THE IMPACT OF PROGRAM CHARACTERISTICS ON EFFICACY IN LOCAL EMERGENCY MANAGEMENT

JAMES WALTER WESTBROOK

B.A. in Sociology, University of Georgia, 2013
M.S. in Emergency Management, Jacksonville State University, 2015

A Research Paper Submitted to the School of Education and Behavioral Sciences

Middle Georgia State University

In partial fulfillment of the requirements for the degree of

DOCTOR OF SCIENCE IN PUBLIC SAFETY

Macon, Georgia

December 2025

Abstract

Understanding the structural and organizational characteristics of emergency management programs that impact program efficacy can provide critical insights to help build more resilient and better prepared communities. This study attempts to address this problem by identifying the characteristics of emergency management programs that have a correlation to improved program efficacy across all four phases of emergency management. Utilizing the Emergency Management Accreditation Program (EMAP) Standard as a foundation for the framework, a survey was developed to quantify the efficacy of local emergency management programs in Georgia. The program efficacy was compared to structural and organizational characteristics identified in the same survey to see if correlations could be found. Among the variables examined, full-time equivalent staff dedicated to emergency management was found to have the greatest correlation to overall program efficacy. This study also examined and found other important correlational relationships, such as those between the phases of emergency management.

ACKNOWLEDGEMENTS

I want to take a moment to acknowledge all of those who have helped to make this final paper possible. First, I want to thank my parents – Ed and Sabrina Westbrook – for pushing me throughout my life to achieve and improve myself. I want to thank my co-workers and colleagues who have encouraged me throughout this educational process. I would also like to thank those within my doctoral program cohort who have contributed to my learning and have been willing to bounce ideas back and forth throughout the last two years.

I would also like to thank my committee chair, Dr. Thomas Matyok, for his guidance, direction, feedback, and correction throughout this program and especially throughout the development of this final paper. I would like to thank all of my professors who have contributed to my knowledge base upon which this final paper is built. Each of you brought a unique and interesting perspective to our classes that allowed me to grow throughout the program.

Lastly, and most certainly not least, I would like to thank my wife, Katy, and my son, Charlie, for sticking out this program with me. I have worked on papers late at night, through dinners, and while missing quality time with the two most important people in my life. My wife, in particular, had sacrificed many times so that I could finish my educational obsession that has been this final paper. She is the light that brightens all of my accomplishments and I could never be where I am today professionally, personally, or academically without her support and love.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter 1: Introduction

The nature of emergency management makes program evaluation a difficult endeavor. Ultimately, the truest test of a community's emergency management efforts is that community's ability to respond to and recover from an actual emergency. For example, disasters such as the COVID-19 Pandemic highlighted the need for communities of all sizes and abilities to properly plan for and respond to disasters (Ansell et al, 2020; Janssen & van der Voort 2020). However, if no major emergency occurs over an extended period of time, assessing the caliber of the community's emergency management program becomes difficult (Henstra, 2010; Romanowski et al, 2016). Emergency management's core nexus of mitigation, preparedness, response, and recovery further complicates program evaluation. An emergency management program can be quite successful at mitigation and response but still fall flat in preparedness and recovery. To be a truly successful emergency management program, efficacy must exist across all four phases.

Evaluating emergency management program efficacy can help to extrapolate future success in disaster response and recovery efforts (Henstra, 2010; Kapucu & Khosa, 2013). For example, counties that have obtained and utilized funds from the FEMA Hazard Mitigation Grant Program have seen direct correlations to decreased property damage from natural hazards (Ji & Lee, 2021). This shows the successful application of pre-disaster emergency management efforts directly improving future recovery. However, as mentioned previously, how best to gauge program quality as a whole or even how best to gauge program quality for the specific phases of the emergency management system has been an onerous task within emergency

management research efforts (Alexander, 2003; Alexander, 2005; Lorenzoni et al, 2022). This is problematic as program evaluation is a foundational aspect of current public administration theory and practice in the United States. To determine where best to provide funds within the public administrative structure, the benefit of those programs to the community must be identified.

As seen in previous studies, thoughts on what areas of emergency management are representative of program quality varies. Focusing on disaster resiliency from a direct risk reduction perspective has been one popular approach in contemporary literature (Harris et al, 2021; Ji & Lee, 2021; Pescaroli & Alexander, 2018; Wu et al, 2023). This approach focuses solely on an overall reduction of risk to a community and fails to incorporate preparedness activities that better position a community to respond more effectively to emergencies and disasters. Research focused on response, however, has demonstrated a proclivity to provide policy direction as response failures are often more public and garner immediate attention by policymakers (Cordova et al, 2023; Haque et al, 2019; Nohrstedt, 2022). In attempts to project future response outcomes, some studies have focused primarily on preparedness efforts (Das, 2018; Gillespie & Streeter, 1987). However, too much focus on preparedness and response effectiveness fails to consider the importance of the risk reduction strategies espoused in other research (Weaver, 2014). All of these factors show the difficulty in crafting an evaluation of emergency management programs that incorporate all phases of emergency management equally to provide the most holistic review of these programs.

Objectively assessing emergency management programs requires an identified standard of excellence to which programs can be compared. Utilizing accreditation

programs that are based on the crisis management system in place as evaluative tools has the potential to directly lead to improvement in both responsiveness and service quality (Miresmaeeli et al, 2023). Currently, the most widely accepted standard for emergency management is the Emergency Management Accreditation Program (EMAP) standard. The EMAP standard's development began in 1997 as a feasibility study that morphed into establishing a sound emergency management standard (EMAP, 2023). EMAP's framework is partially based upon the National Fire Protection Association (NFPA) 1600 Standard for Disaster/Emergency Management and Business Continuity Programs (Lucus, 2006). EMAP was developed in consultation with stakeholders from across the emergency management spectrum and did not focus solely on government emergency management programs (EMAP, 2023). This approach makes EMAP applicable across a variety of different types of emergency management programs and organizations.

EMAP was quickly recognized as the gold standard of emergency management evaluation and was even utilized by FEMA to review state and territory-level emergency management programs during a 2003-2004 review (Lucus, 2006). The EMAP standard has been endorsed by many leading national and international emergency management organizations, such as the International Association of Emergency Managers (IAEM) and the National Emergency Management Association (NEMA) (Jensen & Ferreira, 2023). The EMAP standard is known to be a rigorous, yet scalable, standard that attempts to assess emergency management programs fairly regardless of size or budget (EMAP, 2023). These factors make EMAP an obvious choice as the baseline upon which to build a study.

The following study attempts to utilize the EMAP standard as a quantitative baseline for an emergency management program evaluation. This standard has been utilized in other studies as a baseline for evaluating specific aspects of emergency management programs and for evaluating state-level emergency management programs (Henstra, 2010; Lucus, 2006; Manning, 2023). However, evaluating the efficacy of emergency management programs solely on the basis of the EMAP standard may fail to identify core issues that potentially exist in how emergency management programs are structured on the local level. The EMAP standard may be able to demonstrate the efficacy of a program, but to truly find the underlying reasons for program success, information about the programs themselves – such as number of employees, size of jurisdiction, type of community, etc. – will also be foundational to this study's understanding of emergency management program quality and success. Identifying the structural components of emergency management programs that correlate to program efficacy allows for a framework from which local emergency management programs can be built moving forward.

Chapter 2: Literature Review

Overview of the Topic Area

A solution to some of the underlying issues plaguing emergency management is a move towards a more consistent structure of local emergency management programs. This consistency can take many forms. There could be greater consistency in the local government structure related to the positioning within the hierarchy and reporting structure of emergency management programs. There could be greater consistency in the requirements and qualifications to be a local emergency management director.

There could also be greater consistency in regard to the number of employees needed for an organization to properly implement an emergency management program in their jurisdiction. Each of these solutions could have positive impacts on local emergency management programs.

Reporting structure has the potential to be a significant hindrance or facilitator of collaboration and relationship building in emergency management. Administrative buy-in has been shown to be crucial to the success of an emergency management program and many emergency managers have identified this as a specific weakness within their organizations (McEntire, 2024). Placing emergency management as more of a direct report to the leadership of the administrative levels of government could help to alleviate this issue as direct access would, in the long run, hopefully increase awareness and buy-in to the importance of emergency management at the administrative level (Aspiras, 2023; Comfort, 1985). Reporting structure has also been shown to have direct correlations to the willingness of an emergency management organization to work with non-profit and other volunteer organizations to support the community before, during, and after a disaster (Rivera, 2016). It is oftentimes easier for emergency managers to build relationships with decision-makers and other departments if those departments recognize the authority vested in emergency management by leadership (Alshayhan et al, 2024; Kapucu et al, 2024). It is this collaborative nature of emergency management that is highlighted by many studies as being a key factor in the ability of jurisdictions to properly respond to and recover from disasters (Aspiras, 2023; Janssen & van der Voort, 2020; Rivera, 2016; Weaver, 2014; Zaychik et al, 2025).

The qualifications needed to be an emergency manager are one area where the has been significant research. Numerous academic articles have argued for greater consistency in training requirements, education levels, and have gone as far as identifying specific competencies that relate to more adept and successful emergency management leaders (Alexander, 2003; Collins & Peerbolte, 2011; Comfort & Wukich, 2013; Cwiak et al, 2017; Haupt, 2021; Haupt & Knox, 2018; Malone, 2018; Urby et al, 2019). In Georgia, qualification requirements are outlined in law and local emergency managers have to obtain the Certified Emergency Manager (CEM) certification from the Georgia Emergency Management and Homeland Security Agency (GEMA) (Georgia Emergency Management Act of 1981, 1981). However, even this certification process lacked the robustness needed to meet the knowledge requirements of local emergency managers (Westbrook, 2021). Disparate levels of training and education have also been documented to even be a deterrent to collaboration between emergency management programs (Caruson & MacManus, 2012). Likewise, a lack of subject matter expertise by the emergency management team can impact the willingness of other organizations to be collaborative partners and build long-term relationships (Janssen & van der Voort, 2020).

