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## A mixed-methods assessment of the impact of the opioid epidemic on first responder burnout

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### Abstract

**Background:** First responders have demanding jobs and report experiencing burnout. The opioid epidemic has added to first responder workloads, which could contribute to increased burnout. This mixed-methods study examined burnout among first responders by: 1) describing burnout among first responders specifically related to workload demands associated with the opioid epidemic; 2) exploring first responder perspectives on how the opioid epidemic has affected their profession; and 3) conducting exploratory analyses to examine how burnout and perspectives on the effect of the opioid epidemic differ across first responder professions.

**Methods:** First responders completed an online survey (n=196), including a burnout questionnaire, as part of a county-wide opioid misuse resource and needs assessment. A subset completed qualitative interviews (n=12). In both the survey and interviews, participants were asked their perspectives on how the opioid epidemic impacted their profession.

**Results:** One-third (33%; n=179) of survey respondents reported high burnout scores. The majority saw community opioid misuse as a significant problem (98%; n=188) that has affected their profession (95%; n=188). Qualitative analyses supported survey findings with participants expressing increased workloads and emotional effects related to the opioid epidemic.

**Conclusions:** First responders reported experiencing burnout, increased workloads, and negative emotional effects related to their role in responding to the opioid epidemic. Despite this, first

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Contributors

EP, JMW, and MS designed and conducted the research. EP and MT conducted the data analysis and prepared the initial draft of the manuscript. All authors contributed to editing the manuscript and approved the final version.

Conflicts of Interest

The authors declare no conflicts of interest.

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responders view responding to community opioid misuse as part of their professional role for which they have received specialized training. Future research should continue to explore the impact of the opioid epidemic on first responders, including how to prevent or address burnout.

## Keywords

First Responder; Burnout; Opioid Epidemic; Opioid Misuse; Mixed-Methods

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## 1. Introduction

Given national rates of community opioid misuse and overdose deaths, research is needed to understand how the opioid epidemic has impacted first responders. One way of examining this burden is through burnout, which can develop in response to chronic stress in one's profession (Maslach et al., 2001). Burnout is a component of compassion fatigue and has been defined as feeling hopeless, experiencing difficulties dealing with work demands or performing job duties effectively, and the perception that one's efforts do not make a difference (Stamm, 2010).

Burnout is largely influenced by workload. Workload includes the demands of the job, including the inability to recover from work and subsequent exhaustion (Leiter and Maslach, 1999) as well as the emotional work involved in the job. Professionals may find it particularly draining when they are tasked with displaying emotions that are inconsistent with how they feel (Leiter and Maslach, 1999).

### 1.1 First Responder Burnout

First responders, including law enforcement officers, firefighters, paramedics, emergency medical technicians (EMTs), and dispatchers have demanding jobs that make them vulnerable to burnout. Emergency medical services (EMS) providers report burnout associated with providing care to opioid-related overdose survivors (Elliott et al., 2019). In a different study, the majority of volunteer EMTs reported high levels of depersonalization (99%) and emotional exhaustion (92%; Essex and Scott, 2008). Job demands and stress at work have been shown to be related to burnout among EMTs and firefighters (Fragoso et al., 2016; Smith et al., 2017) and police officers (Gershon et al., 2002). In another study, burnout or job stress contributed to difficulty retaining urban and rural EMTs (Freeman et al., 2009). While research comparing burnout among different first responder professions is limited, one study found that paramedics reported more symptoms of burnout than firefighters (Murphy et al., 1994). Only one study specifically examined the effect of responding to opioid-related overdoses on paramedic and EMT burnout (Elliott et al., 2019), but no studies have examined the impact of the opioid epidemic on first responder burnout across multiple first responder professions.

### 1.2 Impact of the Opioid Epidemic

The opioid epidemic has considerably changed the roles of first responders as they respond to rising numbers of opioid overdoses. Overdose deaths continue to climb in the United States, with almost 48,000 opioid-related overdose deaths in 2017 compared to 42,000 in 2016 (NIDA, 2019a). In Kentucky, the rate of opioid-related deaths was 27.9 per 100,000

people in 2017 (i.e., 1,160 deaths), almost double the national rate of 14.6 (NIDA, 2019b). Overall, Kentucky ranked fifth among state rates of opioid-related overdose deaths in 2017 (Hedegaard et al., 2018).

