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Abstract

The spread of non-prescription opioid abuse has increased to the point that a person is now more likely to die from an accidental overdose than an automobile accident. Rural areas have been hit particularly hard, and many farmers indicate direct impacts resulting from the opioid epidemic. Researchers have recognized the role of the media in communicating complicated issues and influencing potential solutions. This study analyzed the frames and sources used to communicate issues regarding the rural opioid epidemic in The New York Times and five additional newspapers from states most affected by the opioid epidemic. A total of 115 news, feature, editorial, and other articles were analyzed. The most often used frame was "growth or spread" of the epidemic and the sources most frequently referenced were medical professionals and elected officials. Although a non-traditional issue in agriculture, agricultural communicators should not shy away from getting involved given the potential for harm to rural communities and, in turn, the agriculture industry. Future studies should investigate rural community member and journalist perceptions on the issue, as well as coverage in other states.

Keywords

framing, content analysis, rural opioid

Introduction & Literature Review

When it comes to preventable fatalities, the likelihood of accidental death from an opioid drug overdose is now greater than dying in an automobile accident (National Safety Council, 2019). Used to reduce pain, opioids are a class of drugs, which include prescriptions such as OxyContin, Vicodin, and morphine; synthetic relievers designed for severe pain such as Fentanyl; and illegal substances such as heroin (Centers for Disease Control and Prevention, 2017a). Drug overdose deaths in the United States involve an opioid more than 60% of the time, and the number of these deaths have quintupled since 1999 (Hedegaard et al., 2017). In response to these staggering statistics, the U.S. Department of Health and Human Services (2017) declared the opioid epidemic a public health emergency. Despite the national attention surrounding this topic, the issue of opioid abuse is largely abstract, and many are unaware of the gravity of the threat to them or their families (Flower & Senthilingam, 2019).

Prescription opioids made their way to the market starting in the late 1990s. During this time, pharmaceutical companies assured the medical community that patients prescribed opioid pain relievers would not become addicted, and, as a result, opioids were prescribed at higher rates (United States Department of Health & Human Services, 2018). Although drug overdose deaths occur from a variety of abused drugs, the majority of these deaths have resulted recently from prescription or illicit opioids (Centers for Disease Control & Prevention, 2018a).

The spread of non-prescription opioids has impacted a variety of communities throughout the United States, and rural environments have more recently been highlighted for the growing prescription opioid epidemic (Cicero et al., 2014). Changing economic conditions in rural communities, such as the out-migration of young adults and increasing unemployment, have created stressful environments and economic deprivation (Keyes et al., 2014). The impact of declining economies in small towns and rural communities seems to be associated with the growth of non-prescription opioid abuse as rural users of opioids are more likely to have faced socio-economic vulnerabilities such as limited education, poor health, low-income, and a lack of insurance (Lenardson et al., 2016).

Further, rural counties tend to be more dependent on farming, mining, or manufacturing jobs, which are likely to have higher rates of injury (U.S. Department of Labor, 2017). Injuries sustained on the job could lead to higher instances of pain and potentially instances of opioid prescriptions (CDC, 2017b.). Farmers have been susceptible to and influenced by health risks such as injury, illnesses, and deaths stemming from health hazards associated with rural lifestyles (Marwick, 1989). Prescription opioids offered a solution to rural doctors who sought to address their patients' pain management needs in the absence of other options such as physical therapy or the ability to perform more complex procedures (Tompkins et al., 2017).

Farmers have been identified specifically as a segment of the rural population for which the opioid epidemic is taking a heavy toll. A survey commissioned by the American Farm Bureau Federation (AFBF) and National Farmers Union revealed three in four farmers or farm workers experienced a direct impact from the opioid epidemic (AFBF, 2017). A recent feature in *The New York Times* described the story of one Ohio farmer who lost two of his three children to opioid overdoses, and his last surviving child, a son, also struggled with opioid addiction (Healy, 2017). The farmer profiled worried not only about the health of his only remaining child, but also about the fate and future of his 3,400-acre farm and his intention to keep the land intact for future generations (Healy, 2017). The AFBF (2017) also found nearly 75% of farmers indicated it would be easy to obtain a large supply of prescription opioids without a prescription.

Simultaneously, opioid users living in rural America live farther away from treatment clinics, and options for treatment in rural areas are limited (Heil et al., 2008).

Although a multitude of negative factors, such as improper pain management practices and stressful economic environments, have been identified as related to the rural opioid epidemic, one factor usually viewed as a benefit to life in a rural community has also contributed to the increased use of opioids. Those living in rural communities tend to have larger social networks than people living in urban areas, which can provide more opportunities to access and find drugs (Dombrowski et al., 2016). The tight-knit social networks and sense of community has enabled faster distribution of opioids among those at risk (Keyes et al., 2014). In addition, an increase in opioid use has been influenced by greater availability and increased sales of opioid drugs in rural areas (Keyes et al., 2014).

For the farming community, it is clear the abuse of non-prescription opioid drugs is having an impact. Recognizing the impacts on rural America and the need to address the problem, the U.S. Department of Agriculture started work on program development, grants, and loans designed to invest in prevention, treatment, and recovery in rural communities (USDA, n.d.). The American Farm Bureau Federation (AFBF) adopted a policy to encourage educational efforts designed for youth and adults concerning effects of substance abuse in response to the opioid epidemic's impact on rural America (AFBF, n.d.). In addition, the AFBF and National Farmers Union created a campaign to increase awareness and provide resources to help prevent and treat addiction in rural areas (Shearing, 2018).