Increasing the number of employees who are dedicated to emergency management would likely have positive impacts on the preparedness and resilience level of local communities (Kovel, 2000). Studies show that local communities are willing to pay increased tax amounts for better local emergency management, specifically including the hiring of a dedicated, full-time emergency manager (Choi & Wehde, 2024). Emergency managers have cited their ability to implement preparedness

programs as having a significant impact on the overall resilience of their local communities (McEntire, 2024). However, there has to be dedicated and properly trained personnel in place to implement and sustain these types of impactful programs. Many emergency managers in Georgia currently have dual roles as fire chief and emergency manager or 911 director and emergency manager or some other combination. This split loyalty impacts the amount of time these professionals have to dedicate to emergency management activities in their local communities. Creating dedicated positions would allow for greater focus on emergency management activities and, theoretically, higher levels of resilience and preparedness for all communities.

Ultimately, all of these areas are intertwined. A greater number of full-time, dedicated emergency managers is only an improvement if they have proper training, experience, and education to meet the needs of their communities (Marchezini et al, 2025). If not properly trained or lacking the knowledge base to perform at a high level amongst decision makers, then an emergency manager is not going to be placed in a leadership role in the local hierarchy. If the position is buried within another department, it is going to be more difficult to attract high-performing, high-achieving personnel to fill these roles. All of these factors impact the ability of local emergency managers to implement high quality programs within their jurisdictions.

It is also important to note counterarguments that could arise against the potential changes to emergency management programs listed above. Most notably is the increased budgetary commitment that would be needed to address some of these issues, including increasing the number of dedicated emergency management staff. While there is a research article that points directly to the willingness of people to see

increased taxes for better local emergency management, this article also shows that there are some differences that exist between political affiliation with this willingness (Choi & Wehde, 2024). This could mean specific pushback in conservative states, such as Georgia, for increased costs associated with improved emergency management programs.

It is also important to acknowledge that emergency management is not likely to have a “one size fits all” practical and structural approach. Each jurisdiction has specific needs and specific capabilities that may lend itself to stronger emergency management programs. Likewise, some jurisdictions may have other aspects of their government structure that could hinder emergency management programs regardless of the emergency management program characteristics. This highlights the importance of leadership and leadership buy-in for the success of emergency management programs (Ansell et al, 2020; Basurto-Cedeno & Pennington-Gray, 2024; McEntire, 2024; Urby & McEntire, 2015). Without this buy-in, the best emergency managers would have difficulty in building high-quality programs and improving the resilience of their communities long-term.

Literature Review

There is not a significant amount of available data or past research on emergency management program quality and assessment, especially on the local level. Emergency management as a field of study itself is relatively young, which contributes to the lack of sufficient current research. The Federal Emergency Management Agency (FEMA) collaborated with the National Association of Schools of Public Affairs and Administration (NASPAA) in 1984 in an attempt to specifically address this issue. The

goal of their collaboration was to expand scholarly research into emergency management practices (Comfort et al, 2012). This endeavor has proven relatively prosperous, as seen by the current expanding research opportunities within emergency management to aid future practices (Comfort et al, 2012). When compared to other areas of study within the public administration arena, as well as similar scholarly areas of social science study, this relative newcomer status has curtailed the amount of current available research into emergency management.

Even with the lack of historical research, there does exist some literature that is applicable to this research study. One such study utilized FEMA's 2003-2004 baseline assessment of state-level emergency management agencies utilizing the EMAP standard as a data source to review the current state of state emergency management capabilities (Lucus, 2006). This study concluded that state-level emergency management agencies focused significantly more resources on the response phase of emergency management and neglected the recovery and mitigation phases (Lucus, 2006). This finding was supported by subsequent studies that specifically looked at the lack of resources focused on mitigation and recovery efforts (Aspiras, 2023; Ji & Lee, 2021; Kapucu & Khosa, 2013). While some previous studies have focused on emergency management response effectiveness, they did not look at the full program effectiveness in all four phases of emergency management (Das, 2018; Gillespie & Streeter, 1987; Weaver, 2014).

A review of past literature found several studies that identified the difficulty in evaluating emergency management programs. Some of these studies were specifically focused on the concept of resiliency and how best to gauge this metric for current

emergency management programs (Harris et al, 2021; Henstra 2010; Romanowski et al, 2016). These studies identified potential future opportunities for research by evaluating the metrics that could be utilized to measure the effectiveness of emergency management programs and community resiliency. All three of these studies utilized the EMAP standard as at least part of the foundation upon which to evaluate program effectiveness.

While it is difficult to find literature focused on emergency management programs in multiple types of organizations, there are some studies that evaluated specific phases of emergency management or specific types of emergency management agencies. Several studies delved into emergency management program effectiveness in institutes of higher education (Farris & McCreight, 2014; Kapucu & Khosa, 2013). Kapucu & Kohsa (2013) focused on identifying key elements that were important for the creation of disaster-resilient colleges and universities. Their findings demonstrated the development of all-hazard plans, conducting regular training and exercises, and strong community partnerships as foundational to program efficacy. These findings are consistent with the framework of the EMAP standard (EMAP, 2023). Farris & McCreight (2014) were more intent on studying the differences between emergency management programs in institutes of higher education and those at the county and municipal-level. They found that institutes of higher education had a greater overall focus of encouraging the continued professionalization of emergency management. Additionally, another study utilized the Priority Risk Index, which utilizes EMAP's standards as a format, to try and quantify hazard mitigation planning efforts in institutions of higher education (Harris et al, 2021).

There have been several articles that focused on specific functional areas of emergency management as a means of evaluation. Research looking specifically at emergency preparedness activities, for example, has found there are multiple characteristics that can impact the level of preparedness within a community (Das, 2018). These include socioeconomic factors, social bonds, the number of vulnerable populations, as well as individual perceptions of hazards (Das, 2018). Other studies have utilized an even more distinctive approach by going beyond the preparedness phase of emergency management to focus on the emergency planning aspect of emergency preparedness. One such study attempted to find common evaluative ground within emergency planning efforts to determine what emergency plans were of higher quality (Alexander, 2005). This study, along with several others, began to question the validity of the all-hazards planning approach within emergency preparedness (Alexander, 2005; Bodas et al, 2020). The all-hazards approach prefers to develop plans in more generalized terms so that protocols and functional approaches to emergencies can be developed more broadly (Bodas et al, 2020). The issue identified with this approach is the lack of planning for specific hazards and risks that a jurisdiction could face, such as a pandemic. When all-hazards planning should, in theory, allow for more nimble plans that can be adapted to meet the needs of the situation, the reality has shown that the lack of hazard-specific planning has left jurisdictions under-prepared for some of their more likely and more impactful hazards.

Other preparedness-focused studies have looked at developing metrics to gauge preparedness and recovery successes in an attempt to identify better processes leading to better outcomes for future disasters (Oloruntoba & Sridharan, 2017). Other studies

have looked directly at the funding of preparedness activities to identify potential correlations between investment in emergency preparedness and better outcomes post-disaster (Gerber-Chavez et al, 2023; Miao & Davlasheridze, 2024). Studies have accomplished this by examining federal grant funding opportunities, such as the Emergency Management Performance Grant (EMPG). EMPG was found to be more impactful for high-risk and larger population jurisdictions compared to smaller, more rural jurisdictions who were less likely to receive sizable funds from the program (Gerber-Chavez et al, 2023). In the Miao & Davlasheridze (2024) study, EMPG was found to have significant impacts on flood risk reduction efforts in coastal jurisdictions in the United States. This would seemingly agree with the Garber-Chavez et al (2023) study regarding high-risk jurisdictions seeing more successful application of EMPG funds.

Regarding emergency management as a whole, preparedness has likewise been challenging for researchers to quantify. While preparedness is considered to be an important part of the emergency management cycle that has direct ties to the ability of a jurisdiction to respond to emergencies, there still exists a lack of reliable means of measurement (Gillespie & Streeter, 1987; Lorenzoni et al, 2022). Some researchers have gone as far as to contend that there is even a lack of consensus on what constitutes preparedness efforts (Lorenzoni et al, 2022). This lack of consensus around preparedness activities and lack of quantifiable measurement can be particularly problematic when trying to assess how preparedness levels impact post-disaster outcomes.

An intriguing set of articles has been published centered on strategic planning within emergency management and how this specific endeavor can impact the overall quality of the emergency management program (Manning, 2020; Manning, 2023). These studies found that strategic planning had a direct and significant impact on the overall emergency management program quality. Both of these studies utilized the EMAP standard as a foundation for the quality assessment of emergency management programs. While these studies were stark in their assertion that strategic planning had such a demonstrative impact on program quality (60% impact in the 2023 study), this study did not consider other potential underlying impacts that may have been impacting the study's variables. Additionally, this study focused on counties with a population greater than 25,000. As a comparison, this type of metric would eliminate more than half of the counties in the State of Georgia. This can make the findings somewhat problematic and difficult to apply across smaller jurisdictions, which make up a sizeable portion of the nation's population.

Preparedness is not the only phase of emergency management that has seen specific research regarding efficacy. All four phases of emergency management have seen similar research efforts over the last 10 years. In regard to response, some studies have focused greatly on the federal response apparatus. In a study by Hendrix (2021), particular focus was given to the federal emergency management processes, especially regarding how the coordination between federal, state, and local levels of government can be made more effective and more efficient to speed up response processes at all levels. Other studies have taken a more systematic approach to response efforts in an attempt to identify potential gaps and failures in the pre-disaster phase (Jackson et al,

2010). The ultimate goal, according to the authors, would be to improve policy development and system reliability across the board through the proper analysis of response performance post-disaster (Jackson et al, 2010). Finally, another study focused on the interorganizational coordination efforts during the response phase of a disaster. This study found that while plans and procedures developed during the preparedness phase of emergency management were important, it was the interplay between organizations participating in the response and the ability of these organizations to collaborate and cooperate with one another for the common good that had the greatest direct impacts on the overall response success (Sydnes et al, 2025). This particular study highlights the importance of the informal mechanisms of emergency management and espouses the importance of flexibility built on relationships as being key aspects of a successful response operation.

