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## Communication Preferences of Young Adults During “Do Not Drink” Water Emergencies

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## RESEARCH BRIEF

### Communication Preferences of Young Adults During “Do Not Drink” Water Emergencies

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#### ABSTRACT

**Background:** Rapid, accurate communication between public health officials and the community members they serve is essential for public health protection and safety. “Do not drink” water advisories are public health emergencies that periodically occur in Northwest Ohio. The City of Toledo issued a “do not drink” advisory to approximately 400,000 residents in August 2014. Most families learned about the “do not drink” advisory from television news networks. However, communication preferences among young adults differ greatly from older generations. The purpose of this study was to identify young adult communication preferences during public health emergencies such as “do not drink” water advisories.

**Methods:** A cross-sectional survey was used to gauge young adults’ preferred method of communication during public health emergencies and to ask how they have learned about health advisories in the past. The questionnaire was administered electronically to 330 college students at a mid-size public institution in the Midwest.

**Results:** A total of 291 surveys were collected (88% response rate). When asked “If you have experienced a “do not drink” advisory or other public health emergency, how did you hear about it?” the majority of students (69%) reported television news stations (38%) or Social Media/Facebook (31%). When asked “how would you like to be notified during a public health emergency such as a “do not drink” water advisory?” the majority (70%) preferred text messaging.

**Conclusions:** Communicating rapidly with members of the community during public health emergencies is vital. Text messaging may be the best way to quickly disseminate critical information to young adults.

**Key words:** Health communication, young adults, texting, social media

#### INTRODUCTION

Social media, such as Facebook, Twitter, Instagram, and Snapchat, are changing the ways in which many members of society communicate with one another. An estimated two-thirds of college students in the U.S. and three-quarters of Internet users report daily use of one or more social networking sites with Instagram being the most frequently used platform.<sup>1</sup> This increased use of social media offers opportunities for public health officials to disseminate vital information to community members. It is becoming more common for health departments to communicate health information using social media.<sup>2</sup> The Social Media Adoption (SMA) study, which analyzed direct use of social media outlets by local health departments, described how local health departments use Facebook and Twitter to communicate with community members.<sup>3</sup> Almost 25% of local health departments included in the study reported using Facebook, 8% used Twitter, and 7% reported using both. The authors concluded that local health departments and the communities they serve can benefit from the rapid and bi-directional communication provided by social media platforms.

Public health officials need to keep pace with changing technology trends by evaluating and updating their current health communication strategies. Before new practices are tested, officials should consider that social media use is not evenly distributed across the major U.S. generational cohorts.<sup>4</sup> For example, text messaging has emerged as a particularly common mode of communication among the members of younger cohorts. Evidence suggests that individuals in the millennial cohort (those born between 1980 and 2000) send or receive a minimum of six texts

each day.<sup>5</sup> The use of “texting” to rapidly alert members of the public has been successfully used during missing children<sup>6</sup> and severe weather<sup>7</sup> events and should be employed more frequently during public health emergencies such as active shooters and natural disasters.

Drinking water contamination also constitutes a public health emergency. In August 2014, dangerous levels of microcystin toxin were found in the drinking water of Toledo, Ohio as a result of a harmful algal bloom event at the municipal water supply intake in Lake Erie.<sup>8</sup> Through traditional and social media outlets, residents were informed not to drink city water. Public response bordered on panic with some residents quick to deplete local and regional supermarkets and other stores of all bottled water supplies.<sup>8</sup> After the emergency, the Community Assessment for Public Health Emergency Response (CASPER) study was conducted and presented by the Ohio Department of Health and the Toledo-Lucas County Health Department.<sup>9</sup> The CASPER study analyzed how word of the water emergency spread among the metro Toledo community. The majority of households (80%) reported learning about the “do not drink” advisory through television (TV) media outlets. However, as previously noted, communication preferences and behaviors vary greatly by generational cohort.<sup>5</sup> The present study focused on preferred methods of receiving vital information during a water emergency such as the 2014 Toledo incident. Specifically, we examined the communication preferences of young adults during a hypothetical “do not drink” water advisory. The research question to be answered was the following: How do young adults prefer to be notified of a drinking water emergency?