The number of emergency department visits for suspected opioid-related overdoses also increased by 30% in 2017 (Vivolo-Kantor et al., 2018). There has been national attention on the importance of increasing naloxone availability to reduce opioid-related overdose deaths, including a 2018 report by the Surgeon General (Adams, 2018). The opioid crisis prompted the U.S. Attorney General to encourage federal law enforcement agencies, along with state and local partners, to train officers on how to use naloxone to reverse opioid overdoses and equip officers with the medication (DOJ, 2014). The increased availability of naloxone allows first responders to intervene to reverse opioid overdoses before an individual arrives at the emergency department. Between 2012 and 2016, the rate of EMS naloxone administration events increased by 75.1% with more than 104,000 suspected overdoses treated in 2016 (Cash et al., 2018). This number does not include overdoses treated by anyone other than EMS, including law enforcement.

Research is lacking on the impact of additional workload and responsibilities associated with the opioid epidemic among first responders, as well as how these factors are associated with burnout. The purpose of this exploratory mixed-methods study was to examine burnout among first responders by: 1) describing burnout among first responders specifically related to workload demands associated with the opioid epidemic; 2) exploring first responder perspectives on how the opioid epidemic has affected their profession; and 3) conducting exploratory analyses to examine how burnout and perspectives on the effect of the opioid epidemic differ among first responder fields of work.

## 2. Methods

### 2.1 Participants

Participants included first responders working as law enforcement officers (n=151); firefighters, paramedics, and EMTs (n=36); and dispatchers (n=9). All participants met the following inclusion criteria: 1) at least 18 years of age; 2) worked in the county; and 3) provided services to individuals who misuse opioids.

### 2.2 Procedures

Data were collected between February and June 2018 as part of an opioid misuse resource and needs assessment for a county in Kentucky (methods described in Pike et al., 2018). The study was reviewed and approved by the University of Kentucky Institutional Review Board. To assess the needs and resources in the county to address the opioid epidemic, an online survey link was sent to first responder groups working in the county, including the county sheriff department, local police department, university police department, local fire and emergency medical services department, private ambulance service, and local 911 dispatch office.

**2.2.1 Online Survey.**—The online survey was administered using Qualtrics software. Participants provided their written consent to participate and were automatically directed to

a separate survey link that contained the study questions. Within Qualtrics, participant confidentiality was protected by not collecting the participant's IP address or tracking how they received the survey link. Participants were asked to indicate their field of work (e.g., law enforcement, firefighter); however, their place of employment (e.g., local police department, sheriff's office) and years of service were not assessed to protect confidentiality. Responses that included answers to the screening questions and met the inclusion criteria were included in the analyses. Online survey participants received a \$10 Amazon gift card.

**2.2.2 Qualitative Interviews.**—Participants were asked in the consent portion of the online survey if they would be willing to complete an interview about the impact of the opioid epidemic on their job. Out of the online survey participants who indicated they were willing to participate in an interview (n=49), 12 participants (24%) were selected using a stratified random sample based on field of work and a random number generator. Interviews were conducted with law enforcement officers, firefighters/paramedics/EMTs, and dispatchers in-person or over the phone, based on participant preference. All participants agreed to have the interview recorded. Qualitative interview participants received a \$20 Amazon gift card.

## 2.3 Measures

**2.3.1 Demographics and Screening Questions.**—On the online survey, participants were asked demographic questions including their job (e.g., law enforcement, firefighter), race, gender, and age range. Participants were also asked screening questions to determine eligibility, including verifying that the participant was at least 18 years of age, worked in the county of interest, and provided services to individuals who misuse opioids in their professional role.

**2.3.2 Burnout.**—The Professional Quality of Life Scale (ProQOL; Stamm, 2010) was administered through the online survey. The ProQOL was selected because it was designed for use with public service professionals (e.g., first responders) who serve individuals who have experienced stressful events. The ProQOL produced scores for burnout, secondary trauma, and compassion satisfaction, but only the burnout scores were included due to the aim of these analyses.

In the qualitative interviews, participants were asked: “What impact has opioid misuse had on feelings like burnout, empathy, compassion fatigue in your profession?”