Mitigation is the phase of emergency management that has seen a significant amount of effective research focus over the last ten years. One previous study highlighted the importance of mitigation grant funds as a predictor of improved outcomes post-disaster (Ji and Lee, 2021). In this study, Ji and Lee (2021) found that counties that had obtained hazard mitigation grant funds were more likely to see less property damage after a disaster. In contrast, other studies have found little to no correlation between pre-disaster mitigation spending and post-disaster recovery costs (Renken et al, 2020a; Renken et al, 2020b). However, these two studies were focused on mitigation spending at the state and regional level and did not compare costs at the local level where more direct impacts of mitigation efforts may materialize. Other studies focused on the efficacy of hazard mitigation planning efforts at the state and local level.

At the state level, studies have found varying levels of hazard mitigation planning effectiveness across the country (Habets et al, 2023; Olonilua, 2016). In particular, Habets et al (2023) found significant variance in the hazard identification and risk assessment (HIRA) implementation and integration of vulnerable population needs into hazard mitigation planning efforts at the state level. While Olonilua (2016) also found varying levels of efficacy in state hazard mitigation plans, they did not find correlations between plan effectiveness and adherence to the Disaster Mitigation Act of 2000. Gall et al (2024) focused on the development of hazard mitigation plans on the local level in the State of Louisiana. This study found very little variance in the mitigation strategies developed for coastal and inland counties despite differences in hazard threat levels. This may indicate a willingness of local emergency managers and planners to not develop mitigation strategies specific to their needs and, instead, rely on “cookie cutter” approaches to hazard mitigation strategy development.

Some research has focused specifically on the effectiveness of mitigation strategies on long-term resilience and found that mitigation strategies must be carefully developed or they could actually have negative effects on the long-term vulnerability of a community (Das, 2018; Gall et al, 2024; Wenger, 2017). The study by Gall et al (2024), in particular, found that many hazard mitigation strategies were solely focused on short-term mitigation effectiveness and did not consider the long-term resiliency of the community. While the above studies looked at the long-term impacts of mitigation strategies, a study by Kim et al (2024) focused on how mitigation strategies were implemented in urban areas. This study found that mitigation strategies were best implemented when interorganizational collaboration occurred as part of the

implementation process.

Studies on recovery effectiveness have been a less popular topic in emergency management research. Some studies were focused on how best to measure and quantify the success of recovery efforts post-disaster (Oloruntoba & Sridharan, 2017; Romanowski et al, 2016). The study by Romanowski et al (2016) identified resiliency in the critical infrastructure sector as a means of quantifying likelihood of recovery post-disaster. Oloruntoba & Sridharan (2017) focused on two major events in Australia – a wildland fire and a tropical cyclone – to look at the correlations between preparedness efforts and post-disaster recovery. One interesting study by Marchezini (2019) studied the impacts of localism on the recovery process after a disaster. This study importantly identifies the importance of localism in future policy development in emergency management.

Emergency management studies focused on the efficacy of exercises and lessons learned from another intriguing area of current research in the field. Many studies have also looked at the effectiveness of the lessons learned documents created after exercises and real-world events. Many of these studies have found deficiencies in these lessons learned documents that ultimately undermine the document's effectiveness (Beerens et al, 2020; Birkland, 2009; Broekema et al, 2025). A study by Beerens & Haverhoek-Mieremet (2021) looked at the discrepancy between lessons learned documents and the expectations of crisis managers. Crisis managers often expect these documents to provide support to improvement efforts and contribute to learning while the documents themselves often only look at how to avoid repeating the mistakes observed. Such an approach severely limits the useability of these lessons

learned documents. Many of these studies also focused specifically on how to improve learning post-disaster and how lessons learned can be better incorporated into future preparedness and mitigation efforts (Beerens et al, 2020; Betten et al, 2021; Broekema et al, 2025). Finally, a study by Broekema (2025) looked at lessons learned from an opposite perspective and attempted to identify specific reasons why organizational forgetting occurs after a disaster. This study identified specific challenges related to the identification, retention, storing, and recalling of lessons learned after a disaster as being key reasons why organizational forgetting occurs with a specific focus on how employee turnover and organizational restructuring exacerbates these challenges.

There have also been studies perpetrated in other countries that attempted to assess disaster management program quality. One such study in Nigeria reviewed the current National Disaster Management Framework (NDMF) in place in the country and concluded that disaster management should be more localized and community-based, similar to the structure seen in emergency management in the United States (Abdussalaam et al, 2024). A Romanian study came to similar conclusions and found current strategies lacked the organizational infrastructure to support disaster management, which is expected when there is a lack of resources and personnel supporting the program (Barbu, 2023). Additionally, a comparative study was performed on different accreditation and crisis management systems across the globe (Miresmaeeli et al, 2023). This study concluded that the accreditation systems that are specific to the local crisis management model are best suited for assessing and improving the quality of these services (Miresmaeeli et al, 2023). One Chinese study perpetuated the argument in favor of community-based disaster reduction strategies

through a quantitative analysis of current programs (Wu et al, 2023). This study identifies several opportunities for future studies and considerations focused on the mitigation aspects of the emergency management phases. Another study based in China looked at the complexity of emergency management in urban settings and identified potential quality comparisons across municipalities (Fu et al, 2024).

Australia has seen a number of studies focused on emergency management effectiveness in recent years after several high-profile disasters. One such study looked at the effectiveness of governance structures for the management of the COVID-19 pandemic in Australia (Kapucu et al, 2024). The article highlights the importance of collaborative leadership, organizational capacity, and a culture of collaboration in emergency management to foster cohesion throughout the system. The complex federal system that exists in Australia makes this approach in that nation particularly cumbersome (Kapucu et al, 2024). The federal system was also seen as an issue for Australia's emergency management system in other studies (Sanderson et al, 2024). In the Sanderson et al (2024) study, the authors see the short-term focus of the national emergency management system as being counterintuitive for the long-term needs of local jurisdictions. By contrast, Buchtmann et al (2023) applauded the national framework developed in Australia as being instrumental for risk reduction policy reforms nationwide.

There have also been several studies on the quality of emergency management programs and policies in Europe. Two such studies looked at the effectiveness of emergency management structures in Romania and found deficiencies throughout the system with most of the blame being pointed at the centralized authority of disaster

management practices in the country (Barbu, 2023; Zulean & Prelipcean, 2013). Another study focused on the European Union as a whole delved into the EU's Solidarity and Emergency Aid Reserve (SEAR). This study found that each country within the European Union had varying levels of disaster risk and, therefore, varying level of potential need to access the funds in the SEAR (Hocrainer-Stigler et al, 2024). This study highlights the importance of shared support for disaster relief efforts across jurisdictional boundaries.

How public trust impacts the efficacy of emergency management organizations on the local level has been another area of interesting research. Studies have shown that individual levels of preparedness have some correlation to trust in their local emergency management officials and organizations (Choi & Wehde, 2020). This research shows the importance of effective local emergency management organizations, especially in regard to preparedness and resilience levels within the local community. Other studies have highlighted the importance of trust between those impacted by disasters and the community-based disaster relief organizations providing assistance (Amaya et al, 2024; Marchezini, 2019). Jurisdictions impacted by a disaster must properly leverage the trust imparted to them by the public to meet their needs and expectations or that trust will quickly wane (Malesic, 2019).

Finally, there have been some studies focused more on the emergency management systematic approach. These studies have looked at the complexities within emergency management and how systematic changes may be needed to improve program quality. One such study suggests the Complex Adaptive Systems (CAS) approach would be beneficial along with a more hazard-agnostic approach to

emergency planning (Hodges & Larranaga, 2021). This approach suggests planning that is focused on consequences rather than causation. While this is a novel approach and certainly has some value in planning for response and preparedness efforts, many mitigation considerations are hazard-specific and would need to be considered when developing hazard mitigation strategies (Ji & Lee, 2021). The same types of complexities identified by Hodges & Larranaga (2021) are present in Jensen & Waugh's (2014) study on the Incident Command System and how the complexity of disasters may not be conducive to the structures currently established as best practices. This study argues that more research is needed to review the effectiveness of the Incident Command System for emergency response operations (Jensen & Waugh, 2014).

This review of current literature shows a robust thought process regarding current activities in emergency management and a clear recognition of the need to develop better assessment capabilities and methods for emergency management programs. While a significant amount of overall research exists, the current literature highlights the lack of research specifically aimed at the efficacy of local emergency management programs. Most research has previously been focused more specifically on different phases of emergency management and not a local jurisdiction's program as a whole. This study attempts to address this head on with an evaluation of local emergency management programs while also looking at each phase of emergency management. Specific recommendations for improving local emergency management program efficacy are included in Chapter 5 of this study to incorporate the findings this study identifies.

Chapter 3: Research Design and Methodology

This study utilizes a survey to gather data from the employees of emergency management organizations within the State of Georgia. This survey focuses on gathering two distinct types of data. The first type of data will be program characteristics information about the department tasked with the emergency management function within the respondent's organization and the jurisdiction which the program serves. The second type of data will be emergency management program efficacy information utilizing the EMAP standard as the foundation for these questions. Both types of data are important to be able to draw correlations between program characteristics and program quality.