A multitude of factors arguably impact the issue of non-prescription opioid abuse, but compared to urban opioid users, Dunn et al. (2016) found rural users have a lack of education and knowledge concerning opioid drug overdoses. In many cases, a readily available supply of prescription opioid pain medication in rural areas was coupled with a lack of public health education concerning the risks and potential for dependence (Zhang et al., 2008). To reduce the risk associated with opioid drugs, educational information on how to safely use the drugs is a potential solution (Hahn, 2011). However, for those impacted by opioid drug abuse, there generally exists a lack of information about where to seek help (Sharma et al., 2017).

Considering this evidence, the media may aid in addressing the knowledge gaps associated with opioid abuse. Although many people rely upon the internet for health information, traditional media remain an important source of health information for many individuals (Jacobs et al., 2017). The media hold the potential to influence health behaviors and promote changes in health behaviors (Fishman & Casarett, 2006). Regarding increases in knowledge and awareness of health issues, the media may be more influential than interpersonal communication (Fishman & Casarett, 2006). News "stories on health behavior may describe the benefits of reducing disease incidence, shortening the duration of the disease through early detection and treatment, or reducing complications and reducing disability through rehabilitation" (Caburnay et al., 2003, p. 711).

Further, despite changes in the media landscape, local news is still very important to residents, and a majority of citizens have been shown to follow the local news very closely further demonstrating the media's potential to impact the issue (Pew Research Center, 2015). The local newspaper, in particular, can be an influential and valuable resource for communities (Waldman, 2011). Local news media bring attention to specific problems, advance specific policies, and pressure decision makers who can influence policies (Holder & Treno, 1997). When societal problems arise that lack a clear cause, the media play an important role in defining the issues (Kim & Willis, 2007). When news stories are localized, people tend to feel a high

physical and psychological proximity, and thus are more likely to recall, understand, and be aware of the issue (Donnelly, 2005).

The news media can be used in strategic ways to advance public policy initiatives (Holder & Treno, 1997). The media help set the health policy agenda and play an important role in mobilizing governmental agencies (Sato, 2003). Research has shown the United States' policy response to opioid abuse has been shaped by how the issue is represented in the media (Netherland & Hansen, 2016). Therefore, in addition to educational efforts, the role of the news media regarding this issue is also important to consider in addressing the opioid epidemic.

It is important for agricultural communicators to understand how issues related to agricultural health and safety are framed in the media (Lundy et al., 2018). Given the serious nature of the opioid epidemic and its impacts on rural America, and the role of the media in health communication, an examination of media frames used to communicate the issue was warranted. As education and policy development are likely key factors in addressing the issue of opioid abuse in rural America, and as the media play a part in shaping policy and increasing awareness of the issue, a content analysis of local news media coverage in areas most affected by the opioid epidemic was conducted.

Theoretical Framework

When information is complex, framing is used to simplify information and make it easier to understand (Scheufele & Tewksbury, 2007). When complex issues arise, the media use frames to suggest defined themes and make sense of relevant events (Gamson & Modigliani, 1989). The media use frames to call attention to certain issues and help define problems, diagnose causes, make moral judgements, and suggest remedies all while also obscuring other associated topics (Entman, 1993). Framing involves the selection of distinct components associated with the issue for purposes of communication and to promote a particular interpretation, recommendation, or evaluation regarding an issue (Entman, 1993).

The news media employ framing to make complicated information easier to understand and present information in simple interpretive packages to reduce the complexity of issues (Kim & Willis, 2007). "Journalists actively construct frames to structure and make sense of incoming information" (Scheufele, 1999, p. 115). As Entman (1993) noted: "The frame in the news is really the imprint of power – it registers the identity of the actors or interests that competed to dominate the text" (p. 55). Therefore, the news media communicate to the audience what to think about and how to think about it (Kim et al., 2002).

Many factors influence the effectiveness of a news frame. For example, the frequency of coverage plays a role in the frame's effectiveness. In their study of effects of framing the hazards of heart disease, Chandran and Menon (2004) found everyday framing of the issue made the risk seem more proximal and substantial, and resulted in heightened perceptions of self-risk, anxiety, and concern about contracting a disease (Chandran & Menon, 2004).

In addition, the role of culture is important to the frame's effectiveness, as any group's cultural characteristics may directly or indirectly be associated with health-related behaviors or decisions (Kreuter & McClure, 2004). In terms of promoting preventative health behaviors, some studies have shown messages framed in terms of gain may be more effective than messages of loss (Gallagher & Updegraff, 2011). Further, health-focused news stories "may increase or diminish the willingness of individuals to present themselves for care, and raise expectations, and dash hopes, or may provoke alarm" (Winsten, 1985, p. 7).

Health-related issues are framed in a variety of ways. When discussing responsibility for solving and causes of societal problems, news frames tend to focus on an individual's motives and behaviors (Kim & Willis, 2007). In issues of public health, stories can define problems due to social and individual factors, and suggest remedies such as changes to policy and individual action (Coleman et al., 2011). This selection process encourages the promotion of a defined problem, leading the audience to assign judgements based on the presented frames of the content (Kim et al., 2002).