METHODS

Setting and Design

The Institutional Review Board at Bowling Green State University approved the research protocol. A cross-sectional survey design was employed. A 19-item questionnaire was developed and reviewed by two experts in survey research methodology for face and content validity. The questionnaire was administered electronically to a convenience sample of college students at Bowling Green State University during spring semester 2017.

Participants

Participants (n=330) were recruited directly from six undergraduate public health courses and one graduate course in public health administration as well as through an email sent to undergraduate business students active in a campus professional organization.

Procedures

A list of courses was obtained from faculty willing to allow the researchers access to their classrooms. Researchers visited seven classrooms to explain the study and invite student participation. After all questions about the study were answered, the link to the electronic survey was displayed on the classroom projector screen. The details of the study, including risks and benefits of participating, were explained on the first page of the online survey. Students were informed that completing the survey and clicking on the submit button constituted their consent to participate. Students were allowed ten minutes at the beginning of class to fill out the survey using their mobile devices or laptop. Course instructors sent email reminders to students the next day to encourage participation by students who were not in class or did not own or bring their mobile device/laptop the day of data collection. Undergraduate business students involved in the professional organization were sent the survey link via email along with a reminder email the same week.

Measures

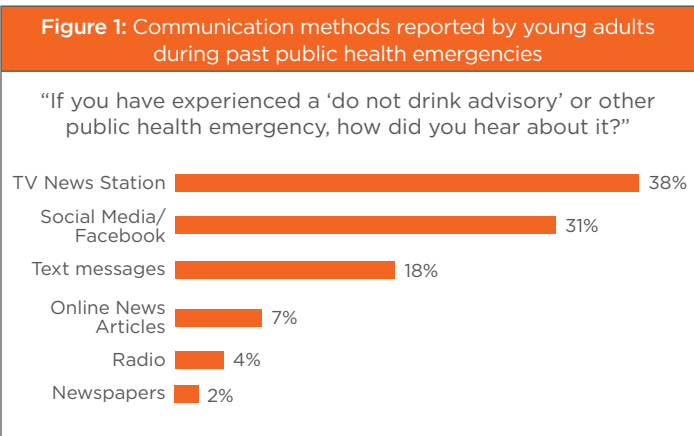
The questionnaire asked about race, family structure, home ownership, education level, and the home's primary drinking water source (municipal water, well, purchased bottled). The questionnaire also described a "do not drink" advisory as an example of a public health emergency and provided participants with six potential notification options from which they were instructed to choose one: print newspapers, online news articles, radio, social media/Facebook, text messages, or TV news stations.

Statistical Analysis

Response rates for the various notification options were calculated using the survey software's onboard tools.

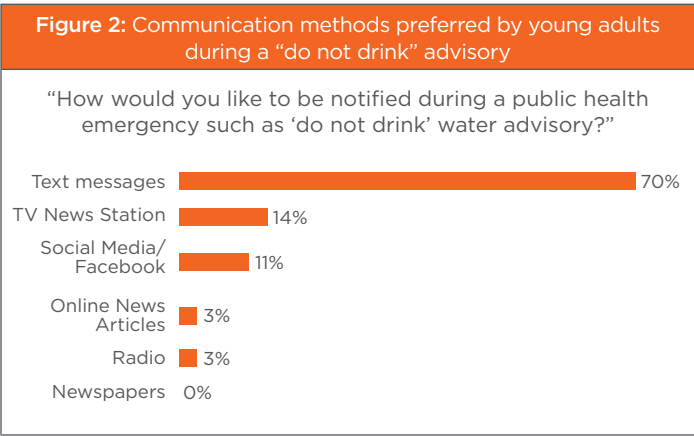
RESULTS

We collected 291 usable surveys (88% response rate). Seventy-eight percent of students identified as White, 18% as Black, 4% as Asian/Pacific Islander, and 7% as other. All participants were over the age of 18 years and younger than 65. The majority of participants (n=261) were traditional college students enrolled in undergraduate sophomore and junior level courses. We collected 30 additional surveys from one graduate level course in public health administration. Figure 1 depicts responses to the question "If you have experienced a "do not drink" advisory or other public health emergency, how did you hear about it?"