Program Evaluation Survey

The program evaluation data is the foundational piece of data to gauge overall emergency management program efficacy. This evaluation is based upon the EMAP standard. Questions within the survey are scale-based questions regarding programs, planning initiatives, and capabilities identified in the EMAP standard. Each of the four phases of emergency management – mitigation, preparedness, response, and recovery – are covered equally in the survey. Each phase has two sections with each section consisting of three questions. These three questions include two ordinal questions directly related to the EMAP standard and one Likert-scaled self-assessment question of the emergency management program's capabilities within that section. This allows for six total questions for each phase of emergency management. The areas being examined are:

- Mitigation
  - Hazard Identification and Risk Analysis
  - Hazard Mitigation Projects
- Preparedness
  - Emergency Operations Planning
  - Training and Exercises
- Response
  - Incident Management
  - Resource Management
- Recovery
  - Continuity of Operations/Continuity of Government Planning
  - Volunteer and Donated Goods Management

Each of these capabilities are identified as key aspects of the EMAP standard and allow for specific questions to be asked that remove as much of the subjective nature of the standard as possible for a clearer analysis. Each question is scored on an ordinal scale of 1 to 5. The self-assessment questions utilize Likert scales while the others are multiple choice questions with each choice having an associated score. For questions with only three choices, those questions will be scored 1-3-5 to maintain the continuity of the scale.

Responses to the program evaluation questions allow for the development of a score within each of the four phases of emergency management – mitigation, preparedness, response, and recovery – as well as a total program efficacy score. Each phase will have a score between 6 and 30 while the overall efficacy scores will range from 24 to 120. Determining both a total efficacy score and an efficacy score for each phase of emergency management allows for the greatest potential analysis between the different phases of emergency management as well as analysis of the overall program efficacy. Surveys will not ask for identifying information to allow for the greatest level of anonymity.

Emergency Management Program Characteristics Survey

Emergency management program characteristics data is gathered using a series of multiple-choice questions to establish independent variables. These will be the variables utilized to try and identify an impact on the efficacy scores – either overall or within specific phases of emergency management. The type of program characteristics data these questions will gather include:

- Number of full-time equivalent (FTE) employees dedicated to emergency management
- Reporting structure for emergency management within the organization
- Jurisdiction population
- Type of jurisdiction (state government, county, city, Institution of Higher Education, K-12, Healthcare, Other)
- Location within the State of Georgia (utilizing the 8 GEMA/EMAG Areas)

This programmatic information is important as it will be part of the basis on which conclusions regarding program efficacy could be drawn. Without this data, it would be difficult to draw reasonable assumptions about what program characteristics impact emergency management program efficacy. These characteristics can be utilized by organizations to make informed decisions regarding how best to improve the quality of their emergency management programs, particularly if data shows direct correlations for reporting structure or full-time equivalent employees dedicated to emergency management.

Analysis Method for Survey Data

This study utilizes a correlational analysis of the data to determine any potential correlations between the program characteristic variables and the program efficacy variables. This analysis looks at many potential relationships within the data. Potential relationships that will be analyzed include the following:

- FTE to Program Efficacy
- Reporting Structure to Program Efficacy
- Jurisdiction Size to Program Efficacy
- Efficacy Relationships Between the Emergency Management Phases

This analysis utilizes Spearman's rank correlation for the program characteristic variable groups to see if there is direct correlation between these variables and the program efficacy scores and/or efficacy scores for certain phases of emergency management. This approach would identify whether relationships exist between the efficacy of different phases of emergency management and if relationships exist between efficacy and program characteristic variables. This approach best fits this study as the data is ordinal or quasi-ordinal as it utilizes Likert and other non-interval scales for data collection. This analysis will also minimize the impact of outliers that could exist in the data collected. Analysis of this data would show a relationship between +1 and -1. A positive relationship score would indicate a positive relationship between the variables, and a negative relationship score would indicate a negative relationship between the variables. As data is ordinal and ties are expected, due to the limitations of score variance across six questions within each phase of emergency management, Spearman is a more appropriate statistical analysis approach than Pearson. Pearson may understate the importance of correlations between phases of emergency management when relationships are less linear in nature. Additionally, Spearman is more applicable than an Analysis of Variance (ANOVA) because ANOVA tends to assume homogeneity of variance, which may not exist in this data. For example, it may hide trends within the comparison of FTE data with program efficacy if there were to be diminishing returns as the number of FTEs increases. Data analysis was accomplished

through the utilization of SPSS software to help make informed decisions on any correlations that may exist within the data.

When attempting to determine if a relationship exists between variables, this study utilizes both a correlation coefficient and a significant value. For this study, a significance alpha of 0.05 was utilized, which indicates a 95% confidence level. So, for a relationship to be significant, the significance value will need to be below 0.05. The correlation coefficient indicates the strength of any relationship with a scale of 1 to -1. Coefficients between 0 and 1 indicate a positive relationship and coefficients between 0 and -1 indicate a negative relationship between the variables. For this study, coefficients between 0.3 and -0.3 will be treated as being too weak to be statistically viable as a predictor of program efficacy.

Table 1

Coefficient Strengths for Variable Relationships

Strength of Relationship Between Variables	Positive	Negative
Weak	0.3 to 0.49	-0.3 to -0.49
Moderate	0.5 to 0.69	-0.5 to -0.69
Strong	0.7 to 1	-0.7 to -1

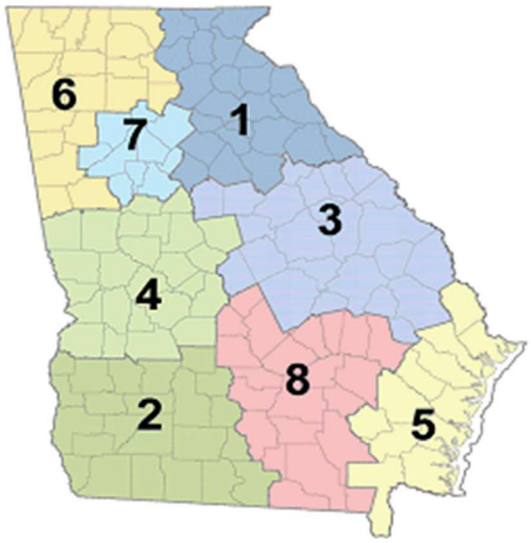
Survey Distribution

The survey was distributed as a dedicated link through the Emergency Management Association of Georgia via the association leadership and through the chairperson for each of the 8 Georgia emergency management areas (Figure 1). The Emergency Management Association of Georgia is the professional association of emergency managers in the State of Georgia (Emergency Management Association of Georgia, n.d.). Each of the 8 area chairpersons maintains a distribution list for emergency

management information sharing and announcements. Each chairperson shared the survey link through these distribution lists and encouraged participation. Additionally, each county-level emergency management director was invited to participate and share with any other emergency management personnel in their jurisdiction directly via email from the principal investigator. These were individual emails for each county emergency management agency. The survey was hosted in the Veoci platform, which is generally utilized as an incident management platform in emergency management. However, this platform allows for the creation of forms that can be public facing to allow for the gathering of anonymous survey data. All questions in the survey were required to be answered for submission to avoid any issues with this study regarding missing data. This ensured each survey submitted had complete data.

Figure 1

Georgia Emergency Management Areas



At the beginning of the survey there was a description of the survey and a clear indication that participation in the survey was both anonymous and voluntary. Additionally, those wishing to take the survey had to check a box that they agreed to

participate in the survey before continuing to the survey proper. These controls were put in place to ensure consent to participate in the survey was obtained.

Chapter 4: Findings

Survey Responses – Respondent Data

The research survey had a total of 77 responses received. Respondents covered all 8 GEMA/EMAG areas of Georgia and covered all population categories identified in the survey. Area 1 had the most submissions with 13 and Areas 4 and 6 had the second most submissions with 12 (Figure 2). Both Areas 1 and 6 are in north Georgia while Area 4 is in west central Georgia (Figure 1). Area 2, which is in southwest Georgia (Figure 1), had the fewest respondents with 5 (Figure 2). Jurisdictions with a population of over 100,000 provided the greatest number of survey submissions with 27 total submissions (Figure 3). This was to be expected considering these jurisdictions tend to have larger emergency management staffs. Responses for all other jurisdictions were distributed relatively evenly throughout the other jurisdiction population size categories.

Figure 2

Respondents by GEMA/EMAG Area

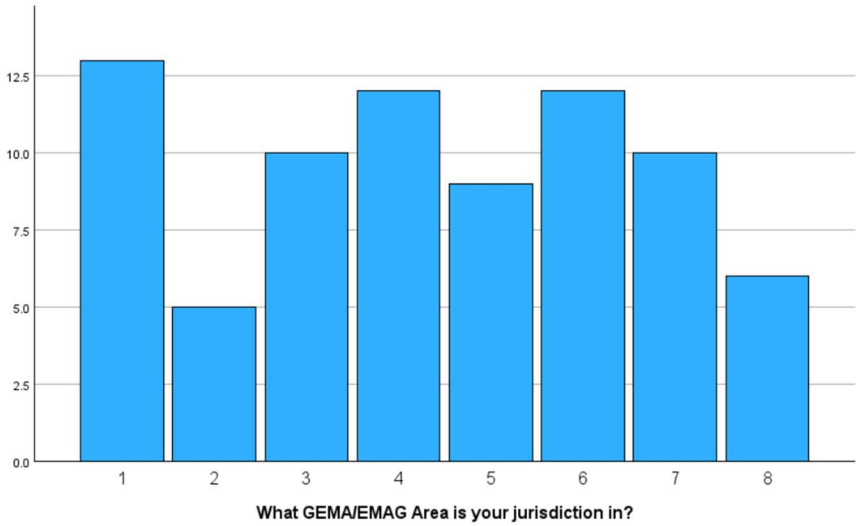
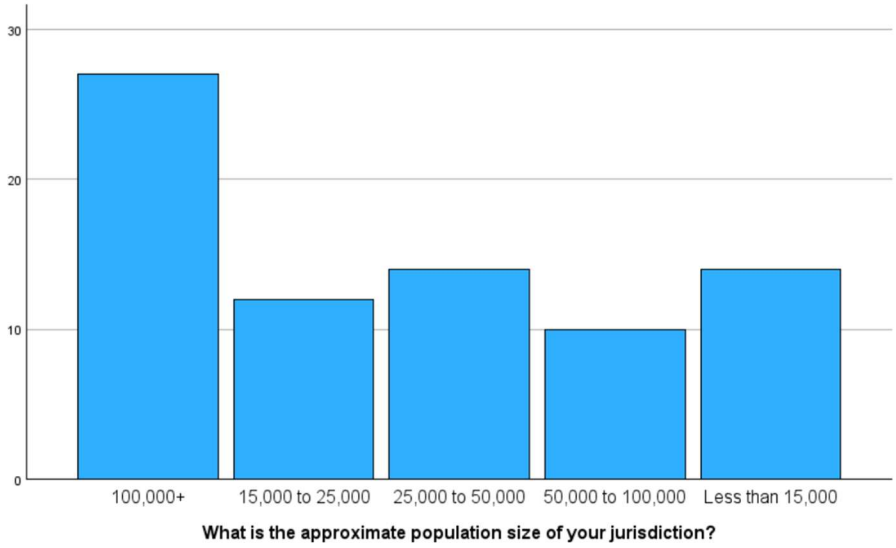