**2.3.3 Perspectives on the Opioid Epidemic.**—Online survey participants were shown statements, developed based on the literature and input from key stakeholders, to assess their perspectives on the impact of the opioid epidemic on their profession (listed in Table 2). Possible responses included “Definitely true,” “Probably true,” “Neither true nor false,” “Probably false,” and “Definitely false.”

Participants were also asked open-ended questions on the online survey and qualitative interviews, such as: “What is the impact of the opioid epidemic on your profession or your ability to perform your job?” and “What do you wish others knew about how opioid misuse affects your job?”

## 2.4 Data Analysis

First responders were grouped as “law enforcement” (n=151; e.g., local police, sheriff’s deputies), “fire/EMS” (n=36; e.g., firefighters, paramedics), and “dispatchers” (n=9). Grouping fire and EMS was based on the shared organizational structure of these professions.

**2.4.1 Quantitative Analyses.**—Demographics and quantitative online survey data were analyzed using descriptive statistics. Exploratory analyses compared across first responder fields. P-values < 0.05 were considered statistically significant. Adjusted residuals were used to interpret significant chi-square results.

The ProQOL was scored according to the manual (Stamm, 2010). ProQOL burnout scores were grouped in the bottom or top quartiles of normative scores based on cut off scores in the manual (< 43 and > 56). Chi-square analyses compared the number of individuals within each first responder field within the top and bottom quartiles.

Questions used to measure first responder perspectives on the impact of the opioid epidemic on their profession and were recoded to combine “Definitely true” and “Probably true” as “True (1)” and “Definitely false” and “Probably False” as “False (−1).” “Neither true nor false (0)” was not recoded. Chi-square analyses compared responses on first responder perspectives on the impact of the opioid epidemic across first responder fields.

**2.4.2 Qualitative Analysis**—Transcribed interviews and responses to the online survey open-ended questions were compiled into Microsoft Word. No identifying information was collected during interviews. Two of the study authors independently identified key themes across survey and interview responses. The authors discussed, revised, and compiled these themes into the final codebook in a schema of main codes and sub-codes (Creswell and Poth, 2018). Codes related to the construct of burnout (15 main codes and 10 sub-codes) were then applied to transcripts and survey response documents using Atlas.ti 8 software; main codes included “personal safety,” “community consequences,” and “burden” (with sub-codes including “emotional” and “time”). Utilizing an explanatory mixed-methods design (Kettles et al., 2011), results obtained from thematic analysis of online survey and interview qualitative responses were used to expand upon quantitative findings from the online survey. Summaries of key themes and selected quotes are presented.

## 3. Results

### 3.1 Demographics

Online survey participants worked in law enforcement (n=151), fire/EMS (n=36), and dispatch (n=9). Law enforcement participants were primarily white (89%; n=150), male (91%; n=149), and 25–44 years of age (81%; n=151). The majority of fire/EMS participants were white (97%; n=36), male (94%; n=36), and 35–44 years of age (58%; n=36). Dispatchers were primarily white (89%; n=9), female (89%; n=9), and 45 years of age or older (67%; n=9).

Qualitative interview participants worked across all first responder fields (n=12). They were primarily white (92%), male (92%), and had a mean age of 41 (range 26–53).

### 3.2 Burnout

Twenty-eight percent of scores on the burnout scale of the ProQOL were in the bottom quartile and 33% were in the top quartile (Table 1). Exploratory chi-square analyses demonstrated no significant differences between the first responder fields for any ProQOL scores ( $X^2=0.2$ ,  $p=0.9$  for the bottom quartile and  $X^2=2.3$ ,  $p=0.3$  for the top quartile).

### 3.3 Perspectives on The Opioid Epidemic

Perspectives on the opioid epidemic for each first responder group and the whole sample are shown in Table 2. First responders felt that community opioid misuse is a significant problem (98%) that has led to burnout among their colleagues (58%) and increased burdens on available services (97%). First responders saw an increase in individuals needing their services (88%), including seeing the same individuals who misuse opioids more than once (96%). Overall, first responders believed that the opioid epidemic has affected their professions (95%) and has made it more difficult for them to perform their job duties (56%).

First responders reported that there are resources available to help individuals who misuse opioids (94%) and agreed that communities should offer such resources (81%). The first responders in this study were familiar with places to make referrals for individuals who misuse opioids (75%) and agreed that it is part of their job responsibilities to address community opioid misuse (63%). Regardless of field of work, first responders believed that individuals working in their profession (85%) and that they personally (88%) have received training to respond to the opioid epidemic.

