

# Information Behaviors, Sources and Channels during Three Crises

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**Abstract.** Crisis affects the way in which individuals interact with information. This study will focus on the case of Puerto Rican adults living in the island and their information behaviors during three crisis scenarios. This work is a phenomenological exploration into the lived experiences of 15 Puerto Rican adults related to their information behaviors, especially during the aftermath of Hurricane Maria (2017), an earthquake sequence (2018-2019), and the COVID-19 pandemic (2020 – present). Preliminary results indicate that each crisis created different information contexts which affected the participants' information behaviors, with almost complete lack of information during Hurricane Maria, participants depended on one-on-one face-to-face communication and radio for information. This is compared to the almost uninterrupted flow of information during the earthquake sequence, and the information onslaught related to the COVID-19 pandemic. Each of these crisis scenarios had deep implications for the way in which participants stayed informed in their daily lives, since most indicated almost a complete switch to online and digital platforms which have replaced traditional channels such as television, print and radio. This information is relevant to anyone interested in the information behaviors of minoritized groups, as well as those who seek to expand conversations regarding information access and resilience in the face of future crises.

**Keywords:** Information behaviors, crisis, Hurricane Maria, earthquakes, COVID-19.

## 1 Introduction

In accordance to this year's iConference theme of "Information for a Better World," this proposal explores the information behaviors of Puerto Ricans living in the island focusing on three crisis scenarios: the aftermath of Hurricane Maria (2017), the earthquake sequence of 2019 (2018-2019), which included a powerful 6.4 magnitude earthquake, and the COVID-19 pandemic which dominated the social and political context in the island and the world during most of 2020 and is still an ongoing global health threat. Puerto Ricans, as US citizens by birth, have freedom to travel to and from the mainland but are considered an underserved population in the United States due to their cultural, ethnic, and linguistic Latin American roots, as such they remain understudied in Information Science.

This exploration into three consecutive crises makes it clear that, even among American citizens, there still exists a significant disparity in terms of infrastructure and aid allocated among minoritized groups. The work presented here will uncover the shift in information behaviors depending on type of crisis, availability of information networks and availability of information channels. These are some of the issues that should be addressed in the future, if we, as a society are to move towards a more inclusive model of information and to respond to different types of crises throughout the world.

## 2 Abbreviated Literature Review

A crisis is a broad term which encompasses situations that are unwanted, unexpected, unprecedented, or unmanageable, which provoke disbelief (Rahmi et al., 2019). Information behaviors in crisis situations has been long studied with different types of crises including hurricanes, floods, bridge collapses, wildfires, and earthquakes, among others. Information-seeking behaviors are included in these studies, among them the use of various channels for obtaining information (Rahmi et al, 2019). Some findings indicate that young people are more likely to use social media (Lachlan et al. Cited in Rahmi et al., 2019), but radio is still a valuable way to communicate important information during crises (Cohen, et al., 2007). This is especially important to consider in cases of crises which are likely to disrupt the communication infrastructure, hampering certain channel's ability to operate during and immediately after a crisis event. Some studies show the importance of face-to-face communication during and in the immediate aftermath of a crisis event, as well as family and neighbors becoming main sources of information, when telecommunications might be interrupted (Rahmi et al., 2019).

One important aspect to consider in any study is the nature of the crisis. Sellnow et al. (2002) point out that the specific nature of a crisis influences its development (p. 290) and this should be a consideration in any exploration of crises in various communities. Even when considering crises of a similar origin -for example natural disasters- the type of disaster, the population affected and the resources available will differ. In terms of health crises one aspect which has been studied is that of routine and non-routine information channels. Research has discovered that there are differences in terms of which information channels are consulted for routine information versus those that are consulted in non-routine situations (Park et al., 2019). The advent of a pandemic an example of a non-routine situation whereas searching general health information can be considered a routine situation. This switch in channels is also dependent on access to the channel during specific crises. For example, in crises with a disruption in information channels, word of mouth becomes a central form of communication, and information in this format is considered more trustworthy and influential (Park et al., 2019). Studies also highlight that social media is one of the most consulted channels for routine information seeking, even outside of crisis scenarios (Austin et al., 2012).

