



Published in final edited form as:

JEMS Exclus. 2023 ; 2023: .

Prevalence of Social Needs & Social Risks Among EMS Providers

James Basting, BS¹, John Wong, BS², Daniel Berger, MD³, Catherine Caldwell, MD⁴, Satvir Saggi, BS², Jessica Mann, MD⁵

¹Geisinger Commonwealth School of Medicine, Scranton, PA

²University of California San Francisco, San Francisco, CA

³Virginia Commonwealth University Health System, Richmond, VA

⁴University of Kentucky College of Medicine, Lexington, KY

⁵Penn State College of Medicine, Hershey, PA

Abstract

Background—A national shortage of Emergency Medical Service (EMS) providers is a critical issue for the profession that has only worsened during the COVID-19 pandemic. Researchers have identified possible causes, including difficult workplace conditions, low wages, and burnout. However, the impact of EMS providers' social needs and social risks has yet to be thoroughly explored.

Methods—Demographic data for 1,112 EMS providers who responded to the 2021 national Social Needs in the Pre-hospital Setting (SNIPS) Study were analyzed to produce descriptive statistics and test for differences in social needs using chi square tests.

Results—EMS providers reported experiencing housing insecurity (23.0%), food insecurity (27.4%), struggles with substance use (20.9%), mental health concerns (41.5%), domestic violence (18.5%), and healthcare affordability concerns (30.8%) during their EMS career. Almost 90% of study participants screened positive for burnout. Both women and emergency medical technicians (EMTs) were more likely than men and paramedics respectively to suffer from food and housing insecurity, mental health issues, and domestic violence at some point in their careers.

Discussion—EMS providers reported high levels of burnout as well as a variety of social needs. Social needs may necessitate overtime work, increasing risk of burnout and negatively impacting providers' well-being and contributing to the provider shortage. Barriers to entry for paramedic training and gender differences in promotion rates may exacerbate the disparities experienced by EMTs and female providers, respectively.

Corresponding Author: Daniel Berger: Daniel.Berger@vcuhealth.org.

Disclosures

1. The project described was supported by the National Center for Advancing Translational Sciences, National Institutes of Health, through Grant UL1 TR002014 and Grant UL1 TR00045. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

2. Funding for gift cards was provided by the Penn State Health Department of Emergency Medicine.

Conclusion—With high levels of burnout, staffing shortages, and EMS professionals leaving the profession, more must be done to support EMS providers. This includes programs to facilitate entry to and advancement within the EMS profession, ability to make ends meet without reliance on overtime pay, and mental health support.

Background

Emergency Medical Service (EMS) providers are responsible for providing stabilizing and lifesaving services during critical health events. A national shortage of EMS providers, likely exacerbated by the high turnover rate within the profession, has prompted a recent call for action from governmental agencies to address this workforce shortage crisis.¹

Researchers have identified possible causes for this shortage such as burnout, low wages, and difficult workplace conditions.^{2, 3} Within the profession, EMS providers also face a combination of both physical and psychological stressors. Not only are they at risk for sleep deprivation and work-related injuries, but they also witness disturbing and traumatic situations.⁴⁻⁶ These experiences may contribute to EMS providers' greater rate of post-traumatic stress disorder (PTSD), anxiety, and depression relative to the general United States (US) population.⁷

While work-related factors related to EMS job retention and burnout have been investigated, there has been little research into how social determinants of health, social risks, and social needs may be contributing to a declining EMS workforce. Social determinants of health are defined by the World Health Organization as the non-medically related factors that impact the health of a population, such as access to food, employment, and housing.⁸ Social risks are individual-level social factors that can lead to poor health, such as low educational attainment, under-employment, or lack of access to food or housing.⁹ Social needs are social risks that a patient identifies as a concern.⁹ Behavioral risks, such as substance use and exercise habits, and mental health risks also can play a role in health.

Previous studies have identified relationships between social needs and healthcare utilization for patients, many of whom are presumably brought to the hospital by EMS.¹⁰ However, research is limited on how those social needs and risks affect those working in EMS themselves.

Given the potential contribution of social risks and unmet social needs to high EMS turnover rates, this study sought to examine the rates of social risks and social needs throughout the course of EMS providers' tenure in the workforce and to compare differences in social needs/risks for different subgroups including by provider license type, sex, employment status, and burnout.