Framing theory plays a prominent role in agricultural communications research. As many issues in agriculture are often linked with public health, it is common for news framing studies in agricultural communications to focus on issues of public health and safety. In fact, a number of recent agricultural communications studies have explored agricultural issues with implications for public health. For example, Lundy et al. (2018) studied media frames used to cover agricultural health and safety issues and noted the benefits of having agriculturalists participate in media opportunities. Media framing of food safety issues and concerns have also been investigated by agricultural communications scholars. Barr et al. (2012) compared frames between a Salmonella outbreak in jalapeños and a separate Salmonella outbreak in peanut products. Irlbeck et al. (2014) studied frames present during the 2008 Salmonella outbreak. Ruth et al. (2005), and Ashlock et al. (2006) studied news media frames associated with mad cow disease. Additionally, in an effort to understand the public health issue of antibiotic use for livestock growth production, Steede et al. (2019) investigated frames used to discuss the issue.

Journalistic issue framing influences the public's understanding and, perhaps as a consequence, policy formation (Pan & Kosicki, 1993) even possibly within the area of health policy (Walsh-Childers, 1994). In a health news study, Niederdeppe et al. (2007) found an increase in news coverage contributed to policy development aimed at decreasing smoking in Florida. According to Willis and Painter (2018), "framing the issue as a community problem versus simply an addict's problem changes how audiences think about solving the problem" (p. 5). In their study of perceptions of problems of obesity, diabetes, smoking, and immigrant health, Coleman et al. (2011) found readers were more supportive of changes to public policy when the news stories were framed to place blame on society, but readers also supported the belief that individuals were responsible for their own health problems.

Regarding drug abuse, framing studies have been completed on how issues with methamphetamine were portrayed in the media. In their study of urban newspaper coverage of methamphetamine pertaining to sexual health and stigma, Schwartz and Andsager (2008) found that even though stories were framed more frequently as health issues compared to problems associated with crime, gay men were more linked to issues of sexual health, and heterosexuals were linked to crime, which implied stigmatization. In her study on methamphetamine legislation, Omori (2013) found law enforcement helped construct the drug problem, which in turn influenced legislation indicating law enforcement's role as an influential source on the issue.

Investigations of the news media's use of frames to communicate about the opioid abuse issue has been explored in a variety of contexts. For example, Willis and Painter (2018) analyzed the *Cincinnati Enquirer's* coverage of the heroin epidemic and found the news frames to include public health and law enforcement, either described through actions of individuals or as a bigger issue facing society. Russell et al. (2019) reviewed opioid-related posts on the Facebook pages of multiple Ohio newspapers and found themes pertaining to awareness of the epidemic, programs and policies, crime and punishment, and narratives about addiction. McGinty et al. (2016) concluded the news media framed opioid abuse as an issue of criminal justice and argued for the

need to reframe opioid abuse as a treatable condition. Richards (2018) found local newspapers and broadcasts emphasized the impacts of the opioid epidemic on White and middle-class individuals or families, compared to previous media coverage of the crack cocaine epidemic during the 1980s and 1990s, which tended to focus on people of color.

Cicero et al. (2014) sought to compare media reports covering the spread of heroin use to the demographic composition of heroin users and found the media's tendency to focus on the drug's migration from urban areas to suburban or rural areas to be reflective of recent demographic shifts of heroin users. To verify accuracy of media reports covering the spread of heroin use, Cicero et al. (2014) discovered more recent users of the drug first experienced opioids through prescription drugs and lived in less urban areas.

Framing an issue is a prevalent way for the media to share information about a complicated situation. While a variety of factors influence the effectiveness of a frame, it is clear frames can contribute to problem solutions, opinions, and behaviors. Health issues in particular can take on a variety of frames that may result in changes to policy or action. For the opioid epidemic in particular, the news media have presented the opioid epidemic as an issue of criminal justice, public health, law enforcement, societal circumstance, among other frames, which may influence the public's understanding of the issue.

Purpose and Research Objectives

As detailed above, a multitude of factors harbor the potential to influence how an issue is framed in media coverage. Given the complexity and magnitude of the rural opioid epidemic, a number of frames are possible. The purpose of this study was to better understand how *The New York Times* and leading newspapers in states most affected by the opioid epidemic framed the issue in coverage relating to rural areas from January 1, 2014 to December 31, 2018. Four research objectives guided this study:

- 1) Identify and compare news frames used in media coverage pertaining to the rural opioid epidemic.
- 2) Determine the frequency of news media coverage pertaining to the rural opioid epidemic.
- 3) Compare the primary frames used within different article types.
- 4) Determine the sources frequently used by the news media for information about the rural opioid epidemic.

Methodology

This study employed quantitative content analysis to determine how the rural opioid epidemic was framed in *The New York Times* and a newspaper representing each of the five states with the most significant increases in drug overdose death rates according to the Centers for Disease Control and Prevention. Although from 2015 to 2016, states across the nation experienced significant increases in drug overdose death rates, according to the Centers for Disease Control and Prevention (2018c), the five states with the most drug overdose deaths per 100,000 in 2016 were West Virginia ($n = 52$), Ohio ($n = 39.1$), New Hampshire ($n = 39$), Pennsylvania ($n = 37.9$) and Kentucky ($n = 33.5$).