Figure 3

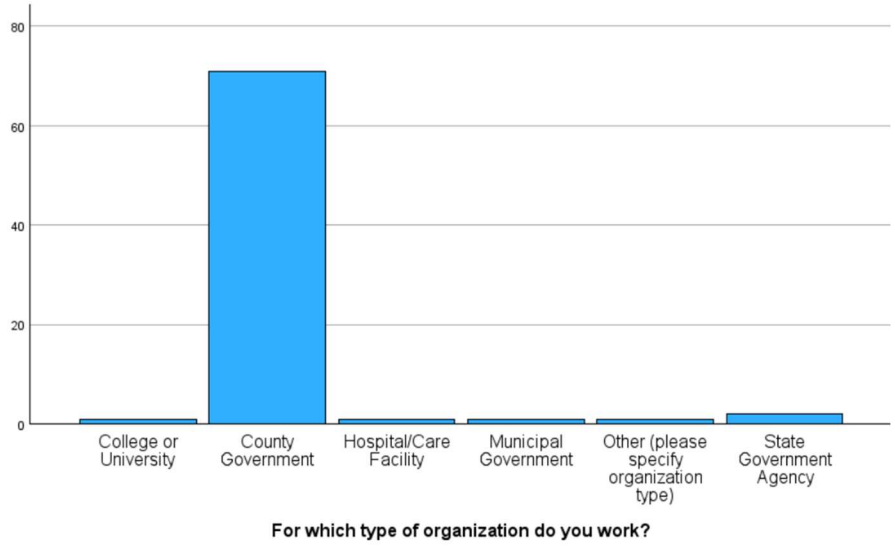
Respondents by Jurisdiction Size



The majority of respondents (71 out of 77) reported working for a county government (Figure 4). This is unsurprising considering every county in Georgia is required to have an emergency management director by law (Georgia Emergency Management Act of 1981, 1981).

Figure 4

Respondents by Organization Type



Survey Findings – Program Efficacy

When beginning the analysis of the survey data, there was a concern that program efficacy questions directly related to the EMAP survey may not have a correlation to the self-assessment Likert scale data. The self-assessment data could, potentially, demonstrate a bias by the respondents to overestimate the abilities of their emergency management program. To check this bias, a correlative bivariate analysis was conducted between the self-assessment score and the total aggregate score. This assessment found a correlation coefficient of .467 with a significant value of <.001 (Table 2). This indicates a weak positive relationship between the self-assessment and the EMAP survey direct questions. While a weak positive relationship exists, it was determined that it would be best to analyze the data moving forward through three lenses related to program efficacy. These three are a self-assessment score (aggregate score of all self-assessment questions), EMAP score (aggregate score of all questions other than the self-assessment questions), and a Total Efficacy score (aggregate score of all questions). This would ensure that any bias related to the self-assessment scores did not hinder the identification of correlations between program efficacy and program characteristics.

Table 2

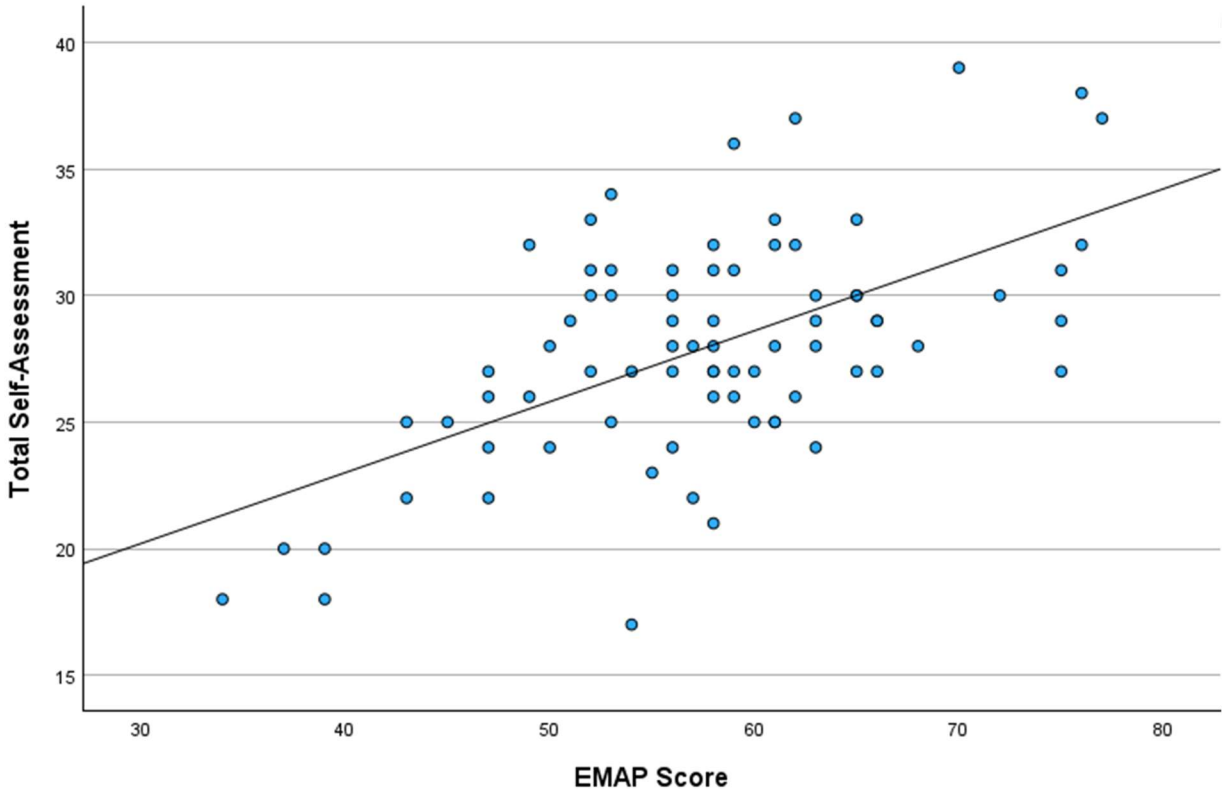
Correlation of Self-Assessment Score and EMAP Score

			EMAP Score
Spearman's rho	Total Self-Assessment	Correlation Coefficient	.467**
		Sig. (2-tailed)	<.001
		N	77

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 5

Scatter Plot of Self-Assessment Score and EMAP Score



The survey found a broad spectrum of scores related to program efficacy. The total possible score ranged from 24 to 120. The 77 survey submissions had a total aggregate score low of 52 and a high of 114 (Figure 6). The mean program efficacy total score for respondents was 85.53 (Figure 6). This mean indicates that the average local emergency management program in Georgia scored a 71.275% in program efficacy. The EMAP score had a low of 34 and a high of 77 with a mean of 57.6 (Figure 7). This equals a 72% average for local emergency management programs. The Self-Assessment score had a low of 17 and a high of 39 with a mean of 27.94 (Figure 8). This is equivalent to a 69.85% average for local emergency management programs. The percentage for the Self-Assessment and EMAP scores further alleviates the threat

of significant difference between how a local emergency management program assessed itself and what the EMAP standard indicates regarding program efficacy.