First responder groups were significantly different in their views on whether the opioid epidemic has led to burnout among their colleagues ( $X^2=16.4$ ,  $p=0.002$ ). Using adjusted residuals, more fire/EMS participants agreed that the opioid epidemic led to burnout compared to law enforcement, who were less likely to agree. Fewer dispatchers said they have received training to address community opioid misuse in their professional role ( $X^2=12.0$ ,  $p=0.02$ ). First responder fields also differed significantly on their perceived knowledge of places to make referrals for individuals who misuse opioids ( $X^2=18.0$ ,  $p=0.001$ ). Fewer fire/EMS participants indicated that they knew where to make referrals for resources related to substance misuse (e.g., substance use treatment, needle exchange), particularly when compared to law enforcement officers, who were more likely to know where to make referrals. No other significant differences were observed between the first responder fields of work.

**3.3.1 Qualitative Responses.**—Responses to open-ended questions confirmed and expanded upon findings from quantitative analyses. Broadly, discussion of factors associated with burnout and its impact were organized around two main themes: 1) workload effects or the impact of the opioid epidemic on burdens to time and resources; and 2) emotional effects, or ways in which the opioid epidemic has increased psychological or emotional



burden for participants. Responses across first responder fields were generally similar; however, relevant differences were noted.

**3.3.1.1 Workload Effects.:** Participants agreed that the heightened prevalence of community opioid misuse had increased professional demands. Participants reported a high volume of calls related to community opioid misuse, particularly for overdose response, and expressed concern for the burden this increase had placed on existing resources. One fire/EMS participant discussed how this increased need had made services less efficient:

“It wasn’t uncommon for the ambulance, the engine and the ladder truck to be on overdose runs at different locations all at the same time... It takes us away from the ability to make the other calls. If we make that run, and we are stuck on that, and something different happens we need to respond to, now a unit farther away has to respond.”

Increased workload may also impact quality of services. According to another fire/EMS participant, responding to the high volume of opioid calls *“takes away time to be good at other things,”* particularly when staff and resources have not grown sufficiently to keep pace with increasing demand:

“It taxes everything all the way around. I can’t be as good at fire suppression or hazmats as I could be, because I am out making runs, dealing with opioid calls.... In certain stations, there is just nothing left to give. It’s to the point... I am gonna be OK at a lot of things, but I am not gonna be great at anything, because they expect so much of us.”

Law enforcement participants, in particular, noted community-wide consequences of the opioid epidemic observed through their work. Many perceived an increase in thefts, property crimes, or violent crimes committed by individuals who misuse opioids. One law enforcement participant observed that such individuals *“could be driving, interacting with others; they could be nurses or teachers; these are everyday people... It’s not somebody else’s problem, it is a community-wide danger.”*

**3.3.1.2 Emotional Effects.:** In addition to increased time and resources devoted to addressing issues related to community opioid misuse, participants discussed emotional factors related to burnout. Many participants reported reviving individuals from overdose only to have the majority refuse transportation to the hospital or referrals to treatment. Without the power to force these individuals to receive further medical attention, many participants expressed helplessness to prevent future overdoses, particularly when responding to calls for the same individuals, sometimes within a single shift. *“After dealing with the same people over and over again,”* as one fire/EMS participant said, *“it’s hard to maintain any level of compassion or empathy, which leads toward burn out [sic] [...]”*

Risks to personal safety related to calls involving individuals who misuse opioids further increased stress and reduced compassion among participants. Fear of accidental needle sticks or exposure to potent opioids (e.g., carfentanil) are *“a constant worry,”* according to a law enforcement participant, creating risk for disease transmission or overdose. One fire/EMS participant described those risks as *“a big concern for me, not so much for myself,”*

*but the exposure I may give to my family.*” Another law enforcement participant agreed, stating that he wished others understood the risks faced by first responders:

“They don’t realize we are subjected to it. We have kids. I am a coach. I love being a cop, but I have so much other stuff ... I don’t think [individuals who misuse opioids] care. We are just there to [administer naloxone to] them, and they go on about their way.”

