutilized because community members are unaware that the HLLC exists or may be misinformed about what services the HLLC can provide. This suggests that targeted marketing might increase utilization in the second year. In addition, participating in outreach activities could reach a larger audience.

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