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Public Health at the Public Library: Preventive Health Programs Implemented in Large Public Libraries

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Public Health at the Public Library

Amid the opioid epidemic and COVID-19 pandemic, the public sector is consumed with health promotion and disease prevention. Preventive programs serve a significant purpose in ensuring population health and reducing burden on the healthcare system (Cohen et al., 2008; Neumann & Cohen, 2009). People are increasingly turning to educational resources outside of the traditional healthcare sector to ward off diseases or alleviate pre-existing conditions (Eakin et al., 1980; Eng et al., 1998). Public library systems often carry such resources, in print and multimedia form, at no cost. Some libraries are providing health programming to supplement, contextualize, or incentivize the use of such resources (Murray, 2008; National Network of Libraries of Medicine, 2014).

Purpose Statement

This study examines preventive health programming offered in the largest public library systems nationwide.

Research Questions

R1. What preventive public health programs are offered, if any, in public library systems? R2. What is the distribution of programming, if any, between primary, secondary, and tertiary prevention programs?

R3. What major diseases or health conditions are targeted by programs, if any?

Definitions

Major diseases: Diseases that contribute to the highest number of deaths or life-years lost to disability. Examples include heart disease, lung cancer, and stroke (Centers for Disease Control and Prevention, 2018; Institute for Health Metrics and Evaluation & University of Washington, 2018).

Prevention effort levels: Categorization of preventive health. Primary prevention efforts aim to eliminate disease agents or increase resistance. Secondary prevention refers to detection and address of exposures before manifestations of adverse outcomes. Tertiary prevention attempts to mitigate the morbid or mortal consequences of an outcome (Katz & Ali, 2009; Leavell & Clark, 1979).

Public health prevention program: Preventative attempts to reduce exposure to a disease or reduce likelihood or severity of an adverse health outcome. An example would be an anti-smoking marketing campaign to prevent lung cancer (Gordon, 1983; Katz & Ali, 2009).

Webometric: Description and evaluation of the impact of the Internet as a scholarly communication tool, primarily through quantitative analysis of Web-based scholarly and scientific communications. This term is often used synonymously with cybermetric (Reitz, 1996).

Delimitations

This study focuses on the ten largest public library systems in the U.S. as a representative sample of the largest urban library systems nationwide. The findings may not be applicable to American public libraries in general, as more than four-fifths serve populations of less than 25,000 (American Library Association, 2018). This study is limited to data accessible by public library webpages and social media outlets during a search of retrospective programming between January 1 and December 31, 2019. While this search includes marketing on social media platforms (e.g., Twitter, Facebook), no other Internet-based communication outlets (e.g., electronic newsletters, listservs) are considered, as access to these archives are not publicly available for all library systems. Results of this study include

prevention programs that occur off-site with external personnel, but only if the library system or branch is the primary sponsor. Finally, programs with multiple concurrent goals (e.g., health, financial, social) are included as results if preventive health is listed explicitly as a programmatic outcome.

Assumptions

Certain conditions are assumed for the data presented in this study to be accurate and reliable. First, library websites must be a publicly accessible, navigable, current, and reliable outlet of offered health programming. Second, any health programming offered by branches or systems would be accessible to all patrons, or at least a representative sample of the patrons, as part of regular, non-fee-based library services.

Importance

While preventive health information becomes more decentralized and more removed from traditional healthcare environs, the public library remains a major access point for ailing individuals or caregivers. In addition to supplying access to health resources in print and digital mediums, the library can be a ground for facilitating tailored health programming. This study's review of programming may help address how public libraries can address community health needs.

Findings from this review have the potential to assist library administrators and public health practitioners determine if: (a) prospective programming can serve community health needs; (b) existing programming focuses on preventive — as opposed to curative — health strategies; (c) existing programming focuses on appropriate health issues endemic to the area.