Circulation rates provide a good measure of intake of information by readers (George & Waldfogel, 2006). To better understand how newspapers in these states framed the rural opioid epidemic, the researchers identified the two largest daily newspapers by circulation rate in each state (Agility PR Solutions, 2016). *The New York Times* was selected for analysis as it is the largest U.S. newspaper by daily circulation (Agility PR Solutions, 2018), and because of its

tendency to cover a broad range of public affairs issues and important problems facing the United States (Althaus & Tewksbury, 2002). Due to the magnitude of the epidemic and its impacts on state resources and governing agencies and because of the impacts to multiple counties and communities in the states affected, state newspapers were selected for analysis in an effort to capture a more inclusive view of media frames. State newspapers were also selected as the units for analysis given a better rate of accessibility compared to smaller, more local newspapers.

While an individual's political ideology and level of political cynicism best predicts how they perceive the news media (Lee, 2005), it remains an important informational source. However, consuming information from different news media sources may result in varying perceptions about an issue. National and state newspaper publications are differentiated not only by circulation rates, but other factors such as availability and presentation of content, which can influence perceptions about an issue. For example, Fico and Soffin (1995) found some state newspapers tended to report issues in imbalanced ways and held potential for influence by experienced sources. The fact some local newspapers are staffed with inexperienced and ill-prepared to cover major conflicts compared to larger national newspapers also contributed to imbalanced reporting (Fico & Soffin, 1995).

Local newspapers serve as important sources of information about local affairs, but national newspapers have the potential to reroute attention from local media and local issues (George & Waldfogel, 2006). In areas where national publications are available, local newspapers have adjusted to provide more local, less national coverage in order to differentiate themselves in the market (George & Waldfogel, 2006). As a result, readers subscribing to a national news publication only may consume less local information and thereby disengage from local affairs (George & Waldfogel, 2006). *The New York Times*, in particular, has been known to pull targeted readers from local papers (George & Waldfogel, 2006).

Articles within *The New York Times* were collected via LexisNexis, but the state newspapers were not available in this database. After the two largest circulating newspapers per state were identified, the researchers ensured at least of the top two newspapers in each state was available in the NewsBank Database. The newspaper selected to represent each of the five state was selected based on availability and highest circulation rate. The West Virginia newspaper analyzed was *The Herald-Dispatch*, which was the newspaper with the second highest circulation rate in the state. From Ohio, the newspaper with the highest circulation, *The Plain Dealer*, was analyzed. For New Hampshire, the *New Hampshire Union Leader*, had the highest circulation and was selected for analysis. *The Philadelphia Inquirer* was the paper with the most circulation in Pennsylvania and was selected for analysis. Finally, the *Lexington Herald-Leader* served as the Kentucky newspaper, which was the second most circulated newspaper in the state.

Quantitative content analysis is “the systematic assignment of communication content to categories according to rules, and the analysis of relationships involving those categories using statistical methods” (Riffe et al., 2014, p. 3). Content analysis involves “the systematic, objective, quantitative analysis of message characteristics,” (Neuendorf, 2002, p. 1). Newspapers were selected for analysis because news coverage can contribute to perceptions of knowledge, and political participation has also been linked to attention to newspaper content (Moy et al., 2004).

Using the same procedure in both databases, articles were identified by searching for the terms “rural” and “opioid” within the time period from January 1, 2014 to December 31, 2018. This timeframe was selected to enable five consecutive years of data. Articles that did not

primarily focus on the opioid epidemic's impact in rural communities or as a rural issue were omitted as well as stories from the AP Wire and duplicates. This resulted in a final sample of 115 articles for *The New York Times* ($n = 36$), *The Herald-Dispatch* ($n = 24$), *The Plain Dealer* ($n = 11$), the *New Hampshire Union Leader* ($n = 11$), *The Philadelphia Inquirer* ($n = 19$), and the *Lexington Herald-Leader* ($n = 14$).

The primary instrument was a researcher-developed codebook and code sheet created using the emergent coding method, as categories were established after some preliminary data observations (Stemler, 2000). Codebook sections were 1) general article information (newspaper name, publication date, article title, word count, article type, and state featured), 2) primary and secondary frame, and 3) featured sources, which were coded when an individual or entity was quoted or mentioned as the originator of information.

Ten *a priori* frames were established based on prior framing studies on similar issues (Coleman et al., 2011; McGinty et al., 2016; Schwartz & Andsager, 2008). The codebook described each frame characterization in detail to assist the researchers in identifying the primary and secondary frames within the articles. Frames were coded as 1 = *primary*, 2 = *secondary*, and 0 = *not present*. While all articles featured one primary frame, a secondary frame was not present within all articles. Primary frames identified in each article had to encompass at least 75% of the story content. A secondary frame was identified when the article included story content not encompassed by the primary frame and was also present in at least 25% of the story content. A thorough review of literature informed the *a priori* frames described in Table 1.

The establishment of reliability assists readers in evaluating the validity of data and creates a better basis for future replication of a study (Riffe et al., 2014). According to Wimmer and Dominick (1997), 10% of the sample content should be analyzed to establish inter-coder reliability. Two graduate student coders were recruited and trained to use the codebook and verify clarity. They completed a pilot study using similar articles regarding the rural opioid epidemic. The graduate student coders and the researcher analyzed 12 articles independently.

When analysis was complete, the researcher visually compared the results between coders and noted inconsistencies warranting additional discussion and codebook revisions to reach a better comfort level with the coding scheme (Neuendorf, 2002). To address the inconsistencies, frame and source definitions were clarified and expanded using more specific examples. The researcher conducted a second coder training to discuss discrepancies and revisions to the codebook. Following the second coder training, a new reliability sample was coded and acceptable levels for all variables were attained. Krippendorff's alpha was used as the reliability measure, which ranged from .83 to 1.0 across frames and .85 to 1.0 across source types. The researcher coded the remaining 103 articles and calculated descriptive statistics to address the research questions.