Methods

This study used data from the Social Needs in the Pre-hospital Setting (SNIPS) Study, a national cross-sectional internet-based survey of EMS providers that was conducted from April 2021 to August 2021. The survey focused on EMS provider knowledge of social determinants of health and their willingness to utilize interventions to help mitigate the

impacts of social needs/risks on their patients' health. As part of the survey, respondents were asked to identify specific social needs/risks they had ever experienced, and whether they were experiencing them at present, had experienced them in the past during their career in EMS, or had experienced them prior to starting their EMS career. They also completed a validated two-question screener for burnout.¹¹

Data was collected and managed using REDCap, a Health Insurance Portability and Accountability Act (HIPAA) compliant electronic data management tool. An extensive, multipronged recruitment campaign involving social media, EMS-oriented media organizations, and recruitment through employers and regulatory agencies was undertaken. As an incentive to participate, respondents who completed the survey were able to enter into a drawing for a limited number of \$50 gift cards.

Further details regarding recruitment and inclusion criteria are described in the original SNIPS study.¹² Data was analyzed with SAS (SAS Institute Inc., Cary, NC). Descriptive statistics were produced, and chi square tests were used to identify statistically significant differences between subgroups. All subgroup comparisons noted in the text are statistically significant at $p < .05$. This study was approved by the Pennsylvania State University College of Medicine Institutional Review Board.

Results

Among the 1,112 EMS providers who completed the demographic portion of the survey, 60.3% were male and the average age was 36.42 years (CI 35.76–37.09). The average length of time in EMS was 10.84 years (CI 10.25–11.43). Additional characteristics of participants are shown in Table 1.

EMS providers reported social risks/needs including housing insecurity (11.6% currently, 23.0% during EMS, 20.9% prior to EMS), food insecurity (8.5% currently, 27.4% during EMS, 22.1% prior to EMS), healthcare affordability concerns (20.2% currently, 30.8% during EMS, 25.5% prior to EMS), domestic violence, including sexual assault and human trafficking (9.1% currently, 18.5% during EMS, 13.2% prior to EMS), struggles with substance use (14.1% currently, 20.9% during EMS, 14.1% prior to EMS), and mental health concerns, including PTSD and burnout (28.2% currently, 41.5% during EMS, 17.7% prior to EMS). Comparisons of the prevalence of these social needs/risks by subgroup are shown in Tables 2, 3, 4 and 5.

Overall, 87.7% of EMS providers screened positive for burnout. Those who screened positive for burnout reported higher rates of housing insecurity and substance use both prior to their EMS careers and during their EMS careers, but not at time of survey completion. They also reported higher rates of food insecurity prior to EMS and healthcare inaccessibility while working in EMS.

Female providers were more likely than their male counterparts to report housing insecurity while working in EMS as well as both food insecurity and mental health issues prior to their EMS careers. They also reported higher levels of domestic violence both during their EMS employment and prior to their work in EMS.

EMTs were more likely than paramedics to report current food insecurity and substance use prior to their EMS career. They were also more likely to report food insecurity at the time of the survey or prior to EMS service; mental health concerns during or prior to EMS service; and domestic violence during or prior to EMS service.

Providers who both volunteered and worked 20 hours per week in EMS were more likely than those who solely volunteered to report current housing insecurity. Within the categories, providers who exclusively volunteered and those who both volunteered and were paid were more likely than exclusively paid providers to report that they are currently experiencing domestic violence. However, paid providers were more likely to have experienced domestic violence prior to their time in EMS compared to those who were both paid and volunteered. Paid EMS providers were also more likely than volunteer providers to experience healthcare affordability concerns prior to EMS service.

Providers who both volunteered and were paid were more likely than others to have experienced food insecurity and mental health concerns during their EMS careers. Paid providers were also more likely than volunteer providers to have experienced food insecurity and mental health concerns during their EMS careers. Those who were both paid and volunteered were more likely than those who only volunteered to have experienced domestic violence during EMS. Volunteers were less likely than others to experience healthcare affordability concerns during EMS.

Discussion

Although burnout is a popular subject within the literature, there is limited information related to social risks and unmet social needs among EMS providers, which may contribute to burnout and turnover within the profession. This national study of EMS providers was conducted to better understand these needs and their variations among different subgroups of EMS providers.