LITERATURE REVIEW

With more than 16,000 public library buildings across the country, access to health information has never been more available to the American public (Institute of Museum and Library Services, 2016). Many asynchronous resources have been made on-demand to patrons (Eng et al., 1998), but the challenge has shifted to presenting only unbiased, current, and useful information in a multitude of formats. This need is underscored by a landmark study by the Institute of Medicine that has shown that nearly half

of American adults have difficulty conceptualizing, interpreting, and using information provided by medical institutions and associated agencies (Berkman et al., 2011; Institute of Medicine, 2004). Understandably, health illiteracy is a concern.

The original intent for the public library system was to provide universal access to information and linkages to services that may be previously unknown to the patron, not to inundate the end-user with conflicting or erroneous findings. With myriad print and digital consumer health resources, the modern public library has a responsibility in making this information transparent and understandable, indirectly aiding patrons with complex medical decisions (Eng et al., 1998; Voge, 1998). While ethical librarians should be wary of dispensing individual health advice (American Library Association, 2008) — which can constitute as much as twenty percent of reference inquiries (Gillaspy, 2005) — they are in prime positions to liaison with medical and public health to leverage expert knowledge and teaching (Gillaspy, 2005; Humphreys, 1998; Lasker et al., 1995). In fact, they have done so for decades, whether or not it was acknowledged or recorded (Rubenstein, 2012).

At the end of the twentieth century, various sociopolitical changes led to the increasing primacy of the public library and other publicly funded institutions in delivering consumer health information (Institute of Medicine, 2004; Linnan et al., 2004; Office of Disease Prevention and Health Promotion, 2010). These changes included the transition to digital medical news sources; aging of the large baby boomer generation; complications in the insurance enrollment process and claims processing; and increasing cost and shorter duration of hospital consultations — all of which led to an increase in self-help health resource acquisition (Gillaspy, 2005). The first stop for such information is at the local library branch, traditionally. Unfortunately, quality assessment of health information did not keep pace, and patrons were lax in assessing the true value of such books, media, tools, and seminars (Fox & Fallows, 2003). That said, librarians often emphasize the importance of evaluating efficacy, quality, and safety of health interventions to patrons with such personal inquiries

(Eakin et al., 1980; Gillaspay, 2005).

Partnering with medical librarians, academics, and pharmacists has been the next step as public librarians seek deeper consumer health training (Eakin et al., 1980; Linnan et al., 2004). Public library systems have worked with the National Network of Libraries of Medicine (NNLM) and the Consumer and Patient Health Information Section (CAPHIS) of the Medical Library Association. Technical resources such as *Natural Medicines Comprehensive Database*, *Physicians' Desk Reference*, *Medline Plus* (Medline's consumer health portal), Affordable Care Act navigation guides, and bilingual consumer health packets are now available in most public library systems (Huber & Swogger, 2014; Voge, 1998). There is some evidence that this shift was inevitable as librarians have become front-line practitioners for the homeless, sick, and needy, trying to combat acute issues (Ayers, 2006; Holt & Holt, 2010; Muggleton, 2013). Now, there is evidence of a shift towards preventive health education, essential to reducing population risk for adverse health conditions (Katz & Ali, 2009).

Three main levels of preventive health education measures exist. Primary prevention efforts aim to eliminate disease agents or increase resistance; an example would be an immunization campaign to prevent a measles outbreak. This is considered the most "upstream" approach and cost-effective for reducing adverse health. Secondary prevention refers to detection and address of exposures before manifestations of adverse outcomes (e.g., early breast cancer screening to prevent late-stage breast cancer diagnoses). Tertiary prevention tries to mitigate the morbid or mortal consequences of an outcome — this often accompanies traditional, curative approaches to patient care. An example of tertiary prevention would be physical therapy for Parkinson's patients to retain mobility (Katz & Ali, 2009; Leavell & Clark, 1979).

