

2016

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Publication Info

Published in *Digital Libraries: Knowledge, Information, and Data in an Open Access Society. ICADL 2016*, ed. Atsuyuki Morishima, Andreas Rauber, and Chern Li Liew, 2016, pages 10-15.

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The Value of Public Libraries During a Major Flooding:

How Digital Resources Can Enhance Health and Disaster Preparedness in Local Communities

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Abstract. In October 2015, several counties in South Carolina experienced catastrophic flooding that caused severe damage, including loss of residential homes and other calamities. Using a framework for risk communication preparedness and implementation about pandemic influenza for vulnerable populations recommended by public health experts, this case study investigates public libraries' value to their communities and their legitimacy as partners of public health agencies during and after a disaster. Public libraries' situation-specific information services in the target areas affected by flooding during and after the disaster were explored. The methodology was qualitative-based. Focus-group meetings with public library administrators and librarians, one-on-one interviews with community members, and an in-depth interview with a FEMA agent were conducted. Preliminary results reveal essential needs regarding health information and technology access during and after the disaster. Recommendations on the use of digital library resources and social media for disaster and health information dissemination are discussed.

Keywords: Public libraries · Digital library resources · Natural disasters · Disaster preparedness · Health information

1 Introduction

The general public today has become more demanding in searching for a variety of health information sources. Because public libraries are community outreach centers devoted to information services, especially to underserved populations [1], many adults rely on them for accessing technology and Internet resources [2, 3]. Kwon and Kim (2009) show that about 6 % of American adults consider public libraries their primary source for health information [2]. Public health professionals recognize that local public libraries have the potential to intervene effectively in delivering health information services to the public [2].

Public libraries, in addition to respected local and national government agencies such as health, fire, and police departments, are sources of credible information at difficult times [4]. During natural disasters and crises, people need to seek information to answer questions regarding the nature of the threat and how to respond to it. Studies indicate

that people are more satisfied with the information received about a particular threat when needed facts are provided [5]. Source credibility is the key to successful risk communication [6]. Public libraries have a long history of providing community outreach programs and services to their diverse user population, including aiding access to reliable consumer health information and electronic health resources and offering health-information literacy programs [5]. Public libraries are uniquely positioned to aid community members in developing specialized health information services [7]. A good example is the creation of the HealthLink infrastructure connecting with the library's programs on cancer awareness and screening for adults in the Queens Library System in New York City [7]. Ever-changing information technology has become embedded in every aspect of communication, and public libraries have begun using social media to communicate with their patrons. However, Zach reports that in 2011, within a month after the Mississippi River flooded, not many public libraries posted alerts about emergency situations on their websites [8].

2 Research Background and Theoretical Framework

In October 2015, several counties in South Carolina (SC) experienced catastrophic flooding that caused severe damage, including loss of residential homes and other calamities. This study investigates public libraries' value to their communities, especially to vulnerable populations, and their legitimacy as partners of public health agencies during and after a disaster. This includes various aspects of information, technology, and user support. The targeted public libraries are the Richland Library, the Orangeburg County Library, and the South Carolina State Library. The Richland Library is the major local public library system in the Columbia metropolitan area and Richland County. The Orangeburg County Library is the major local public library system in the Orangeburg County area. The South Carolina State Library is the primary administrator of federal and state support for the state's libraries.

A framework for effective health risk communication preparedness and implementation about pandemic influenza for vulnerable populations recommended by public health experts [9] is used to examine the role of public libraries during the catastrophic flooding (between October 4–10, 2015) in Richland and Orangeburg Counties. The focus of investigation is on the (1) process (including the use of multiple channels and technology for information distribution and services); (2) people (how libraries used community-first approaches for the provision of services and dissemination of trusted and credible information resources); (3) partners (how libraries collaborated with multi-level agencies to facilitate the building of community capacity and resources for emergency response and recovery).

3 Research Questions

Given the above background, the researchers asked the following questions:

During the catastrophic flooding (between October 4–10, 2015) in the target areas affected by flooding (i.e., Richland and Orangeburg Counties in South Carolina)

- What types of information services did the public libraries in the target areas provide to the community?
- What types of technology access (including computers, Internet, and social media) did the public libraries in the target areas provide to the community?

4 Research Design and Methodology

In order to gain a deep understanding of the phenomena related to this catastrophic flooding, the methodology for this case study was qualitative-based, using focus-group meetings and one-on-one interviews. The purposes were to collect comprehensive information regarding librarians' activities (for example, processes for information gathering, distribution, and services), libraries' partnerships with other agencies, and community members' information needs and technology access [10, 11].

4.1 Investigation of Public Libraries' Partnerships and Librarians' Operations

Focus-group meetings with public library administrators and librarians were used to examine how librarians responded during this time. The intention was to encourage library personnel to fully discuss and comment on personal experiences, and to compare their views with those of other participants [10]. Part of the discussions centered on the use of resources to provide information services as well as on users' information needs and technology access during and after the disaster. Purposive sampling was used to recruit as subjects library administrators and professional librarians from several locations specifically affected by flooding, i.e., the Richland Library Main Library and its three branches, as well as the Orangeburg County Public Library system. [12] A pool of potential subjects was identified based on their involvement in the library operations during and after the disaster, after which the researchers formally invited them to participate in this study.