Figure 6

Histogram of Total Score

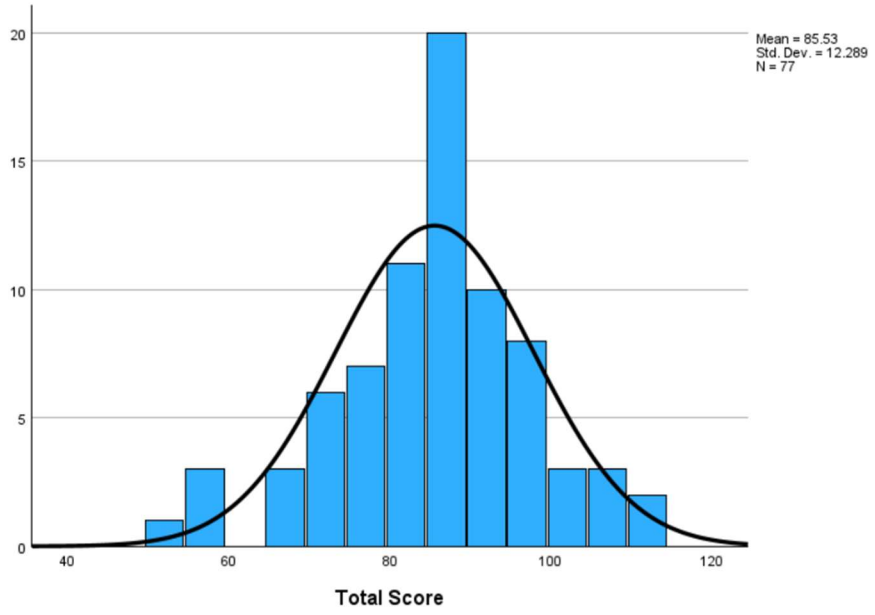


Figure 7

Histogram of EMAP Score

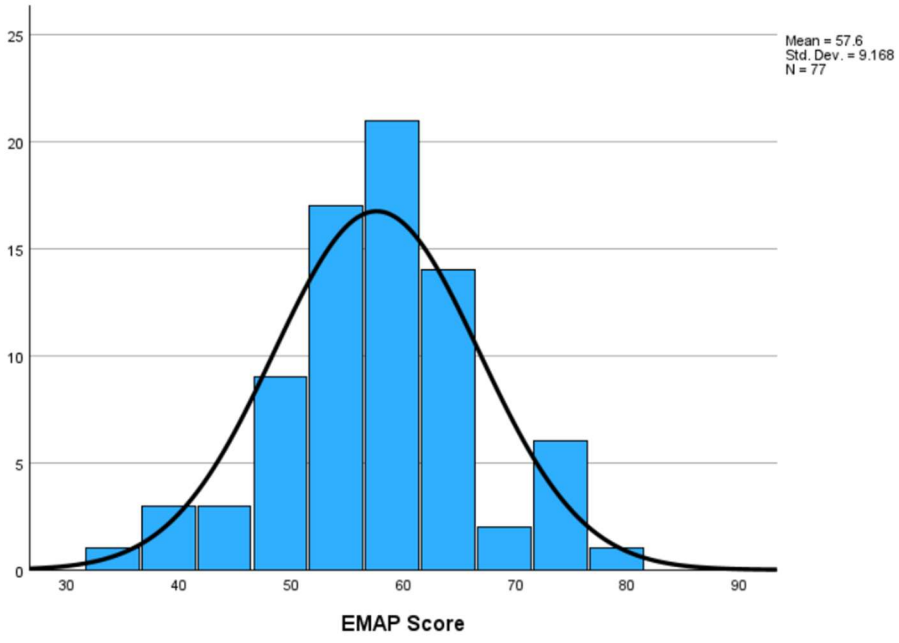
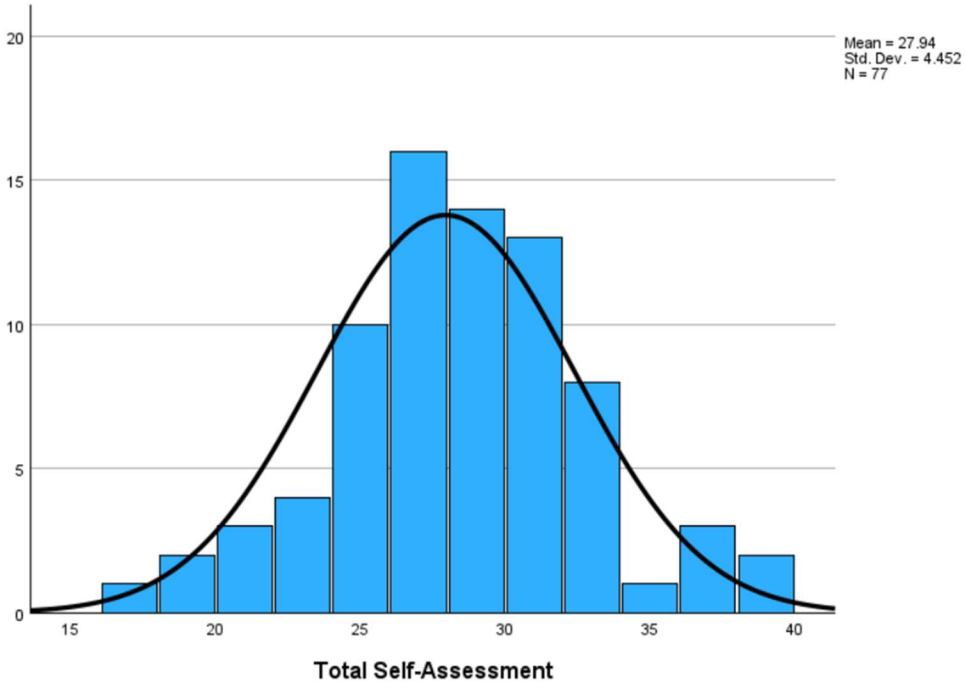


Figure 8

Histogram of Self-Assessment Score



Overall, the findings from the survey identified some key relationships between program efficacy variables and program characteristics as well as between program efficacy variables related to each phase of emergency management. The first program characteristic reviewed was Full-Time Equivalent Staff (FTEs). In this study, FTEs were defined within the survey for respondents with the following description:

> *For this question, "full-time equivalent" is a unit of measurement to show how many equivalent employees perform emergency management duties for your jurisdiction. Each person with full-time duties solely dedicated to emergency management would equal 1 full-time equivalent employee. An employee who shares their time between emergency management and other assigned duties would equal 0.5 full-time equivalent employees as long as they provide approximately half of their time to emergency management. A part-time employee solely dedicated to emergency management would equal 0.5 full-time equivalent employees.*

For FTEs, positive correlational relationships were demonstrated with all variables. However, some of those scores fell outside the threshold of significance (0.05) and some fell below the .300 threshold to be considered at least a weak relational correlation.

The strongest positive correlation for FTEs was with the Response Phase total score (0.469; <.001) (Table 3). This indicates a weak correlational relationship, further illustrated by the Scatter Plot in Figure 9. FTEs also had a weak correlational relationship with the Preparedness Phase total score (0.428; <.001) and Total Efficacy Score (0.430; <0.001) (Table 3). This was the strongest positive relationship found between program characteristics and the Total Efficacy Score. This data indicates that as the number of FTEs increases, the efficacy of the emergency management program as a whole also increases. Additionally, both the preparedness and response phases also increase in efficacy as the number of FTEs increases.

Table 3

Correlation of Full-Time Equivalent Staff and Total Program Efficacy

			FTE coded	Total Score	Preparedness Total	Mitigation Total	Response Total
Spearman's rho	Total Score	Correlation Coefficient	.430**				
		Sig. (2-tailed)	<.001				
		N	77				
	Preparedness Total	Correlation Coefficient	.428**	.804**			
		Sig. (2-tailed)	<.001	<.001			
		N	77	77			
	Mitigation Total	Correlation Coefficient	.195	.675**	.485**		
		Sig. (2-tailed)	.089	<.001	<.001		
		N	77	77	77		
	Response Total	Correlation Coefficient	.469**	.766**	.511**	.501**	
		Sig. (2-tailed)	<.001	<.001	<.001	<.001	
		N	77	77	77	77	
	Recovery Total	Correlation Coefficient	.210	.794**	.479**	.442**	.494**
		Sig. (2-tailed)	.067	<.001	<.001	<.001	<.001
		N	77	77	77	77	77

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 9

Scatter Plot of Full-Time Equivalent Staff and Total Program Efficacy

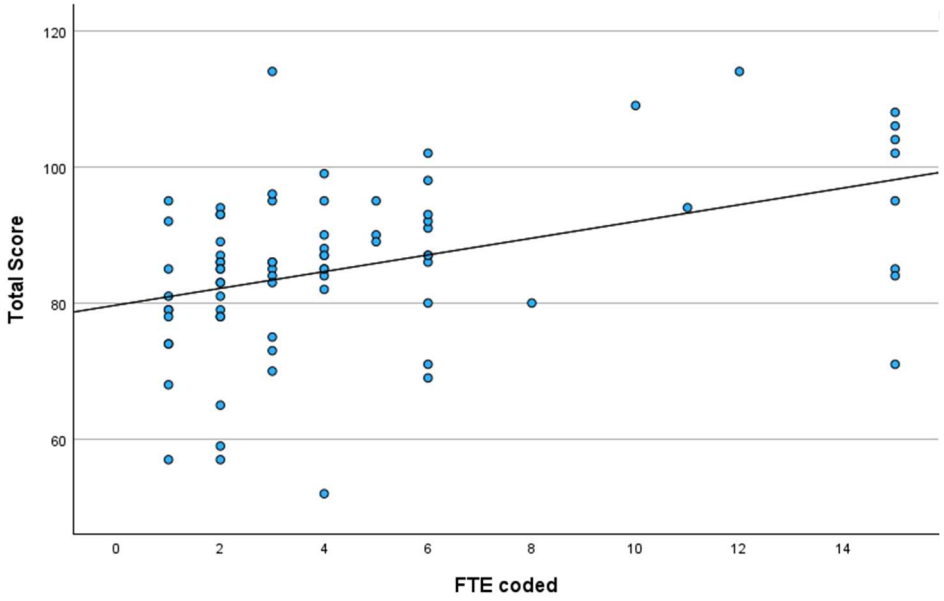


Table 3 also shows how Total score and each of the emergency management phase scores correlate to one another. Total Score showed a moderate positive correlational relationship with the Mitigation Phase total score (0.662; <0.001) and a strong positive correlational relationship with Preparedness (0.796; <0.001), Response (0.756; <0.001), and Recovery (0.786; <0.001) (Table 3). The survey data also identified correlations that exist between the different phases of emergency management with all phases showing positive correlational relationships to one another – ranging from the strongest correlation being between Preparedness and Response (0.511; <0.001) (Table 3; Figure 10) and the weakest correlation being between Recovery and Mitigation (0.442; <0.001) (Table 3; Figure 11). Two phase relationships qualified as having a moderate positive correlational relationship. These were Preparedness-Response and Response-Mitigation (0.501; <0.001) (Table 3). All other phase to phase relationships had weak positive correlations.