Preventive health is seen as the most cost-effective way to increase longevity and life quality (Cohen et al., 2008; Neumann & Cohen, 2009). Informative, multi-format guides exist in most library systems addressing preventive health at each level; however, the relevancy of such material is often dated, and the

static nature can be unappealing. Libraries are increasingly turning to live, interactive programming that focuses on reducing this information's complexity for audiences who are often older, undereducated, or English-language learners (Gehner, 2010; Holt & Holt, 2010; Japzon & Gong, 2005). Gold-standard examples highlighted by the National Institutes of Health include sessions on developmental disabilities, adolescent health issues, topical health informatics appraisal, and holistic wellness services (U.S. National Library of Medicine, 2018). This trend shows signs of continuing in this age of global health concerns; in fact, librarians have been called to develop specialized programs and interventions during the current opioid crisis (Kowalski, 2017; Rosales, 2018).

Webometric Analysis

Webometric research into public library live programming is not new, but it is less common than webometric analyses for collection and resource comparisons (e.g., Faulkner, 2018); diversity, inclusion, and accessibility markers (e.g., Prendergast, 2013); or internal quality and efficacy checks (e.g., Jhamb & Ruhela, 2017). Beckett-Willis (2017) contends that websites can promote programming to welcome adolescents into library branches, but also notes that most examples of website usage are for other purposes. Interestingly, the author finds that examining websites is of some value when discerning the presence of teen programming in roughly one-third of sampled Mississippi public libraries (Beckett-Willis, 2017), and references similar findings in a highly touted study by Kanazawa (2014), who implies that websites are underutilized in program promotion and marketing.

In a 2013 study of programs for older adults, web analyses of fifty libraries provided detailed results, including a detailed dive into assistive and technology programs (Bennett-Kapusniak, 2013). Furthermore, Smith-Rushing (2019) confirms the utility of web content analysis of 31 library websites to identify 547 programs of various types and aimed at various demographics. In a more specific example, Stephenson (2019) used webometric techniques to comb websites and embedded calendars and schedules for evidence of STEM programs offered by public libraries in Mississippi.

Also, there are examples tangential to the health scope of this study. Fitness programs held in public libraries were mapped by data gleaned from websites; over 550 libraries were included as of March 2017 (Lenstra, 2018). In a comprehensive literature review by Sabo (2017), an analysis of public library websites revealed that some North American systems offered programming to improve the health of older adults. While this study employs similar webometric techniques in retrieving library website and classifying the results into a typology of programming, there are notable differences. First, there are few studies that look for health programming through this lens, and no studies could be found that look at preventive health with the typology proposed. Second, this analysis employs more comprehensive data-gathering procedures than those usually used by webometric studies. Analyzing social media posts may provide programming or event information that may not have been included in web pages, which are less standardized and more static channels of communication.

METHODS

Through website and social media content analysis of the ten largest public library systems in America, conclusions were drawn on the health promotion programs being offered, if any, in public libraries, along with common health conditions these services may be targeting in their respective approaches.

Collection

This study was primarily quantitative in nature, assessing the presence of preventive health programs in library systems. However, there was a qualitative thematic analysis of health programs offered by diseases primarily targeted.

Sampling

The ten largest public library systems (by population served) were selected to make inferences about American public libraries' healthcare programs.

Sources

Sources of library data were retrieved from various repositories. The ten largest public library systems were ascertained from updated fact sheets of public libraries from the American Library Association

(American Library Association, 2006, 2018). These fact sheets were checked against the data from the Public Libraries Survey of Fiscal Year 2016 (Institute of Museum and Library Services, 2016). Contact information for each library system was retrieved from the most recent edition of the American Library Directory (Information Today, 2018), including main websites and branch subsites. Listings lacking webpage or social media information were supplemented by results found through a general or platform-specific search engine (e.g., Google, Facebook Search).

Health data sources included disease lists contributing to the most death (mortality) and disability (morbidity) nationally. Moreover, state population risk factors that contributed significantly more than the national rate to years of lost life were recorded — with the intent to identify specific health challenges at the state level. Current mortality statistics were culled from the CDC FastStats data application (Centers for Disease Control and Prevention, 2018), whereas morbidity-related statistics (i.e., years of life lost, quality-adjusted life years) and risk factors were retrieved from the international Global Burden of Disease data warehouse (Institute for Health Metrics and Evaluation & University of Washington, 2018) via reporting done by the US Burden of Disease Collaborators (Mokdad et al., 2018).