Table 1

Primary and Secondary Frames Used by The New York Times and state newspapers to Communicate About Rural Opioid Epidemic

Frame	Description
Advocacy and awareness	A person or group working to gain support on behalf of non-prescription opioid users, or sharing information about the issue.
Economic burden or resource strain	Refers to strain on resources such as jails, budgets, morgues, or any other community burden or hardship resulting from the opioid crisis.
Crime and law enforcement	Refers to opioid use as a criminal activity, opioid users as criminals, or any crime resulting from non-prescription opioid use.
Family or personal impact	Refers to impacts from opioid epidemic on families, children, or users.
Government involvement	Refers to support, opposition, or other involvement on the opioid issue from government or elected officials.
Growth or spread of epidemic	Refers to an increased rate of opioid abuse, the spread of use, or an increased number of opioid users.
Health or medical issue	Refers to the opioid epidemic as an issue of public health, potential medical solutions, or effects to the medical community.
Legal	Refers to the opioid epidemic as a legal issue, often focusing on lawsuits, new laws, or development of policy related to the issue.
Prevention or rehabilitation	Refers to educational efforts about the risks associated with opioid drugs and may suggest non-policy or legal solutions.
Socio-economic	Refers to issues such as poverty, job loss, income levels, or other economic related issue as a cause of the opioid epidemic.

Findings

Research objective one sought to identify and compare news frames used in media coverage pertaining to the rural opioid epidemic. To capture a more nuanced understanding of rural opioid media coverage, the coders reviewed articles to identify primary frames, which were the most prominent foci of the articles, and secondary frames, which were an additional area of emphasis within the article. All 115 articles had a primary frame, but only 40 articles had a secondary frame. Although primary frames were the focus of the study, secondary frames provided additional insights into the overall coverage of the rural opioid abuse issue.

Table 2 details the frequencies of each frame. Newspaper articles usually communicated the rural opioid epidemic using the “growth or spread of epidemic” as the primary frame (21%, *n*

= 24). The “growth or spread of epidemic” frame focused on increasing rates of opioid abuse, the spread of the epidemic throughout communities, problem pharmacies, or reference to risk factors associated with the epidemic. In addition, the newspapers frequently communicated the issues through a prevention or rehabilitation frame (15.7%, $n = 18$). The “prevention or rehabilitation” frame was used to educate about the dangers of opioid abuse, or present solutions to the issue, such as grant funding or the opening of a new treatment center, aside from legal or policy development. The third most used frame was the “health or medical issue” frame (14.8%, $n = 17$). Articles framed as a “health or medical issue” discussed the epidemic in terms of an issue of public health, medical solutions to the issue, addiction, and effects on medical infrastructure.

Table 2

Presence of Primary and Secondary Frames in The New York Times and State Newspaper Articles (N = 115)

Frame	<i>The New York Times</i>				State Newspapers				Total			
	Primary Frame		Secondary Frame		Primary Frame		Secondary Frame		Primary Frame		Secondary Frame	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Growth or Spread of Epidemic	7	19.4	3	8.3	17	21.5	3	3.8	24	21.0	6	5.2
Prevention or Rehabilitation	2	5.6	2	5.6	16	20.3	2	2.5	18	15.7	4	3.5
Health or Medical Issue	9	25.0	1	2.8	8	10.1	3	3.8	17	14.8	4	3.5
Advocacy & Awareness	6	16.7	1	2.8	9	11.4	1	1.3	15	13.0	2	1.7
Government Involvement	5	13.9	1	2.8	10	12.7	5	6.3	15	13.0	6	5.2
Legal	1	2.8	2	5.6	8	10.1	3	3.8	9	7.8	5	4.3
Economic Burden or Resource Strain	3	8.3	0	0.0	3	3.8	1	1.3	6	5.2	1	0.9
Family or Personal Impact	2	5.6	3	8.3	3	3.8	3	3.8	5	4.3	6	5.2
Crime & Law Enforcement	1	2.8	2	5.6	3	3.8	4	5.1	4	3.5	6	5.2
Socio-Economic	1	2.8	0	0.0	1	1.3	0	0.0	2	1.7	0	0.0

Note. Secondary frames were not present in all articles.

The “advocacy and awareness” frame included content describing the efforts of family members and friends to bring awareness to the issue, and information about community forums and meetings to address the issue. Headlines such as “Seeking hope inside a crisis” and “Opioid forum leaves community inspired.”

“Government involvement” was present in articles with headlines such as “Congress wakes up to the opioid epidemic” or “Trump declares opioids a public health emergency.” The “government involvement” frame was also present in articles that focused on policy development and making new laws.

The “legal” frame was mostly present in articles mentioning lawsuits, consequences of following the law, and using the court and judicial system as it pertained to opioid abuse. For example, an article with the headline “His patients in pain, a doctor must limit their use of opioids” discussed a doctor’s predicament to help his patients manage pain, despite potential legal ramifications. More common, though, were articles with headlines such as “KY lawsuit against OxyContin maker could deal huge blow – company accused of misbranding drugs.” In articles such as this, journalists covered actions taken by state governments to hold drug companies responsible for the opioid epidemic.