This study found that EMS providers had similar levels of food insecurity to the US population at the time of the survey with 8.5% of EMS providers reporting current food insecurity compared with 10.5% of US households in 2020.¹³ However, only 11.6% of EMS providers reported housing insecurity compared to approximately 18% of households.¹⁴

Our study identified significant sex differences in the prevalence of social needs among EMS providers. Compared to male EMS providers, female providers reported greater food insecurity prior to EMS and greater housing insecurity during their careers. Previous studies have identified sex-based wage gaps between men and women, with one study reporting a wage gap of \$7,000-\$15,000 between males and females in EMS.¹⁵ There are likely many reasons for this pay gap, one of which has been suggested to be disproportionate barriers to promotion for women compared to men.¹⁶ Although research in female representation in EMS is limited, underrepresentation of female physicians in faculty and leadership positions, including in emergency medicine, has been studied.¹⁶ Research into the gender pay gap of physicians has suggested that the current gender imbalance may perpetuate the status quo, with female physicians facing more barriers to promotion than their male

counterparts. Oh et al. describes how mentorship is associated with physician promotion, but that males are more likely to have a mentor, possibly due to underrepresentation of females in leadership.¹⁶

Women may also have more family responsibilities which could impact their ability to complete milestones toward a promotion or they may be subject to the “gratitude tax,” meaning they are more willing to remain with a current employer, despite a lack of advancement, because they feel indebted for being offered a position in a male dominated field.¹⁶ Additionally, sexism and harassment are common in the profession.¹⁷ While these barriers and the need to create a more equitable workforce has been discussed for physicians, similar efforts in EMS have been scarce.^{16, 18}

Although the proportion of female providers in the EMS profession is increasing, much of this growth is attributable to women gaining EMT certification, with only a slight increase in the percentage of newly certified female paramedics from 2008–2017.¹⁸ In our study, both EMTs compared to paramedics and women compared to men had higher rates of food insecurity prior to their career in EMS, suggesting possible barriers of entry into the EMS field. For example, to gain national certification as an EMT requires only 170 hours of training compared to 1,200 to 1,800 hours to become a paramedic.¹⁹

Additionally, compared to EMT programs, tuition for paramedicine programs is significantly higher and requires the student to financially support themselves for a much longer time.²⁰ Women may also have more family responsibilities, posing another barrier to educational advancement.¹⁶ Taking in the greater time and financial burden necessary to become a paramedic, the advantages in areas such as salary, scope, or quality of life may not be attainable for individual EMTs who are attempting to enter the profession with more profound social needs. In our study, paramedics reported lower rates of housing insecurity and food insecurity at the time of responding to the survey compared to their EMT coworkers.

It is also possible employment status may play a role in social needs. Cash et al. showed that women were more likely than men to work as volunteer EMS providers.²¹ Compared to their paid counterparts, volunteers held fewer certifications and were more likely to work in rural areas²¹. Given that rural areas also tend to rely more on volunteers than urban areas, the wage gap between men and women may be exacerbated by the uncompensated nature of some EMS work and system differences based on geography.²²

Compensation may contribute to EMS personnel’s ability to afford stable housing and food. According to United States Bureau of Labor Statistics, an EMT earns an average of \$40,120 per year while paramedics earn an average salary of \$53,560, a difference of roughly \$13,400 per year.²³ In contrast, the 2020 Bureau of Labor Statistics survey showed that the average American’s expenses are \$61,332 annually.²⁴ Regional differences in compensation between urban and rural providers may be met with similar differences in cost of living that would place even the better compensated providers at risk for experiencing these social needs/risks.¹⁵

Facing unmet social needs/risks, EMS providers often must pick up overtime shifts, with two-thirds of EMS providers reporting they depend on overtime pay to make ends meet.² Previous studies have shown that hours worked directly correlated with level of burnout, so it is plausible that this could be an explanation for the relationship between social needs/risks and provider burnout.²⁵

Burnout among EMS providers has been associated with fatigue, post-traumatic responses, mental health needs, job-related time pressure, and lack of social support.^{2, 3, 26} Our study found that nearly 90% of EMS providers screened positive for burnout, consistent with other studies reporting a high prevalence of burnout among EMS providers, likely contributing to the current workplace staffing shortage. In addition, burnout impacts patient care, with previous studies finding burnout to be associated with injury, error and adverse events, and safety-compromising behavior.^{27, 28} Care should be taken by EMS employment agencies to assist their staff in preventing, recognizing, and treating the symptoms of burnout.