Retrieval

Ranked lists of the largest library systems were retrieved together from the ALA website (American Library Association, 2018). Ranked lists of mortality and morbidity causes were retrieved separately and not compiled in an aggregate list. Webometric analysis of library system webpage and social media platform content was conducted. Social media content included original posts from Facebook or Twitter, if available. This includes the retrieval of information on any health programming offered in the calendar year 2019. Specifically, event and related information were copied into a private, secure database.

Procedures

This study was conducted in four phases over six weeks. Phase one encompassed preparing the

manuscript, developing the database for information storage, and acquiring the tools for website information scraping and data visualizations. Phase two involved retrieval of library program data and disease data. Requests for clarification from library managers were made in cases of missing, unintelligible, or conflicting data retrieved. Phase three entailed compiling results into a draft manuscript. Phase four addressed any requests for information or manuscript changes. Finally, a comprehensive presentation was developed as an accompaniment to the manuscript.

Analysis

Purely descriptive statistical approaches were used in detailing the count and frequency of health programs and sub-counts of programs pertaining to various levels of preventive health. Microsoft Excel was used for quantitative analysis and subsequent tabling. Regarding qualitative analysis, coding was done for preventive health levels of any programs retrieved on library websites. Pertinent levels of preventative health were entered into the database, along with conditions that may be targeted by the program.

Privacy and Ethics

This study involved minimal risks to human subjects. No IRB review was needed to conduct this study. While the anonymity of sampled libraries can be maintained, there was minimal risk in disclosing the public library systems' names alongside any health programming offered. All data collected can be made publicly available without identifying details of program participants.

RESULTS

The ten largest public library systems, by population of legal service area, are in Maricopa County; the City of Los Angeles; the Boroughs of Manhattan, Staten Island, and the Bronx in New York City; Los Angeles County; the City of Chicago; the Borough of Brooklyn in New York City; the City of Houston, Miami-Dade County, the Borough of Queens in New York City; and Harris County. These areas are distributed over six states: Arizona, California, Florida, Illinois, New York, and Texas. Three systems are in a single metropolitan area, New York City. The New York Public Library serves three city boroughs, while Brooklyn and Queens serve the remaining two. The City and County of Los Angeles have separate systems, and the Houston Public Library system is adjacent to the Harris County system.

Table 1 summarizes the known health issues specific to the area served relative to the national picture. While heart disease, cancer, accidents, chronic lower respiratory diseases, and stroke are the leading causes of death, the leading causes of disability (or lost quality of life) differ notably. These include opioid use, major depression, migraines, and lower back pain. Furthermore, most states struggle with higher-than-average rates of morbidity and mortality of certain conditions. The relatively healthiest state of California and New York have populations with no conditions significantly higher than the national average, in contrast to the least healthy states of Texas and Arizona, where populations are suffering from higher rates of road injuries and alcohol-related liver disease, among others (Mokdad et al., 2018).

Table 1. Top Risk Factors and Causes of Mortality and Morbidity in the U.S.

Mortality		Morbidity	
Causes	Risks	Causes	Risks
Heart Disease	Dietary Risks	Heart Disease	Tobacco Use
Cancer	Tobacco Use	Lung Cancer	High Body Mass Index
Accidents	High Systolic Blood Pressure	COPD	Dietary Risks
Chronic Lower Respiratory Disease	High Body Mass Index	Diabetes	Alcohol and Drug Use
Stroke	High Fasting Plasma Glucose	Lower Back Pain	High Fasting Plasma Glucose
Alzheimer's Disease	High Total Cholesterol	Alzheimer's Disease	High Systolic Blood Pressure
Diabetes	Impaired Kidney Function	Opioid Use	High Total Cholesterol
Influenza & Pneumonia	Alcohol and Drug Use	Other Musculoskeletal Conditions	Impaired Kidney Function
Kidney Conditions	Air Pollution	Major Depression	Occupational Risks
Suicide & Self-harm	Low Physical Activity	Migraines	Air Pollution

R1. What preventive public health programs are offered, if any, in public library systems?