An article with the “economic burden or resource strain” frame tended to cover the epidemic in terms of strain to local jails, costs to police departments, costs to states overall, and impacts to local funeral homes and county morgues. In contrast, the “family or personal impact” frame, which was more common as a secondary frame, discussed grief, impacts to children of opioid-dependent family members, and in one case, the impacts to farming families and the futures of their farms.

The least common frames were “crime and law enforcement” and “socio-economic.” “Crime and law enforcement,” which was a more common secondary frame than primary, tended to focus on police efforts to address the opioid epidemic. The “socio-economic” frame only appeared twice within the dataset and discussed the role of poverty in the epidemic. Over time, the frequencies of frames shifted. Only two articles appeared in 2014, and “health or medical issue,” “legal,” and “prevention and rehabilitation” were present as primary or secondary frames. In 2015, the most common frame was “health or medical issue.” 2016 saw a shift from “health and medical issue” to “government involvement” as the most common frame. In both 2017 and 2018, the most common frame was “growth or spread of the epidemic.”

Research objective two sought to determine the frequency of newspaper media coverage pertaining to the rural opioid epidemic (Table 3). News articles were analyzed over a five-year period. Even though articles did not increase each year for every newspaper, articles did increase overall each year within the timeframe analyzed. In 2014, only two newspapers featured one article each about the rural opioid epidemic (1.8%, $n = 2$), and 2018 saw the most coverage on the issue (36.4%, $n = 42$). Moreover, 68.4% ($n = 79$) of the articles were published in 2017 and 2018.

Research objective three was to compare the primary frames used within different article types. Whereas feature stories were the most prevalent type of article within the dataset (40.6%, $n = 47$), the number of news stories followed closely (39.1%, $n = 45$). There were fewer editorials (17.3%, $n = 20$) and other articles (2.6%, $n = 3$). Of the news type articles in this study, the state newspapers collectively published 91.1% ($n = 41$) of the news type articles and *The New York Times* published the remaining 8.9% ($n = 4$). Feature stories were more evenly distributed between *The New York Times* and the state newspapers with 53.2% ($n = 25$) and 46.8% ($n = 22$), respectively.

Table 3*Frequency of News Media Coverage on the Rural Opioid Epidemic (N = 115)*

Newspaper	2014		2015		2016		2017		2018		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<i>The New York Times</i>	0	0.0	2	1.7	11	9.6	15	13	8	7.0	36	31.3
<i>The Herald-Dispatch</i>	0	0.0	0	0.0	4	3.5	5	4.3	15	13	24	20.8
<i>The Philadelphia Inquirer</i>	1	0.9	4	3.5	4	3.5	5	4.3	5	4.3	19	16.5
<i>Lexington Herald-Leader</i>	1	0.9	0	0.0	1	0.9	5	4.3	7	6.1	14	12.2
<i>New Hampshire Union Leader</i>	0	0.0	1	0.9	4	3.5	1	0.9	5	4.3	11	9.6
<i>The Plain Dealer</i>	0	0.0	1	0.9	2	1.7	6	5.2	2	1.7	11	9.5

Data analysis revealed differences between article type and primary frame. As Table 4 indicates, news stories tended to be framed in terms of government involvement (9.6%, $n = 11$) or prevention or rehabilitation (7%, $n = 8$). Although most newspapers used the “growth or spread of epidemic” frame within their feature stories (10.4%, $n = 12$), those sources also tended to communicate the rural opioid epidemic as a “health or medical issue” (10.4%, $n = 12$).

Table 4*Comparison of Primary Frames by Article Type (N = 115)*

Frame	News		Feature		Editorial		Other	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Growth or Spread of Epidemic	7	6.1	12	10.4	4	3.5	0	0.0
Prevention or Rehabilitation	8	7.0	6	5.2	4	3.5	0	0.0
Health or Medical Issue	4	3.5	12	10.4	1	0.9	0	0.0
Government Involvement	11	9.6	1	0.9	3	2.6	1	0.9
Advocacy & Awareness	5	4.3	6	5.2	2	1.7	2	1.7
Legal Issue	5	4.3	2	1.7	2	1.7	0	0.0
Economic Burden or Resource Strain	2	1.7	2	1.7	2	1.7	0	0.0
Family or Personal Impact	1	0.9	2	1.7	2	1.7	0	0.0
Crime or Law Enforcement	2	1.7	2	1.7	0	0.0	0	0.0
Socio-Economic	0	0.0	2	1.7	0	0.0	0	0.0
Total	45	39.1	47	40.6	20	17.3	3	2.6

Objective four sought to determine the sources frequently used for information about the rural opioid epidemic. The number of sources in the dataset totaled 582 with an average of five sources per article. As detailed in Table 5, the most often referenced sources were medical professionals and elected officials; each represented 20.6% of sources used across newspapers. The medical professional source included doctors not affiliated with universities, nurses, pharmacists, coroners, and others identified as health care workers. Elected officials included sources such as county commissioners, attorneys general, sheriffs, judges, county prosecutors, senators, representatives, and any others elected to public office.

Representatives for governmental agencies were also often frequently cited throughout the newspapers analyzed and made up 15.3% of the total number of sources referenced. This source included those speaking on behalf of agencies such as the Centers for Disease Control and Prevention, health departments, departments of agriculture, or any other governmental entity. Community members comprised 10.5% of sources within the dataset. Broadly defined, community members did not correspond with the other source categories, and included police officers, firefighters, and other members of the community not aligned with another category. University affiliates, 8.8% of total sources, included any source listed with a university association. This category included researchers, medical doctors, administration, and other employees.