First responders additionally discussed feelings of sadness in response to overdose deaths, particularly in light of their inability to enforce hospitalization or treatment attendance. Perhaps in an effort towards emotional self-preservation as calls for opioid overdose became more frequent, some participants mentioned growing indifference or a numbed emotional response. As one fire/EMS participant described:

“I tend to show less sympathy and empathy for the [person who misuses opioids]. I will always come when I am called and do my best for each patient that I encounter. It is just discouraging to know that I will probably see the same situation again.”

#### 4. Discussion

This mixed-methods study examined the influence of the opioid epidemic on first responder burnout. More first responders in this sample (33%) experienced burnout compared to a normative sample (Stamm, 2010). The majority of first responders felt that the opioid epidemic has contributed to burnout among their colleagues, consistent with qualitative responses from a previous study with paramedics and EMTs, who reported burnout and the emotional burden of working with overdose survivors (Elliott et al., 2019). First responders reported that opioid misuse is a significant problem in the community that has affected their professions and led to burdens on available resources, making it more difficult for them to perform their job duties. They also indicated that increased community opioid misuse has led to them providing services to more individuals in their professional roles, including the same individuals more than once. These findings are consistent with previous studies of firefighters and EMTs, which found that workload and job stress were associated with burnout (Fragoso et al., 2016; Smith et al., 2017). A higher proportion of participants than expected reported burnout scores that fell in the bottom quartile of normative scores. Lower burnout scores could be related to participants viewing that responding to opioid-related calls is simply part of their job, for which they have received training and have the tools to provide further resources or referrals.

Qualitative responses support the quantitative analysis, indicating that the opioid epidemic has increased workload and burden on time and resources, often leading to feelings of frustration, helplessness, stress, or compassion fatigue. This is consistent with research suggesting that work overload can contribute to exhaustion and cynicism (Maslach et al., 2001; Leiter and Maslach, 1999). First responders reported negative emotional effects of responding to opioid misuse in the community, including concerns for their own safety and feelings of inefficacy to prevent future calls through transport for further care or treatment referrals. Previous research has shown burnout, depersonalization, and emotional exhaustion



among paramedics and EMTs, which is similar to the feelings of decreased empathy and increased compassion fatigue in this sample (Elliott et al., 2019; Essex and Scott, 2008). These factors offer insight into the impact of the opioid epidemic on first responders and how burnout has in turn affected attitudes and behaviors among participants in the field. Future studies should also assess how first responder burnout related to the opioid epidemic impacts their interactions with individuals who misuse opioids.

First responders also provided positive perspectives on their role in the opioid epidemic response. The majority of participants were familiar with places to refer individuals who misuse opioids to receive further care. Participants also felt that there are available resources, even if resources are burdened by increased service utilization, and they support communities offering help for those who misuse opioids. These positive feelings demonstrate a sense of job satisfaction or engagement with their job that is the opposite of burnout (Maslach et al., 2001).

Exploratory analyses showed differences between first responder fields of work. More individuals in fire/EMS felt that the opioid epidemic contributed to burnout in their field. Those views were not shared by law enforcement participants, fewer of whom reported that the opioid epidemic led to burnout among their colleagues. The reasons for these differences are not able to be determined in this study; however, they could be related to the roles individuals in these occupations play in responding to incidents involving opioids. Individuals in fire/EMS provide more advanced medical intervention to individuals who misuse opioids, thus potentially experiencing more traumatic events (e.g., overdose deaths), whereas law enforcement participants may have the majority of their interactions in contexts that are less emotionally intense (e.g., investigating crimes). More individuals in fire/EMS reported that they do not know where to make referrals for individuals who misuse opioids. A feeling of inefficacy can arise when professionals lack relevant resources, which is consistent with fire/EMS responses (Maslach et al., 2001). Future research should further explore these differences to determine whether it is different reactions between first responder fields or differences in job demands that produce variations in how first responders experience burnout.

First responders who participated in the study were similar to those who are employed by the local county government (e.g., LFUCG, 2019). Law enforcement officers, for example, in both the county and online survey sample are primarily white (88% in the county and 89% in the sample) and male (91% for both the county and study sample).