Figure 10

Scatter Plot of Response and Preparedness

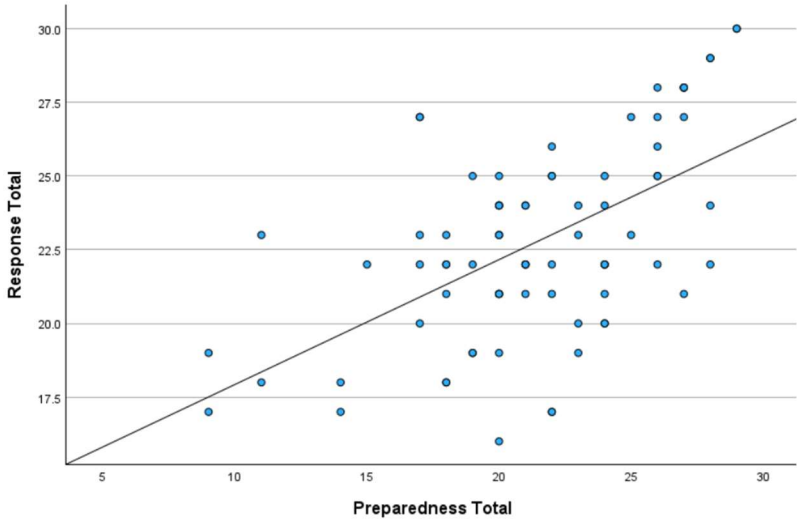
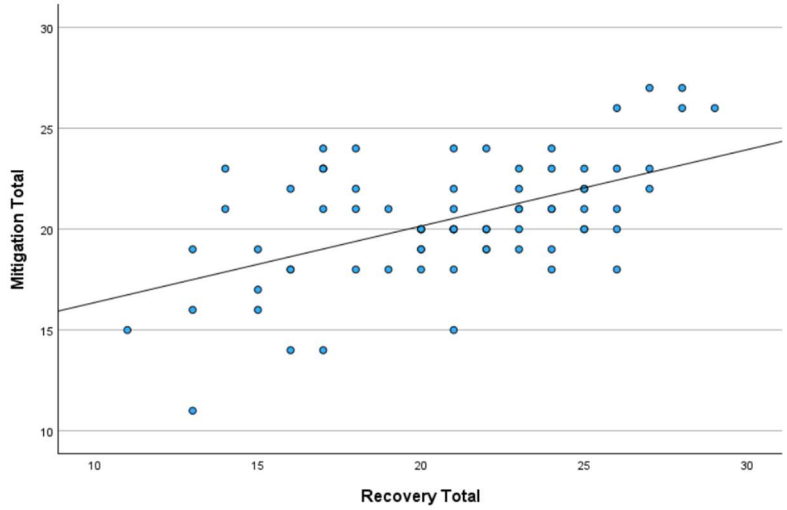


Figure 11

Scatter Plot of Mitigation and Recovery



When looking at the EMAP and Self-Assessment Scores, many of the same patterns emerge. FTEs showed a weak positive correlational relationship to the EMAP score (0.390; <0.001) and did not show a statistically viable correlation to the Self-Assessment score (0.292; 0.010) (Table 4). While the relationship indicated a positive

relationship, it does not meet the threshold identified within this study of statistical viability.

Table 4

Correlation of Full-Time Equivalent Staff to EMAP Score and Self-Assessment Score

			FTE coded
Spearman's rho	EMAP Score	Correlation Coefficient	.390**
		Sig. (2-tailed)	<.001
		N	77
	Total Self-Assessment	Correlation Coefficient	.292*
		Sig. (2-tailed)	.010
		N	77

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The EMAP Score showed a statistically significant relationship with all four phases of emergency management. Preparedness (0.783; <0.001) and Recovery (0.798; <0.001) both exhibited a strong positive relationship with the EMAP Score (Table 5). Additionally, both Mitigation (0.550; <.001) and Response (0.689; <0.001) were determined to have moderate positive relationships with the EMAP Score (Table 5).

Table 5

EMAP Score and Emergency Management Phases

			EMAP Score
Spearman's rho	Preparedness Total	Correlation Coefficient	.783**
		Sig. (2-tailed)	<.001
		N	77
	Mitigation Total	Correlation Coefficient	.550**
		Sig. (2-tailed)	<.001
		N	77
	Response Total	Correlation Coefficient	.689**
		Sig. (2-tailed)	<.001
		N	77
	Recovery Total	Correlation Coefficient	.798**
		Sig. (2-tailed)	<.001
		N	77

**. Correlation is significant at the 0.01 level (2-tailed).

The Self-Assessment Score, likewise, had statistically significant relationships to all four phases of emergency management. However, these relationships were statistically weaker than the relationship exhibited with the emergency management

phases and the EMAP Score with the exception of Mitigation. The Self-Assessment Score showed a strong positive relationship with Mitigation (0.716; <0.001) and moderate relationships with the Recovery (0.508; <0.001), Preparedness (0.547; <0.001), and Response (0.625; <0.001) phases of emergency management (Table 6).

Table 6

Self-Assessment Score and Emergency Management Phase

			Total Self-Assessment
Spearman's rho	Preparedness Total	Correlation Coefficient	.547**
		Sig. (2-tailed)	<.001
		N	77
	Mitigation Total	Correlation Coefficient	.716**
		Sig. (2-tailed)	<.001
		N	77
	Response Total	Correlation Coefficient	.625**
		Sig. (2-tailed)	<.001
		N	77
	Recovery Total	Correlation Coefficient	.508**
		Sig. (2-tailed)	<.001
		N	77

**. Correlation is significant at the 0.01 level (2-tailed).

Table 7

Correlation of Reporting Structure and Program Efficacy

			Reporting Structure Coded
Spearman's rho	Total Score	Correlation Coefficient	-.252*
		Sig. (2-tailed)	.027
		N	77
	Preparedness Total	Correlation Coefficient	-.143
		Sig. (2-tailed)	.213
		N	77
	Mitigation Total	Correlation Coefficient	-.135
		Sig. (2-tailed)	.242
		N	77
	Response Total	Correlation Coefficient	-.286*
		Sig. (2-tailed)	.012
		N	77
	Recovery Total	Correlation Coefficient	-.298**
		Sig. (2-tailed)	.009
		N	77
	EMAP Score	Correlation Coefficient	-.293**
		Sig. (2-tailed)	.010
		N	77
	Total Self-Assessment	Correlation Coefficient	-.136
		Sig. (2-tailed)	.237
		N	77

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Reporting structure as a program characteristic actually appeared to have a negative relationship with all variables, although all lacked either the qualification for statistical significance and/or statistical viability (Table 7). This indicates that there is no significant correlation to be drawn between reporting structure and program efficacy within this study. This will be discussed further in the findings analysis section below.

Finally, Jurisdiction Size was coded and analyzed to determine if a correlational relationship existed between this characteristic and program efficacy. Jurisdiction Size was coded based on population. There were 5 choices for respondents to choose from. The choices were:

- Less than 15,000
- 15,000 to 25,000
- 25,000 to 50,000
- 50,000 to 100,000
- 100,000+

These categories were coded 1 to 5 with 1 being less than 15,000 and 5 being 100,000+ Jurisdiction size shows a mixed bag of statistically significant correlation to program efficacy. Jurisdiction size did not demonstrate a correlational relationship with Self-Assessment Score nor Mitigation as each of these fail one of the qualifications identified to meet the threshold of statistical significance or viability for this study. However, Jurisdiction Size does have a weak positive correlational relationship to Total Efficacy Score (0.422; <0.001), EMAP Score (0.430; <0.001), Response Phase Score (0.458; <0.001), Recovery Phase Score (0.349; 0.002), and Preparedness Phase Score (0.309; 0.006) (Table 8). This indicates that each of these efficacy scores increase as the size of the jurisdiction likewise increases. No correlation was found for Jurisdiction Size with either the Mitigation Phase Score or the Self-Assessment Score as both of these failed to reach a level of statistical significance.

Table 8

Correlation of Jurisdiction Population Size and Program Efficacy

			PopSize
Spearman's rho	Total Score	Correlation Coefficient	.422**
		Sig. (2-tailed)	<.001
		N	77
	Preparedness Total	Correlation Coefficient	.309**
		Sig. (2-tailed)	.006
		N	77
	Mitigation Total	Correlation Coefficient	.152
		Sig. (2-tailed)	.187
		N	77
	Response Total	Correlation Coefficient	.458**
		Sig. (2-tailed)	<.001
		N	77
	Recovery Total	Correlation Coefficient	.349**
		Sig. (2-tailed)	.002
		N	77
	EMAP Score	Correlation Coefficient	.430**
		Sig. (2-tailed)	<.001
		N	77
	Total Self-Assessment	Correlation Coefficient	.217
		Sig. (2-tailed)	.058
		N	77

**. Correlation is significant at the 0.01 level (2-tailed).

Chapter 5: Discussion and Recommendations

Interpretation of Findings/Results

This study provides a peek into what structural components may impact the efficacy of local emergency management programs. The study demonstrates that the number of FTEs dedicated to emergency management has a weak, but statistically significant impact on the efficacy of local emergency management programs (Table 3). This is an expected outcome as the greater number of FTEs dedicated to emergency management within a program allows for more development of structures and programs to impact the overall emergency management program of a jurisdiction. This finding is supported by studies on the ongoing professionalization within the field of emergency management (Farris & McCreight, 2014; Henstra, 2010). By comparison, a lack of

personnel to meet the organizational mission within emergency management has been cited as a concern by emergency managers and local jurisdiction personnel in two recent studies (Marchezini et al, 2025; McEntire, 2024). The lack of personnel available to meet the jurisdictional emergency management mission has led to changes in the approach some jurisdictions are taking to meet the goals of their emergency management program, including the implementation of Chief Resilience Officer positions to focus more specifically on the mitigation and recovery phases of the emergency management system (Jensen & Kirkpatrick, 2022). While this shift is problematic, it has highlighted the importance of hazard mitigation and resilience within local government structures, especially in large, urban areas (Kirkpatrick & Jensen, 2025).

The number of FTEs also had a correlational relationship to two of the four phases of emergency management – Preparedness and Response (Table 3). This is also not necessarily an unexpected result as these are the two phases of emergency management where many emergency management programs tend to focus their efforts and attention (Jensen & Kirkpatrick, 2022; Palmer, 2019). Response having the strongest connection to FTEs is also expected, especially considering the past over-reliance on response experience when hiring emergency managers (Chang & Neal, 2019). As local jurisdictions are more likely to lean into emergency response experience when hiring dedicated emergency management staff, it would make sense for response to have this correlation to FTEs.