Table 5

Source Types Referenced in Rural Opioid Epidemic Newspaper Articles (N = 585)

Source	<i>The New York Times</i> (n = 271)		State Newspapers (n = 314)	
	n	%	n	%
Medical Professionals	73	26.9	48	15.3
Elected Officials	45	16.6	75	23.9
Governmental Agency Representatives	32	11.8	58	18.5
Community Members	39	14.4	23	7.3
University Affiliates	10	3.7	41	13.1
Recovering or Current Illicit Opioid Users	22	8.1	17	5.4
Illicit Opioid Users' Families or Friends	20	7.4	8	2.5
Activists	14	5.2	14	4.5
Others	10	3.7	4	1.3
Industry Representatives	3	1.1	21	6.7
Educators	2	0.7	3	1.0
Farmers	1	0.4	2	0.6

Conclusions & Discussion

Rural communities are not immune to the opioid epidemic; to the contrary, they face unique challenges to address this crisis. The purpose of this study was to better understand how *The New York Times* and leading newspapers in the states most affected by the opioid epidemic framed the issue in coverage relating to rural areas from January 1, 2014 to December 31, 2018. The study was driven by the need to be aware of how the issue is portrayed in the media, as the media helps

to define the issue (Kim & Willis, 2007), shape the policy response (Netherland & Hanson, 2016), and serves as a source of health information (Jacobs et al., 2017).

The findings indicated the issue was communicated using a variety of frames similar to previous health-framing studies (Coleman et al., 2011; McGinty et al., 2016; Schwartz & Andsager, 2008; Willis & Painter, 2018). Journalists employ frames to make sense of things (Scheufele, 1999). Given the complexity and volume of information surrounding the rural opioid epidemic, it appears journalists are reflecting the various topic areas through their use of multiple frames.

If the number of articles and variety of frames present in coverage about the rural opioid epidemic published within the last two years are an indicator, the issue will continue to grow more severe until a solution is reached, especially considering the overall primary frame was “growth and spread of epidemic.” This frame suggests a connection to the growth of synthetic opioid use across the United States among a variety of geographies and demographics (Centers for Disease Control, 2018b). As the issue grows, agricultural communicators may be expected to position and frame the message on the industry’s behalf (Lundy et al., 2018).

Although the issue is not completely new, these findings suggest the growth and spread of the rural opioid epidemic concern, as newspapers most regularly communicated the issue using statistics and numbers to explain the magnitude of the epidemic and its impact on people and communities. At the same time, it is clear communities seek a resolution to this issue, because articles framed in terms of “prevention or rehabilitation” were common within the state newspapers.

Most articles identified as news presented the “government involvement” frame, which may suggest the degree to which elected leaders or government officials are involved in the issue. Because policy formation may be an effect of journalistic issue framing (Pan & Kosicki, 1993), the strong use of this frame suggests new policies and governmental involvement may present solutions to the issue. Further, because the majority of news type articles analyzed were published in the state newspapers, this may further indicate the role of government on the state level. The feature stories within the study primarily featured either the “spread or growth of epidemic” and “health or medical issue” frames suggesting both the magnitude of the epidemic and its impacts on public health. The “spread or growth of epidemic” frame may also make the health risk seem more substantial and proximal, resulting in concerns and increased anxiety about the issue (Chandran & Menon, 2004). The use of the “health or medical issue” frame in covering the rural opioid epidemic may be a partial result of farmers’ susceptibility to health risks (Marwick, 1989).

Perhaps an indicator of the issue’s complexity was the variety of sources credited throughout the articles. It is not surprising that medical professionals were routinely cited, given the medical professionals’ role regarding the issue, from researching preventative efforts to performing autopsies, as many articles featured the “health or medical issue” frame. Elected officials were similarly often cited. As communities seek resolutions, this may be an indicator of the need for governmental support and evidence that communities are looking to elected leaders for solutions and guidance. Common within articles was information from the Centers for Disease Control and Prevention. Given its volume of statistical data and research on the issue, the news media consequently included this information to illustrate and clarify the impact of the rural opioid epidemic. As an additional indicator to the issue’s complexity, a number of different governmental departments, such as health, justice, and agriculture, were cited. The findings in this study suggest the sources journalists select influence the direction or choice of frame applied to communicate the issue.

The state newspapers were 10 times more likely than *The New York Times* to cover the issue through news stories, which provides an indication of the focus on the issue at the local level and suggests the news media's role in helping to bring the issue to light. It also may be a reflection of the structure of smaller media organizations and their inability to focus on larger, more complicated stories in exchange for what is more attainable. Even though few editorials appeared overall, those that were uncovered tended to be framed in advocacy or awareness, suggesting the personal nature and impacts of the issue.

Within the dataset, farmers were interviewed to discuss the impacts of the rural opioid epidemic only three times. As the source with the least frequent citations, there appears to be a disconnect between those involved in agriculture and this issue despite harrowing statistics from the AFBF (2017) concerning the impact of the opioid epidemic on farm families and communities. Even though the subject is difficult to discuss, farmers and those involved in agriculture need to step up as leaders in their communities to work toward solutions. When agriculturalists share their stories related to health and safety, they have the opportunity to share their voices in what may be misunderstood or marginalized policy discussions and contribute to a more powerful news narrative (Lundy et al., 2018). A state farm bureau, FFA, and 4-H organizations were each mentioned within articles as positive possible solutions to address the issue demonstrating another potential opportunity for collaboration.