A total of 101 programs or programming series related to preventive health were identified across the ten library systems. Programming per library system ranged from one to thirty-seven programs. Programming topics varied widely, but seminars on cardiovascular issues, diabetes and associated conditions, mental health, pain management, and healthy aging were common. Also, health fairs and similar events with a partial focus on community health were common. The most common health programs were comprehensive in nature; that is, constellations of conditions or diseases were addressed together, or the overarching goal was to improve health generally.

R2. What is the distribution of programming, if any, between primary, secondary, and tertiary prevention programs?

Figure 1 details the programs at each level. One-sixth of all programs were aimed at multiple preventive health levels. While 72 percent (n=73) of programs were thought to be aimed at the primary level, 58 percent (n=59) were examples of secondary-level prevention, and 42 percent (n=42) are purported to provide some type of tertiary-level prevention. Sixteen percent (n=16) of programs supplied preventive health at all three levels. Example primary programs include diabetes prevention education and influenza immunization offerings. Secondary programs included fair table blood pressure checks and dental screenings. Finally, tertiary programs included rehabilitative exercise programs and support group time.

Figure 1. Public Library Programming by Preventive Health Type (n=101).

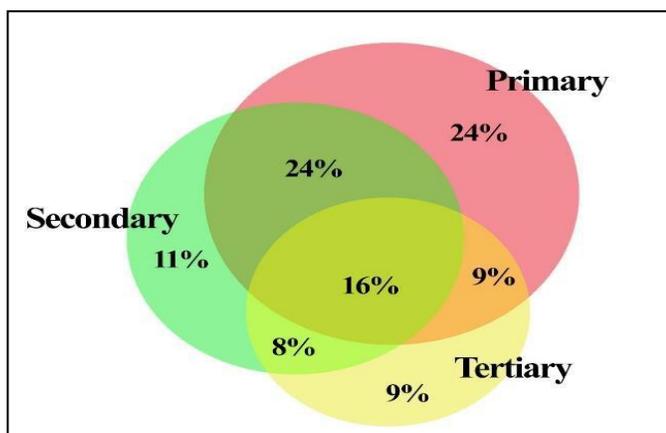
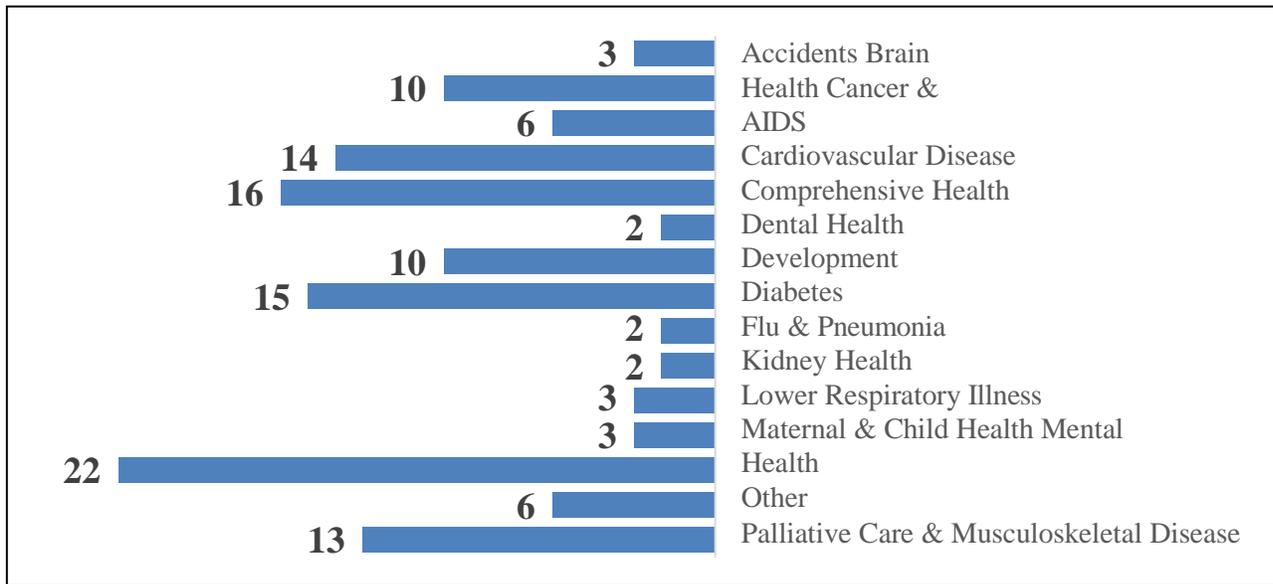