4.2 Examination of Community Members' Information Needs and Technology Access

Community members who were affected by flooding in the target areas were the potential subjects for this component of the study. The researchers are still recruiting subjects and conducting interviews with community members. Selective sampling has been used to identify subjects for one-on-one, semi-structured in-depth interviews. Altogether 20 subjects will be invited to participate in the study, with each receiving an incentive of \$25. The subjects described in 4.1 served as the main sources in identifying this population. Several community member subjects dropped out during the interview process due to logistics and to personal reasons. A main reason is related to the trauma suffered by those who had gone through this catastrophic flooding.

4.3 Understanding of Public Libraries' Partnerships with Other Agencies

During the catastrophic flooding, public librarians in both Richland and Orangeburg Counties worked extensively with volunteers and responders to provide situation-specific and community-based information services. The U.S. Federal Emergency Management Agency (FEMA) [13] dispatched agents to help with response and recovery in South Carolina before, during, and after the flood. Many FEMA agents were stationed at the local public libraries to work with community members and help them file damage claims online. An in-depth interview with a FEMA agent was held to identify issues regarding the collaborations with public libraries and the technology ability needed for community members to file damage claims.

4.4 Protection of Participants and Confidentiality

Approval for the research protocol was sought from the University of South Carolina Institutional Review Board (IRB). Each person participating in the project was informed about the nature of the project and provided a cover letter as instructed by the IRB. Personal information on the subjects is kept confidential by the researchers. The researchers used email as the primary channel to contact the subjects, and the subjects' e-mail addresses are archived separately. Any files that contain personal information on the subjects will be destroyed after the completion of the project. The results of this research may be published, but no information that could identify subjects will be included. The results will be reported based on all participants collectively.

5 Results

Preliminary results are presented in this section. Altogether, twenty-five library administrators (13/25, 52 %) and librarians (12/25, 48 %) were invited to participate in this study. Three focus-group meetings with public library administrators and librarians were held. Eighteen out of twenty-five members (18/25, 72 %) attended the meetings. Eight of them are library administrators (8/18, 44.4 %), and the rest of them are librarians (10/18, 55.6 %). Three meetings were held at the University of South Carolina, and each meeting lasted around 60 min. The meetings were recorded digitally using Camtasia software. The transcripts of the meetings were prepared by a commercial transcription service. Two research assistants were onsite taking notes. Five one-on-one interviews were conducted; each session lasted around 60 min. A FEMA Regional Manager who served as the site manager in South Carolina was granted permission to meet with the researchers for 90 min. The same commercial transcription service was used to prepare the transcripts of interviews. The researchers decided to manually analyze all the transcripts individually and then compare the results. The topics selected for our analyses are related to the following: the processes librarians used for information gathering, distribution, and services; the community members' information needs; and the partnerships the libraries built with multi-level agencies to facilitate emergency response and recovery.

One of the research purposes is the investigation of public libraries' value to their communities and their legitimacy as partners of public health agencies during and after a disaster. The Richland Library administrators and librarians worked with the offices of South Carolina State Senator Joel Lourie [14] and U.S. Congressman James E. Clyburn [15] to help get FEMA to the local communities, and created disaster recovery centers for FEMA. In fact, 14 % of all FEMA applications were filed at the Richland Library's main and branch libraries. The Richland Library was a water distribution site; librarians took books, toys, and computers to shelters. This successful collaboration with public health agencies shows the value of public libraries in facilitating emergency response and recovery during this disaster.

This research also examines how librarians use technology (including social media) to provide situation-specific information and services. Preliminary results reveal that technology access was crucial to obtaining credible information and disseminating resources and services to the community. The Internet was predominantly used by librarians to gather and distribute resources to community members. Librarians used social media sites to answer patrons' questions with an average nine-minute response time. On the Richland Library's Facebook site, the library's posts were shared 1,386 times, an average of 98 shares for each post. From October 4–12, the library's Twitter account "gained 242 new followers.

However, the findings also show that a discrepancy exists between the reliable resources vital to consumers and the health information shared with them by the public libraries. Public librarians were not fully prepared to provide sufficient essential disaster and health information for adult users, especially through an online venue, before and after the natural disasters hit South Carolina. Information and technology literacy issues created barriers for many community members in accessing FEMA applications and filing claims online.

6 Conclusion and Recommendations

Even though public librarians are skilled at helping users find local information and resources [16], the results also show that the public libraries and librarians in our study were not well prepared in identifying, gathering, distributing, and promoting the use of disaster and health information. The researchers recommend that public libraries provide well-selected, reliable disaster and health digital resources for adult users, making them available permanently, and updating the information consistently. In addition, it is also critical to ensure that these resources can be easily located on the library websites. In recent years, social media have been increasingly popular as a venue for online information exchange. Social media network sites, such as Facebook and Twitter, can be used to increase the awareness of these library resources and to distribute real-time messages of interest by library personnel. By promoting the use of such resources and services, public librarians can help community members overcome issues related to information and technology literacies by simply clicking on links on the public libraries' websites anytime, anywhere. In addition, health sciences librarians can support the

selection and dissemination of trustworthy health resources and train public librarians in the delivery of effective health information services.

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