While a variety of university affiliates were identified, the vast majority were associated with medical or health disciplines. No mention of any extension professionals was found. Many university extension professionals are probably involved in the issue, but this media analysis provides no evidence for cooperation and collaboration with colleagues throughout the university systems. Most coverage focused on the devastating, yet factual, effects of the rural opioid epidemic. As the problem poses a multitude of challenges and complexities, so comes the need for collaboration from all stakeholders, including those involved in agriculture and those concerned for the future of rural America.

Recommendations

The rural opioid epidemic is a complicated and multi-faceted issue that will require involvement from all stakeholders to appropriately address and work toward resolution. When analyzing news frames present in news media coverage about agricultural issues, it is important to consider the ways in which the news frames influence public understanding of the issue (Ruth, et al., 2005). Addressing this issue in rural communities will require the involvement of those who do not have specific training on how to respond to public health emergencies. If the issue is not addressed, the impacts to the farming community could be devastating.

AFBF (2017) found three of four farmers and farm workers have been impacted by opioid abuse, and as many indicated it would not be difficult for members of their communities to easily access large quantities of non-prescription opioids. These statistics provide a clear indication of a serious problem in farming and ranching communities and the need to find solutions to the issue. Even though national leaders and farm organizations have recognized this issue and have started developing strategies to address opioid abuse, rural adults are mostly unaware of the opioid epidemic's impact in their communities and think of it as more of an urban issue (AFBF, 2017). Therefore, community members and local citizens should strive to build relationships with local media representatives to spread awareness of this issue.

Although university sources, most from medical schools and colleges, were identified in the study, none of the sources were associated with university extension services. However,

many university extension systems have information about the rural opioid epidemic on their websites (Lawson & Meyers, 2019). Many university extension professionals are likely involved in the issue due to their roles providing prevention and health education through partnering with stakeholders and creating educational publications on the state and county levels. However, this study found no direct evidence of involvement. Therefore, university extension professionals are encouraged to promote any involvement with trying to address the rural opioid abuse epidemic to state news media through educational events, community meetings, results of partner collaboration and so forth. University extension should also consider working with agricultural communications professionals to provide information for state newspapers about how extension is addressing the rural opioid epidemic.

This issue, while emotional, offers extension the opportunity to provide value to the community in terms of trainings, connection to university research, and bringing stakeholders together. Room exists for additional involvement such as educational and health events, and general awareness campaigns with agricultural and rural organizations including farm bureaus, FFA chapters, and 4-H clubs. Additionally, this issue offers the opportunity for a multidisciplinary approach between agricultural communications, health communications, family and consumer sciences, and public health research to more thoroughly address the many dimensions of this issue.

Agricultural communicators are responsible for working with news outlets to encourage bias-free, objective communication (Ashlock et al., 2006). When communicating issues surrounding the rural opioid epidemic, journalists and reporters should look to sources beyond the obvious stakeholders such as medical professionals, governmental agency representatives, and elected leaders. To capture the essence and gravity of the issue, journalists should seek out leaders within communities as well as those most impacted by the issue. Given the degree to which farmers are impacted by non-prescription opioid abuse, journalists are encouraged to interview farmers and investigate why such an impact exists within this group of rural residents. Journalists have the obligation and ability to share these stories and can help influence policies and other solutions to address and solve the issue.

A limitation of this study is that while a newspaper was selected to represent each state most affected by the rural opioid epidemic, different areas and regions within states are more affected than others. While larger state newspapers were selected for this study, it is likely the articles analyzed may not represent the issue in a way that reflects the complete and total impact to the state. Therefore, the results from each state newspaper should not be construed as reflective of the entire state, but more so the region or area in which the newspaper was located. It is important to note, though, that many rural Americans feel their own local news does not cover the area where they live (Grieco, 2019). Additionally, this study addressed the rural opioid epidemic on a relatively small scale. Although news content in five states were reviewed, this is an issue that, unfortunately, goes beyond the borders of these states.

Because local news serves as an important information and educational resource for community members, future studies should investigate frames used to cover the issue in other state and local newspapers. Future studies should also explore the frames used to communicate the opioid epidemic between newspapers or as an urban issue because important differences may be present. Additional research should also investigate how rural community members view and are working to address the issue. The role of the journalist cannot be overstated. Therefore, more research should be conducted to assess journalist knowledge and perceptions of the rural opioid epidemic, as well as their needs in accurately reporting this complicated health crisis. Lastly,

given the impact to farming and rural communities, future research should be conducted to assess farmer and rancher perceptions of the issue.

The rural opioid epidemic provides a non-traditional, yet impactful, example of an issue facing the nation's agriculture sector. Agricultural communications practitioners should not shy away from this issue because it threatens to drastically diminish farming and ranching communities, and, in turn, hurt farmers and ranchers, or individuals and families. The effects of the opioid epidemic will not spare the agriculture industry or community. Therefore, those teaching in agricultural communications programs should educate students to report on topics of science and health, which lack a traditional focus from the discipline. Agricultural communicators have a critical role to play in shining light on the issue and impacting the likelihood of a resolution.

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