This study has limitations to note. First, the sample is not random and represents those who self-selected to participate. Second, because organizations distributed the survey link to their staff, we do not know the number of individuals who received the link and were unable to determine a response rate. Third, law enforcement officers make up a majority of the sample; however, this is related to the large number of law enforcement officers who responded rather than a limited response from other first responder fields (e.g., fire/EMS). The uneven sample sizes and limited number of dispatchers makes it difficult to compare first responder fields of work. Fourth, more detailed descriptions of first responders (e.g., years on the job, experience with individuals who misuse opioids) were not available and

that limited the ability to control for these differences in the analyses. Fifth, the sample all worked in one urban county, which limits the generalizability of the results. Despite these limitations, this study provides some insights into the impact of the opioid epidemic on first responder burnout.

## 5. Conclusion

This research contributes to the literature on first responder burnout by assessing the impact of the opioid epidemic. First responders experienced burnout, increased workloads, and negative emotional effects related to their role in responding to the opioid epidemic. They reported that the opioid epidemic has made it more difficult to perform their job duties and that they see the same individuals who misuse opioids multiple times but feel limited in their ability to intervene to prevent future calls (e.g., transport for further care). Despite this, first responders feel that it is part of their professional roles to respond to individuals who misuse opioids, they have received training to address opioid misuse in the community and know where to make referrals for individuals to receive further or specialized care. Future research should continue to explore the impact of the opioid epidemic on first responders with specific emphasis on assessing differences in how first responders in different fields of work experience burnout. How to prevent or reverse first responder burnout, and if the method differs across first responder fields, should also be assessed in future research.

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### Highlights

- Impact of the opioid epidemic on first responder burnout was assessed
- Participants completed an online survey and interviews for this mixed-methods study
- Participants experienced burnout related to the opioid epidemic
- First responders also reported increased workload and negative emotional effects
- First responders view responding to the opioid epidemic as part of their job duties

**Table 1.**

Professional Quality of Life (ProQOL) burnout scores for first responder groups and the whole sample.

	Law Enforcement		Fire/EMS		Dispatcher		Total	
	%	N	%	N	%	N	%	N
Top Quartile	30	142	44	32	40	5	33	179
Bottom Quartile	28	142	28	32	20	5	28	179

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**Table 2.**

Perspectives on the opioid epidemic for first responder groups and the whole sample.

	Law Enforcement		Fire/EMS		Dispatcher		Total	
	%	N	%	N	%	N	%	N
People in my profession have the training to address opioid misuse (T)	84	146	88	34	75	8	85	188
I have received training to help me address opioid misuse (T) *	87	146	97	34	75	8	88	188
Professionals in my field should be given specialized training to address opioid misuse (T)	95	146	94	34	100	8	95	188
Resources are available in [the county] to help people who misuse opioids (T)	94	145	88	34	100	8	94	187
I am familiar with places to make referrals for people who misuse opioids (T) *	80	145	56	34	63	8	75	187
I don't know how someone would find help for opioid misuse (F) *	82	146	56	34	75	8	77	188
Communities should offer resources to help people who misuse opioids (T)	83	144	71	34	88	8	81	186
It isn't my job to address opioid misuse (F)	67	146	56	34	25	8	63	188
Opioid misuse has had no effect on my profession (F)	95	146	97	34	100	8	95	188
I see more clients/patients/people in my profession because of opioid misuse now than I used to (T)	88	146	82	34	100	8	88	188
The opioid epidemic has made it more difficult for me to perform my job duties (T)	58	146	52	33	25	8	56	187
I need more training to address opioid misuse in my professional role (T)	40	146	24	34	50	8	38	188
The opioid epidemic has had no impact on my ability to perform my job duties (F)	49	145	41	34	38	8	47	187
In my job, I often see the same people who misuse opioids repeatedly (T)	96	146	97	34	100	8	96	188
Opioid misuse is a significant problem in [the county] (T)	98	146	100	34	100	8	98	188
The increase in opioid misuse has increased burdens on available services in [the county] (T)	97	146	100	34	100	8	97	188
The opioid epidemic has led to burnout among my colleagues (T) *	52	146	85	34	50	8	58	188
There are not enough resources available to address opioid misuse in [the county] (T)	49	146	56	34	88	8	52	188

Note: After each statement (T) or (F) is noted to indicate whether the reported values represent participants who felt the statement was true or false, respectively.

\* Indicates a significant difference across first responder groups ( $p < 0.05$ ).

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