One aspect which has not been studied in the literature is that of the effects of consecutive crises on a specific population. This study will explore this situation which is one that was lived by the residents of the island of Puerto Rico. Not all crisis scenarios

come with the same set of challenges in terms of information, here we will take a closer look at two natural disasters (a major hurricane and an earthquake sequence) as well as a health crisis (a pandemic).

## **2.1 Two Natural Disasters and a Pandemic**

Hurricane Maria made landfall in the island territory on September 20, 2017, as a category 4 hurricane with winds of 155 mph and left a path of destruction not seen since 1928 (de Córdoba and de Avila, 2017). The hurricane precipitated the island's residents into the second longest lasting power outage in history (Owens, 2020), and led to major disruptions to the telecommunications infrastructure including loss of all television, internet access, and most radio stations. Only one radio station was still operational and transmitting at the height of the crisis (Nieves-Pizarro et al., 2019). The aftermath of the storm was overwhelming, and many chose to relocate out of the island and into the mainland USA (Hinojosa et al., 2019).

Even before the residents on the island had had a chance to recuperate from Maria's aftermath, they were affected by a series of earthquakes. The earthquake sequence began in December 2018 but reached its peak with a 6.4 magnitude earthquake on January 7, 2019 and caused damage to property throughout the southern region of the island. The immediate aftermath of the biggest earthquake was the loss of power for a significant portion of the population (Rice, 2020).

But these were not the only crises that Puerto Ricans would have to deal with, since by early 2020 there were already reports of cases of a new deadly string of coronavirus being detected in various locations around the world. In March 2020, the first cases of COVID-19 were reported Puerto Rico. Early information of the unfolding pandemic reflected that the island was reporting the highest fatality rate when compared to the neighboring Caribbean nations of Cuba and Dominican Republic (Llibre-Guerra et al., 2020). During that same period, strict measures to ensure containment of the pandemic were quickly imposed including the closing of all public and private schools (most switching to remote learning), performing temperature checks on all those trying to reach the island through all ports of entry, stay-at-home orders, social distancing mandates and closing of all businesses except for gas stations, supermarkets, pharmacies, and medical providers (Llibre-Guerra et al., 2020). All these measures, while seen as extreme by some in the mainland USA, were highly effective in controlling the spread of the disease and avoiding overwhelming the fragile medical infrastructure on the island (Acevedo, 2021).

## **2.2 Problem Statement**

This study will focus on the contextual forces, in the form of recent crises, and how these have influenced the information behaviors, needs, access and sources available to those who live on the island. This includes two natural disasters, which have the capability to destabilize systems, especially vulnerable media, and communication infrastructures (Nieves-Pizarro et al., 2019). It is also predicted that natural disasters,

especially those triggered by climate change, will be on the rise and pose greater threats to human life and infrastructure.

Puerto Ricans living in the island is a population of particular interest due to its peculiar position as US citizens while retaining a unique Latin American identity which is manifested in traditions, historical ties to other Latin American countries and the use of Spanish as the main language. These characteristics should make this population one of interest for anyone looking to study information behaviors in the United States, since the Latinx population is a significant one in the nation, both historically and is projected to remain so for the foreseeable future, even growing according to the latest Census (United States Census Bureau, 2021). The main question guiding this research is: RQ: How contextual forces, in the form of crises, have affected Puerto Ricans' information behaviors, access to information and channels of information?

### **3 Methodology**

Data was gathered through one-on-one interviews; with a semi structured questionnaire. The study population were Puerto Rican adults aged 18 and over who lived in the island. Participants were recruited through email and social media using snowball sampling method. Participation in this study was voluntary and there was no monetary remuneration available for those who chose to participate.

The 15 interviews that form this study's data set were conducted over the phone and video conferencing tools as chosen by each participant, according to their preference, level of expertise, and ease of access. All interviews were conducted in Spanish, which was the preferred language of all study participants. Interviews were recorded and transcribed and made up a total of 768 minutes with an average duration of 51.22 minutes. Transcripts were anonymized by removing identifiable information including personal names, names of specific institutions, and job titles. The youngest participant in the sample was 29 years old and the oldest 55 years old with an average 42 years of age for the entire sample. Five of the participants identified as male, and 10 identified as female and they were all college educated professionals living on the island.