Overall, 41.5% of surveyed providers reported mental health issues, including burnout and PTSD, during their EMS careers. There is extensive literature exploring the risk factors that predispose prehospital providers to post-traumatic stress disorder (PTSD), with a prevalence of 11% in ambulance personnel compared to 5% in US adults.^{29,30} EMS workers and firefighters have been shown to have increased risk factors for PTSD, depression and suicidality, and increased alcohol consumption.^{31, 32} Notably, 20.9% of EMS personnel in this survey reported having a substance use concern at some point during their careers. The rate of experience with substance use was also reported higher in providers who screened positive for burnout compared to those who did not. Thus, in addition to the risk of unfulfilled social needs from financial pressures, EMS providers may also be uniquely at risk for mental health issues that can negatively impact their quality of life.

We want to acknowledge some limitations to this study, which was based on a convenience sample of EMS providers who responded to an online survey. While the analytic sample was large and diverse, with respondents from across the US and variability in practice environment, certification, and demographic characteristics, the final sample was not representative of the national EMS workforce, with some demographics and geographical areas overrepresented compared to others. While provider status as EMT or paramedic was recorded, length of time was not specified in those roles.

Therefore, if an EMS provider recently transitioned between their EMS role or licensure, their responses could confound the results. Additionally, our survey only collected data from non-community paramedicine EMTs and paramedics, excluding community paramedics and advanced-EMTs. This may impact generalizability to the profession as a whole. However, we believe that our estimates are likely more generalizable to the national EMS provider population than a survey designed and marketed to EMS providers solely asking them to self-report needs. Additionally, this study did not use validated screening questions for social needs/social risks. Therefore, it is likely the percentages of EMS providers who reported specific social needs are an underestimate of EMS providers with the social risk, further increasing the importance of programs to support EMS providers.

Conclusion

This study found high levels of social needs and mental health concerns among EMS providers, with EMTs and female providers often experiencing more social risks and needs than their paramedic and male counterparts, respectively. With high levels of burnout, staffing shortages, and EMS professionals leaving the profession for various reasons, more must be done to support EMS providers, including programs to facilitate entry to and advancement in EMS, to ensure that EMS providers have the ability to make ends meet without relying on overtime, and to combat the financial and mental health pressures which have been identified in the profession.

References

1. Staff AAA. Congressional Letter on the EMS Workforce Shortage. American Ambulance Association [Internet]. 2021 October [cited 2023 April 30]. Available from: <https://ambulance.org/2021/10/04/workforceshortage/>
2. Crowe RP, Fernandez AR, Pepe PE, et al. The Association of Job Demands and Resources with Burnout Among Emergency Medical Services Professionals. *J Am Coll Emerg Physicians Open* [Internet]. 2020;1(1):6–16. doi:10.1002/emp2.12014 [PubMed: 33000008]
3. Crowe RP, Bower JK, Cash RE, Panchal AR, Rodriguez SA, Olivo-Marston SE. Association of Burnout with Workforce-Reducing Factors among EMS Professionals. *Prehosp Emerg Care* [Internet]. 2018;22(2):229–236. doi:10.1080/10903127.2017.1356411 [PubMed: 28841102]
4. Donnelly E, Siebert D. Occupational Risk Factors in the Emergency Medical Services. *Prehosp Disaster Med* [Internet]. 2009;24(5):422–429. doi:10.1017/s1049023x00007251 [PubMed: 20066645]
5. Sterud T, Ekeberg Ø, Hem E. Health Status in the Ambulance Services: A Systematic Review. *BMC Health Serv Res* [Internet]. 2006;6:82. doi:10.1186/1472-6963-6-82 [PubMed: 16817949]
6. Paterson JL, Sofianopoulos S, Williams B. What Paramedics Think About When They Think About Fatigue: Contributing Factors. *Emerg Med Australas* [Internet]. 2014;26(2):139–144. doi:10.1111/1742-6723.12216 [PubMed: 24708002]
7. Carleton RN, Afifi TO, Turner S, et al. Mental Disorder Symptoms among Public Safety Personnel in Canada. *Can J Psychiatry* [Internet]. 2018;63(1):54–64. doi:10.1177/0706743717723825 [PubMed: 28845686]
8. World Health Organization. About social determinants of health. Available at: http://www.who.int/social_determinants/sdh_definition/en/. Accessed May 24, 2023.
9. Alderwick H, Gottlieb LM. Meanings and Misunderstandings: A Social Determinants of Health Lexicon for Health Care Systems. *Milbank Q*. [Internet]. 2019 Jun;97(2):407–419. doi:10.1111/1468-0009.12390. [PubMed: 31069864]
10. Molina MF, Li CN, Manchanda EC, White B, Faridi MK, Espinola JA, Ashworth H, Ciccolo G, Camargo CA Jr, Samuels-Kalow M. Prevalence of Emergency Department Social Risk and Social Needs. *West J Emerg Med*. 2020 Oct 6;21(6):152–161. doi: 10.5811/westjem.2020.7.47796. Accessed May 24, 2023. [PubMed: 33207161]
11. Li-Sauerwine S, Rebillot K, Melamed M, Addo N, Lin M. A 2-Question Summative Score Correlates with the Maslach Burnout Inventory. *West J Emerg Med* [Internet]. 2020 Apr 21;21(3):610–617. doi: 10.5811/westjem.2020.2.45139. [PubMed: 32421508]
12. Berger D, Caldwell C, Robbins ME, Gurley A, Mann J. Social Needs in the Prehospital Setting (SNIPS): EMS Clinician Attitudes Toward Addressing Patient Social Needs. *International Journal of Paramedicine*. [Internet]. 2023; (4), 40–51. 10.56068/BNJE9301. [PubMed: 37900934]
13. USDA ERS – Key Statistics & Graphics [Internet]; 2021 [cited 2023 March 29]. Available from: <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/key-statistics-graphics/>