The majority of participants (69%) reported learning about public health emergencies through either traditional TV news stations (38%) or social media/Facebook (31%). Text message notification was reported by 18% of participants.

When confronted with a hypothetical "do not drink" water scenario and asked to identify their preferred communication method, 70% chose text messaging compared to 30% for all other communication modalities combined, including social media/Facebook. Figure 2 depicts communication preferences during a "do not drink" water advisory.



DISCUSSION

Rapid and accurate communication during drinking water emergencies are of the utmost importance to safeguard the health of all community members. In the present study, college students overwhelmingly identified texting as their most preferred method of notification during a "do not drink" advisory. This preference is in direct contrast to how these students reported actually hearing about past public health emergencies and also conflicts with the SMA study findings.<sup>3</sup> This may be due to the fact that the SMA study is six years old and communication preferences have changed in the meantime. The fact that TV news media was the notification method most frequently recalled by those who had actually experienced a public health emergency in the past supports the CASPER study findings.<sup>9</sup> It should be noted that because the majority of participants resided within Wood or Lucas county in Ohio, it is likely that the water emergency they were recollecting was the "do not drink" advisory issued by the Lucas County Health Department in Toledo in August 2014. Regardless, public health officials, in addition to using social media outlets, should consider implementing a text message alert system linked to the community's existing Emergency Alert System (EAS) in order to effectively communicate water emergencies information to

young adults. Individuals belonging to the millennial generation, such as the students in the present study, perceive text-based warning messages to be more serious and valid than alerts posted on social media outlets.<sup>10</sup> For maximum impact, care must be taken to ensure the emergency text message includes information on how the recipient can protect themselves and that the text is sent from a number recognizable to the recipient.<sup>11</sup> Seattle and King counties in Washington state have implemented texting systems that can serve as useful models.<sup>12</sup> However, developing a community text alert system to reach younger residents may have limited utility for members of older generational cohorts, such as Baby Boomers, who tend to use Facebook more frequently than younger individuals.<sup>1</sup>

In addition, as a result of climate change and irresponsible agricultural practices, harmful algal blooms may increase in frequency and severity in the future leading to a corresponding increase in drinking water emergencies.<sup>13</sup> Rapid communication of “do not drink” advisories on a mass scale, particularly in communities who depend on lakes for municipal drinking water supply, will be of paramount public health importance in the future.

There are several limitations with this study. Participants were selected from a single institution in the Midwest and may not reflect the views of all young adults. The questionnaire was administered electronically during class time. Students may have felt pressure to complete the survey quickly causing them to misremember past events. Recall bias and providing socially desirable responses are also limitations of all survey research. While the response rate of 88% was highly acceptable, the total convenience sample of 291 may not accurately reflected all young adults’ views on emergency communication, especially those not enrolled in college. Additionally, only students majoring in allied health sciences or business were queried. Due to limitations of the survey software, assessing communication preferences by demographic characteristics was not possible. Future studies should include students from all academic majors and geographic areas in order to improve generalizability of results. Young adults not enrolled in college should also be surveyed to better understand their preferred modes of communication.

## PUBLIC HEALTH IMPLICATIONS

Despite the use of social media seemingly increasing by the day, it is interesting to note that social media may not be the preferred method of communication by adults during a water emergency such as a “do not drink” advisory. Results from the present study suggest text messaging may be the method of choice for community members born after the year 2000. Disparity between the public’s communication preferences and communication methods used by health officials limits the accuracy and speed at which life-saving information is delivered. Traditional media, such as TV news stations and newspapers, remain valuable allies for public health communications. Performing periodic survey studies is crucial to following the ever changing communication preferences of the community members we serve.

Health department officials understand the importance of using communication methods that quickly and accurately disseminate information to community members. For young adults, text messaging may be the best method. Texting official recommendations during “do not drink” water advisories could help vital information quickly reach more members of the community. To ensure that text messages are received, mandatory inclusion of

“do not drink” water alerts into the existing Emergency Alert System (EAS) is recommended. We also encourage public health officials to increase their presence on social media and to use text messaging more frequently to interact with young adults and to answer questions during public health emergencies. Public health officials should continuously review and adapt their communication strategies as technology improves and changes.

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