Data was analyzed employing inductive qualitative research strategies, mainly constant comparative analysis, open coding, structural coding, axial coding, pattern coding. The preliminary results of this study are presented here. Data analysis at this time is ongoing, with the results included in this work showcasing some early findings in the data analysis process.

### **4 Results**

Preliminary findings indicate information behaviors were deeply affected by information availability; with almost complete lack of information in the aftermath of Hurricane Maria, temporary disruption after the 6.4 earthquake of 2019 and a glut of sometimes contradictory information during the COVID-19 pandemic. These factors are also compounded by the move towards mobile technologies and social media that almost all

the participants expressed in their interviews were their preferred method for staying informed in routine information scenarios. With few exceptions participants in this study named the internet which they reach through their smart phones as their main way to stay informed; traditional media, such as television and radio, received almost no mentions. The exception to this being the aftermath of Hurricane Maria, which provoked such a massive blackout and communications disruption that only one radio station was fully operational in the days after its landfall on the island (Takahashi et al. 2020). During the immediate aftermath of Hurricane Maria, all participants indicated that the main way in which they stayed connected and informed was through face-to-face communication with others, especially their family and social circles.

In their usual day to day, participants also mentioned staying informed through social media platforms, more than traditional media such as newspapers. The most mentioned platforms were Facebook and Twitter. This was the pattern for seeking information regarding their day-to-day as well as the case when a potential disaster or specific news they were interested in were developing. One exception to this is the COVID-19 pandemic, in which participants mentioned following both official sources of information, such as looking for information from the CDC and the Puerto Rico Department of Health, but this was in addition to monitoring social media to stay informed on this front.

From this data it can be extrapolated that the complete collapse of the communication infrastructure in the island during and after Hurricane Maria created an unprecedented situation in which citizens were left with very few information channels transmitting official information, therefore they reverted to face-to-face communication. At that time the most pressing type of information involved finding out news about loved ones in different parts of the island and communicating their situation to family members living abroad, locating necessities such as food, water and gasoline and receiving information regarding their workplaces. Workplaces themselves became essential for many of the participants and became places where they could find some basic comforts, such as running water and electricity.

The situation during the earthquake sequence was different, with many indicating the most notable factor to them was not the earthquakes themselves but the loss of power during the first hours after the main 6.4 earthquake hit on January 7th, 2019. This also differs with the participant's experiences with the COVID-19 pandemic. This last information context is one in which most participants expressed searching for information, however some indicate being overwhelmed with the onslaught of sometimes contradictory information, while others chose to only search from information through official channels regarding the advance of the pandemic and the vaccine distribution efforts.

## **5 Implications**

These findings provide essential insights that can help inform the creation of inclusive information practices that respond to issues of diversity and crisis, while delving into issues faced by a population of minoritized status living as US citizens. This is also

pertinent to educators, since furthering our understanding into this population will benefit the field in terms of informing the creation of more inclusive course content that responds to issues of diversity, equity, inclusion, and access. It will also benefit the Information Science literature work in the field since studies related to minoritized groups, including linguistic and ethnic minorities, is very limited. This limitation many times means that information organizations are creating programs, acquiring materials, and providing services without having the adequate information that allows them to fully understand the information behaviors and needs of their community members. This work will help by providing further understanding of Spanish-speaking Latinx in the United States as an underserved population to the information seeking and information behavior literature, as well as strengthening the professional and academic literature on the topic.

## 6 Limitations and Future Research

Like any other research endeavor, this work is not without its limitations. The main limitation of this study is the modest sample size. Although adequate for the type of research methodology employed (qualitative, phenomenological), future work on this topic and population could benefit from a broader sample size and a variety of research methods. Related to this, the sample was limited to older professionals living on the island. Although valuable information was gathered from this sample, future research should focus on a more representative sample, especially one that includes individuals in the 18 – 28 age bracket, as well as the over 55 segments of the population, and individuals of lower educational level. These groups are likely to have faced different challenges, especially considering access to resources such as information and communication technologies (ICT) and internet connectivity.

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