14. Pagaduan J Millions of Americans Are Housing Insecure: Rent Relief and Eviction Assistance Continue to Be Critical. National Alliance to End Homelessness [Internet]. 2021 November 9 [cited 2023 June 13]. Available from: <https://endhomelessness.org/resource/housing-insecurity-rent-relief-eviction-assistance/>
15. Studnek JR. Compensation of Emergency Medical Technician (EMT)-Basics and Paramedics. Prehosp Disaster Med [Internet]. 2016;31(S1):S87–S95. doi:10.1017/S1049023X16001096 [PubMed: 27890018]
16. Oh L, Linden JA, Zeidan A, et al. Overcoming Barriers to Promotion for Women and Underrepresented in Medicine Faculty in Academic Emergency Medicine. J Am Coll Emerg Physicians Open [Internet]. 2021;2(6):e12552. doi:10.1002/emp2.12552 [PubMed: 34984414]
17. Staats K, Counts CR, Dyer KS, Stemerman R, Braithwaite S, Luke A, Mercer MP. Characteristics and Experiences of Women Physicians and Professionals in NAEMSP. Prehosp Emerg Care. [Internet]. 2022 Sep-Oct;26(5):689–699. doi:10.1080/10903127.2021.1992051. [PubMed: 34644240]
18. Crowe RP, Krebs W, Cash RE, Rivard MK, Lincoln EW, Panchal AR. Females and Minority Racial/Ethnic Groups Remain Underrepresented in Emergency Medical Services: A Ten-Year Assessment, 2008–2017. Prehosp Emerg Care [Internet]. 2020;24(2):180–187. doi:10.1080/10903127.2019.1634167 [PubMed: 31225772]
19. What's the Difference Between an EMT and a Paramedic? UCLA CPC [Internet]; 2014 September 18 [cited 2023 May 1]. Available from: <https://www.cpc.mednet.ucla.edu/node/27>
20. Paramedic vs. EMT: Which path is right for you? EMS1 [Internet]; 2021 August 9 [cited 2023 May 1]. Available from: <https://www.ems1.com/ems-products/books/articles/paramedic-vs-emt-which-path-is-right-for-you-nSqJ5Z1ngroThrDy/>
21. Cash RE, Anderson SE, Lancaster KE, et al. Comparing the Prevalence of Poor Sleep and Stress Metrics in Basic versus Advanced Life Support Emergency Medical Services Personnel. Prehosp Emerg Care [Internet]. 2020;24(5):644–656. doi:10.1080/10903127.2020.1758259 [PubMed: 32314941]
22. Rural-Urban Differences in Characteristics of Local EMS Agencies. Sheps Center [Internet]; [cited 2023 May 1]. Available from: <https://www.shepscenter.unc.edu/product/rural-urban-differences-in-characteristics-of-local-ems-agencies/>
23. Occupational Employment and Wages | U.S. Bureau of Labor Statistics [Internet]; [cited 2023 July 5]. Available from: <https://www.bls.gov/oes/current/oes292043.htm>
24. CE Publications : U.S. Bureau of Labor Statistics; [cited 2023 May 2]. Available from: <https://www.bls.gov/cex/csxreport.htm#annual>
25. Antol R, Cornelius A. 140 Factors Influencing Emergency Medical Services Burnout. Annals of Emergency Medicine [Internet]. 2022;80(4):S65. doi:10.1016/j.annemergmed.2022.08.164
26. van der Ploeg E, Kleber R. Acute and Chronic Job Stressors Among Ambulance Personnel: Predictors of Health Symptoms. Occup Environ Med [Internet]. 2003;60(Suppl 1):i40–i46. doi:10.1136/oem.60.suppl_1.i40 [PubMed: 12782746]
27. Baier N, Roth K, Felgner S, Henschke C. Burnout and Safety Outcomes – A Cross-Sectional Nationwide Survey of EMS-Workers in Germany. BMC Emerg Med [Internet]. 2018;18(1):24. doi:10.1186/s12873-018-0177-2 [PubMed: 30126358]
28. Crowe RP, Bower JK, Cash RE, Panchal AR, Rodriguez SA, Olivo-Marston SE. Association of Burnout with Workforce-Reducing Factors among EMS Professionals. Prehosp Emerg Care [Internet]. 2018 Mar-Apr;22(2):229–236. doi:10.1080/10903127.2017.1356411. Epub 2017 Aug 25. [PubMed: 28841102]
29. Petrie K, Milligan-Saville J, Gayed A, et al. Prevalence of PTSD and Common Mental Disorders Amongst Ambulance Personnel: A Systematic Review and Meta-Analysis. Soc Psychiatry Psychiatr Epidemiol [Internet]. 2018;53(9):897–909. doi:10.1007/s00127-018-1539-5 [PubMed: 29869691]
30. VA.gov | Veterans Affairs; [cited 2023 April 16]. Available from: https://www.ptsd.va.gov/understand/common/common_adults.asp
31. Bonumwezi JL, Tramutola D, Lawrence J, Kobezak HM, Lowe SR. Posttraumatic Stress Disorder Symptoms, Work-Related Trauma Exposure, and Substance Use in First Responders. Drug