Figure 2. Public Library Programming by Health Topic (n=101)



R3. What major diseases or health conditions are targeted by programs, if any?

Figure 2 illustrates the breakdown of public library health programming by topic. While there were 101 unique programs or series, 41 (41%) programs focused on multiple topics or a comprehensive view of health. Roughly one-fifth (n=22) of all programming dealt with topics of mental health and wellness. Public library offerings also targeted diabetes (n=15), cardiovascular disease (n=14), or palliative care and musculoskeletal disease issues (n=13). Less than 15 (15%) programs combined focused on influenza and common illnesses, lower respiratory diseases, kidney health, maternal and child health, accidents, or dental health.

Health programming met some, but not all, community health needs, as inferred from Table 1. Surprisingly, there were no programs focusing on opioids use, abuse, or dependence. While this probably was a topic in the numerous series on pain management or musculoskeletal conditions, it is worth noting that no programs in the study specifically tackled opioid addiction, naloxone application, or any of the numerous health programs gaining attention during the nationwide opioid crises.

Similar explanations are plausible for the lack of programming into two other painful conditions that are top causes of morbidity: migraines and low back pain.

Moreover, the most important risk factors were not *specifically* targeted by health seminars, discussions, presentations, and fairs. Notable risk factor-specific programs included tobacco prevention and control booths, blood pressure screenings, group exercise activities, and instances where the library invites patrons into branches to avoid hazardous outdoor air quality or heat conditions.

DISCUSSION

A total of 101 preventive health programs and program series were held in 2019 among the ten largest American public library systems, as determined through an analysis of website calendars and social media accounts. Regarding results retrieval, almost all website and online calendar searching failed, as past events were not made accessible to the public. However, social media searching proved fruitful, although caution must be applied in assuming that social media accounts supplied a consummate list of programs that each library system offered in 2019. In fact, the variance between website and social media account listings

was significant; approximately less than one-fifth of programming was listed on both platforms.

Each public library system offers other programs that may lead to better health outcomes for their patrons, including guided yoga sessions and nutritious cooking sessions, but these programs did not specifically state disease prevention or health promotion as primary objectives. The programs specifically stating health promotion, disease prevention, or condition alleviation as goals were included in the analysis. The 101 unique programs or series were distributed across primary, secondary, and tertiary prevention health levels, with most of them targeting multiple levels. There is evidence that branches in these ten library systems are actively offering and promoting diverse programming to prevent adverse health conditions, screen for diseases, and mitigate medical symptoms in the patron populations they serve. None of the programs consisted of a librarian delivering specific medical advice; instead, programs tapped licensed community experts to bring medicine, nutrition, and exercise knowledge and expertise into a library setting.