and Alcohol Dependence. 2022;237:109439. doi:10.1016/j.drugalcdep.2022.109439 [PubMed: 35623285]

32. Jones S Describing the Mental Health Profile of First Responders: A Systematic Review. J Am Psychiatr Nurses Assoc [Internet]. 2017;23(3):200–214. doi:10.1177/1078390317695266 [PubMed: 28445653]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1:

Characteristics of Participants

Provider Type	<i>n</i> (%)
EMT	417 (37.5)
Paramedic	695 (62.5)
Type of Employment	<i>n</i> (%)
Paid	473 (42.5)
Volunteer	107 (9.6)
Paid & 20 hours/week as volunteer	532 (47.9)
Other	42 (3.8)

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 2:

Social Needs/Risks By Burnout Status

Social Need	No Burnout	Burnout	p-value
Housing Insecurity			
Before EMS	11.0%	22.3%	0.0023
During EMS	16.1%	24.0%	0.0382
At Present	13.9%	11.3%	0.3784
Food Insecurity			
Before EMS	14.6%	23.2%	0.0231
During EMS	23.4%	28.0%	0.2513
At Present	8.0%	8.6%	0.8156
Substance Use			
Before EMS	6.6%	15.2%	0.0067
During EMS	13.1%	22.0%	0.0172
At Present	15.3%	13.9%	0.6433
Mental Health Concerns			
Before EMS	13.9%	18.3%	0.2061
During EMS	21.9%	44.4%	< 0.0001
At Present	16.1%	30.0%	0.0007
Domestic Violence			
Before EMS	8.8%	13.9%	0.0989
During EMS	15.3%	19.0%	0.3013
At Present	8.0%	9.2%	0.6443
Healthcare Affordability			
Before EMS	14.6%	21.1%	0.0787
During EMS	16.8%	32.9%	0.0001
At Present	19.7%	26.4%	0.0934