Interestingly, health programming in the public library setting met many population health needs (as determined by the most mortal and morbid conditions). However, most offerings did not specifically target risk factors that precede many of the lethal and debilitating health conditions listed in Table 1. The holistic or comprehensive nature of library-facilitated health programming seemed to target clusters of factors; for example, six library systems offered programming aimed at preventing type 2 diabetes or mitigating the symptoms of such after onset through activities or seminars designed to decrease blood pressure, sugar intake, tobacco usage, and many other well-known risk factors. Finally, many causes of injury or death at the state level significantly higher than national averages were specifically addressed by library systems' preventive health programming in that state. In fact, there is evidence that the Miami-Dade Public Library system tried to address all major state-specific health concerns through health programs and series. However, there was little-to-no programming in Arizona and Texas to prevent road accidents or discourage cirrhosis via chronic alcohol consumption

— both of which are major contributors toward years of life lost. Both Arizona and Illinois have relatively high rates of debilitating congenital birth defects, but no programs were found to be offered in the library systems sampled from these states.

Limitations

This study has notable limitations — especially regarding sampling, design methodology, and data analysis — that limit the applicability of any conclusions. First, it should be noted that the ten largest public library systems are not representative of the national public library landscape. Moreover, the population health of the urban areas in which these systems center around is only partly characteristic of the national health picture. More specific state and local health data are needed to analyze community concerns. Determining the largest public library systems by legal service area may exacerbate the urban bias shown in the sampling procedure. Considering the grouping variables, results indicate programming showed significant crossover among preventive levels and addressed conditions. Thus, this may not be a useful typology to analyze program efficacy by either variable.

Regarding the programming itself, many events were excluded because they did not claim health promotion in their primary goals. This includes most exercise programs, yoga classes, and meditation sessions — all library systems offered those. Many martial arts classes, blood drives, national health program information sessions, first aid seminars, and cooking classes were excluded as well. All the programs listed above may have had inherent educational value regarding preventive health, even if they were not advertised as such.

Retrieval of data from websites was incomplete due to past event records unavailable to the public. As such, the study relied heavily on Facebook and Instagram to find advertised events. Usage of main branch social media accounts among library systems varied considerably in terms of content posted, showing that this may not be the best method to identify library events. Moreover, satellite branches may have promoted health programming that was not recorded on main branch websites or social media platforms.

Implications and Future Research

This study presented a small menu of preventive health programming in public library systems nationwide. Comparing individual systems' offerings was outside the scope of this project and not completed due to methodological limitations. That is not to say that comparing systems is a poor idea; in fact, future research that identifies public libraries that meet community health needs with efficacious preventive programs is encouraged so that other systems can implement similar efforts.

While this study showed the prevalence of preventive health programming in public libraries, it did not make claims about the efficacy of such work. It would behoove library administrators to partner with local health organizations to determine the impact of health programming offered in the library. This can be as simple as analyzing participant feedback or as complex as developing a clinical study. The first step would be to develop more effective event information retrieval and validation procedures in either instance.

Similarly, librarians should be encouraged to determine population health needs as part of any community needs assessments in the interest of developing relevant, prompt, and entertaining programming. While the role of librarians should never encompass the tasks of a medical professional (except in certain cases of emergency), the promotion of health via expert proxies or encouragement of health literacy through unassailable sources may be worth studying further.

Conclusions

Finally, the unprecedented times should be noted again. The need for health programming and health literacy has entered the public conversation, and many libraries are considering or reconsidering their roles as stewards of information in this pandemic. Public health information being issued currently is changing rapidly and sometimes politically charged. Last year's preventive health programming does not reflect contemporary trends as libraries shift towards newer topics such as the COVID-19 pandemic and opioid epidemic. However, public health reaches far beyond the prevention of communicable diseases and substance use, as gleaned from the results and current events both. The intersecting issues between

preventive medicine and minority health have also entered the public conversation; the essential Black Lives Matter movement is an opportunity for librarians to promote health equity through quality programs and partnerships. Indeed, librarians must be increasingly willing to embrace hot-button issues such as immigrant health, gun violence, climate change, reproductive and sexual health, and healthy environments to meet progressively diverse community needs. In some sense, there is no better place to prevent disease and promote health than the public library.

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