Table 3:

Social Needs/Risks By Sex

Social Need	Female	Male	p-value
Housing Insecurity			
Before EMS	20.8%	19.7%	0.6556
During EMS	28.3%	19.2%	0.0006
At Present	13.3%	10.6%	0.1818
Food Insecurity			
Before EMS	25.3%	18.6%	0.0096
During EMS	28.3%	26.5%	0.5238
At Present	9.3%	8.1%	0.4871
Substance Use			
Before EMS	14.3%	13.3%	0.6377
During EMS	19.1%	21.0%	0.4393
At Present	15.5%	13.0%	0.2397
Mental Health Concerns			
Before EMS	21.1%	15.7%	0.0250
During EMS	42.9%	40.5%	0.4561
At Present	26.6%	28.5%	0.5024
Domestic Violence			
Before EMS	16.8%	10.6%	0.0034
During EMS	23.1%	15.1%	0.0010
At Present	9.8%	8.2%	0.3780
Healthcare Affordability			
Before EMS	22.8%	18.5%	0.0876
During EMS	31.3%	30.0%	0.6370
At Present	27.8%	24.0%	0.1646

Table 4:

Social Needs/Risks By Licensure

Social Need	EMT	Paramedic	p-value
Housing Insecurity			
Before EMS	22.5%	19.9%	0.2859
During EMS	22.8%	23.2%	0.8830
At Present	15.1%	9.5%	0.0047
Food Insecurity			
Before EMS	26.4%	19.6%	0.0081
During EMS	25.2%	28.8%	0.1930
At Present	11.3%	6.9%	0.0117
Substance Use			
Before EMS	17.5%	12.1%	0.0120
During EMS	21.8%	20.3%	0.5420
At Present	14.2%	14.0%	0.9289
Mental Health Concerns			
Before EMS	21.6%	15.4%	0.0089
During EMS	40.5%	42.2%	0.5932
At Present	32.1%	25.9%	0.0253
Domestic Violence			
Before EMS	16.6%	11.2%	0.0112
During EMS	21.3%	16.8%	0.0610
At Present	11.3%	7.8%	0.0492
Healthcare Affordability			
Before EMS	20.4%	20.1%	0.9232
During EMS	27.8%	32.7%	0.0904
At Present	28.8%	23.6%	0.0552

Table 5:

Social Needs/Risks By Employment Status

Social Need	Both Paid & Volunteer	Paid	Volunteer	Both vs. Paid (p-value)	Both vs. Volunteer (p-value)	Paid vs. Volunteer (p-value)
Housing Insecurity						
Before EMS	19.8%	23.5%	16.8%	0.1566	0.4814	0.1355
During EMS	24.2%	23.9%	15.9%	0.9137	0.0623	0.0730
At Present	14.2%	10.2%	6.5%	0.0517	0.0313	0.2503
Food Insecurity						
Before EMS	21.9%	24.1%	16.8%	0.4056	0.2421	0.1049
During EMS	32.3%	25.6%	15.0%	0.0208	0.0003	0.0194
At Present	8.3%	9.5%	6.5%	0.4848	0.5514	0.3312
Substance Use						
Before EMS	14.2%	14.8%	12.2%	0.7899	0.5754	0.4797
During EMS	21.7%	21.8%	15.0%	0.9736	0.1162	0.1145
At Present	16.9%	11.8%	11.2%	0.0238	0.1439	0.8561
Mental Health Concerns						
Before EMS	15.9%	19.0%	22.4%	0.1985	0.1034	0.4238
During EMS	47.0%	39.5%	28.0%	0.0174	0.0003	0.0265
At Present	27.3%	30.2%	27.1%	0.2999	0.9743	0.5221
Domestic Violence						
Before EMS	11.5%	15.9%	11.2%	0.0461	0.9290	0.2247
During EMS	21.5%	17.3%	11.2%	0.0983	0.0150	0.1207
At Present	10.9%	6.6%	12.2%	0.0150	0.7174	0.0484
Healthcare Affordability						
Before EMS	19.8%	22.8%	13.1%	0.2382	0.1057	0.0255
During EMS	33.0%	31.9%	18.7%	0.7141	0.0034	0.0067
At Present	26.9%	26.0%	19.6%	0.7569	0.1180	0.1679