Preparedness and Response were also demonstrated to have the strongest correlational relationship between any of the phases of emergency management (Table

3). There have been many academic articles and discussions in emergency management linking these two phases (Barbu, 2023; Das, 2018; Jung et al, 2019; Kahan, 2015; Kapucu, 2008). Prior research has also identified that these are the two phases of emergency management that have previously received the greatest attention and focus from local emergency management programs (Lucus, 2006, McEntire, 2024). This general increased focus on preparedness and response would certainly lend itself to a greater opportunity for correlation between the efficacy of these two emergency management phases.

The correlation between mitigation and recovery being the weakest amongst the emergency management phases was not an expected result (Table 3). Prior research has identified an expected correlation between these two phases (Kline et al, 2019; Pescaroli & Alexander, 2018). However, it is also worth noting that the rise in the Chief Resilience Officer function within jurisdictions has weakened the connections between emergency management and these two phases nationwide (Jensen & Kirkpatrick, 2022). It is also worth noting that there has been a specific lack of focus on these particular phases of emergency management according to prior research (Lucus, 2006). This lack of focus on mitigation and recovery would weaken both and, likewise, would weaken the connections between the two phases.

This study found a statistically viable correlation between the EMAP Score and the Self-Assessment Score (Table 4). This would indicate that respondents were relatively accurate in understanding the efficacy of their own programs as expressed through the Self-Assessment Scores when compared to the more objective scores of the EMAP Score. This is important for emergency managers as it demonstrates

understanding of where their programs fall short and where resources and efforts should be focused, especially for smaller departments who have to be more judicious with their efforts due to low staffing and budgetary constraints.

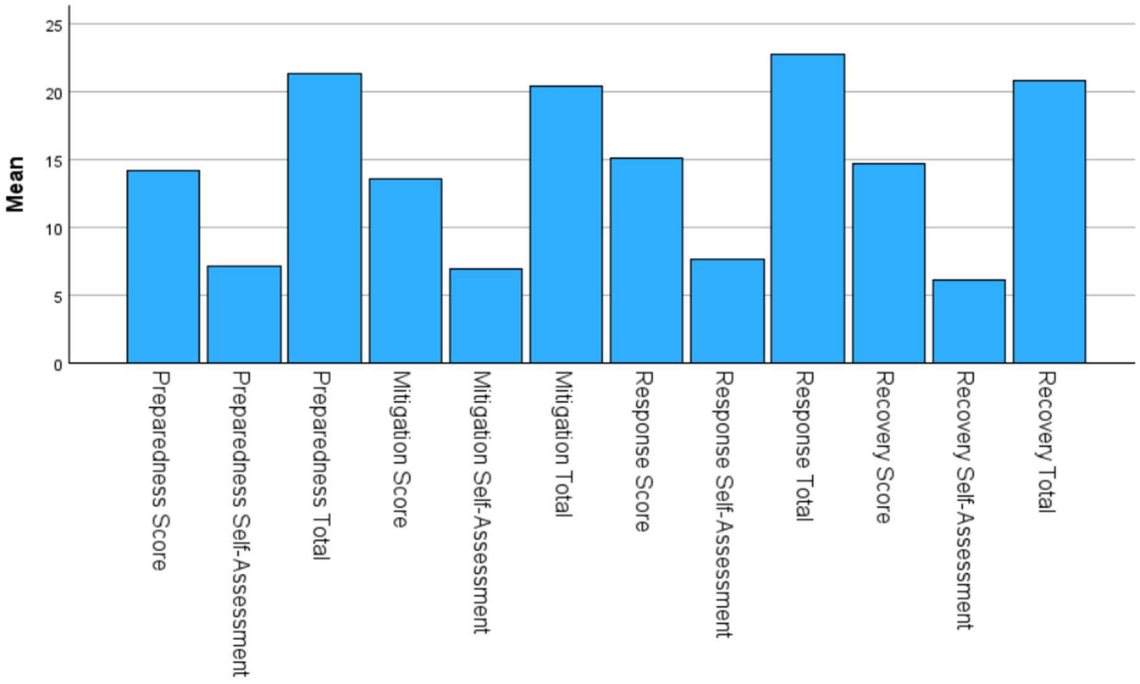
One very unique finding from this study was the flipped strength of correlation that existed between the EMAP Score and Self-Assessment Score when compared to the phases of emergency management. The EMAP Score showing a stronger correlation to the phases of emergency management is not surprising considering the makeup of the questions in this survey. 16 of the 24 questions related to program efficacy were EMAP-related questions and 8 were Self-Assessment questions. This breakdown would certainly lend itself to finding stronger correlations with the EMAP Score for each phase when compared to the Self-Assessment Score. However, the unique finding was differences in which phase showed the weakest and strongest correlation. For the EMAP Score, Recovery showed the strongest correlation and Mitigation showed the weakest correlation (Table 5). This was flipped for the Self-Assessment Score which had the strongest correlation to Mitigation and the weakest to Recovery (Table 6).

There are a few potential explanations for these differences. In regard to the EMAP Score, the EMAP Standard is generally based on programs, structures, and policies that are in place to address different aspects of emergency management. With recovery, the plans and policies that are in place, which would correlate to an increase in the EMAP Score, are not necessarily making emergency managers feel more confident in their abilities to actually implement the plans and policies, as indicated by the lower Self-Assessment Score (Figure 12). This may indicate that the EMAP

Standard underestimates the difficulty inherent to the disaster recovery process. Many studies have outlined the complexity of disaster recovery and the increased need for working with multiple partners and stakeholders throughout the process (Krogh & Lo, 2023; McIntyre, 2023; Tom & Kim, 2024). Some have even gone as far as to say that emergency managers and the public fail to fully understand disaster recovery as a whole (McCreight & Harrop, 2019). Such an assertion would seem to be backed up by the differences described above.

Figure 12

Graph of Total Score, EMAP Score, and Self-Assessment Score for each Phase of Emergency Management



Another aspect of disaster recovery that could be influencing and deflating the Self-Assessment Scores would be the lack of direct experience in disaster recovery. Recovery is difficult to understand and gain comfort without having experienced it directly (Krogh & Lo, 2023; McCreight & Harrop, 2019). Recovery efforts of significant

magnitude are generally most prevalent in large-scale disaster operations. A lack of experience within these types of events among the respondents could have an impact on the lower Self-Assessment Scores.

On the other side are the differences in the Mitigation scores, which showed a higher correlation with the Self-Assessment Score and a lower correlation with the EMAP Score. One reason for a higher correlation between Mitigation and the Self-Assessment Scores could be that hazard mitigation planning is a FEMA requirement for local jurisdictions and is often led by the local emergency management program (Olonilua, 2016). This could lead to respondents exhibiting higher confidence in regard to mitigation efforts due to an increased exposure to the mitigation planning process. However, the EMAP Score had the lowest correlation to the Mitigation phase (Table 4). One explanation for this could be that while mitigation planning is a requirement for local jurisdictions, the quality of those plans is suspect (Gall et al, 2024; Olonilua, 2016). This same lack of quality in mitigation planning efforts exists with state hazard mitigation plans, as well (Habets et al, 2023; Mamuji & Etkin, 2019; Painter et al, 2025). Additionally, while mitigation planning is required, the actual implementation of mitigation strategies and efforts is not. Many studies have shown that local jurisdictions have not implemented mitigation strategies with great regularity, often because of a lack of understanding regarding how mitigation efforts should be prioritized, and lack funding to fully implement identified strategies as many mitigation strategies are expensive endeavors (Birkland, 2009; Ji & Lee, 2021; Lucus, 2006, McEntire, 2024). Studies have also shown a lack of jurisdictional specificity regarding the identification of mitigation strategies (Gall et al, 2024). This would indicate that while mitigation planning is

required, the actual identification of appropriate mitigation strategies is lacking in many jurisdictions.

The survey also found no statistically significant correlation between reporting structure and any characteristic of emergency management program efficacy. This was a program characteristic that was expected to have a correlation to program efficacy as previous studies had showed a correlation in this characteristic (Aspiras, 2023). Reporting structure would likely also improve administrative buy-in for emergency management programs, which has been identified as an issue in previous studies (McEntire, 2024). Leadership support for emergency management has been discussed in many previous studies as being important for program success (Kapucu & Khosa, 2013; Manning, 2023). Leadership support for emergency management programs could be improved by having emergency managers report directly to the jurisdiction's chief official. However, the data of this study failed to find any correlation between reporting structure and efficacy.

Within this study, over 65% of respondents reported that their emergency management programs were stand-alone departments that reported directly to the Chief Elected Official or Chief Administrator for their jurisdiction. This is significantly higher than the expected result. When reviewing the survey question related to reporting structure, the question itself may have led to a disparity between the expected result and the respondent data. A question that asked about the reporting structure and responsibilities of the chief emergency management official, usually the Director of Emergency Management in most Georgia jurisdictions, may have yielded a more evenly distributed number of responses that could have allowed for conclusions to be drawn

related to reporting structure. This is a hypothesis that could be explored in future research.

Finally, the study found correlations between jurisdiction size and several variables, including Total Score and EMAP Score as well as three of the four phases of emergency management – Response, Recovery, and Preparedness (Table 8). There have been studies for institutes of higher education that have shown an increased likelihood of having dedicated emergency management staff as the population size of the college or university increases (Murphy & Lichtveld, 2018). A similar correlation was found within this study which showed a strong correlation between Jurisdiction Size and FTEs (0.707; <0.001) (Table 9). Considering the correlation that this study showed between FTEs and most variables, a correlation between jurisdiction size and several variables is not necessarily a surprising discovery. A consideration of how jurisdiction size and FTEs interact to impact the different dependent variables could be a potential future research opportunity.

Table 9

Correlation between Jurisdiction Size and FTEs

			PopSize
Spearman's rho	FTE coded	Correlation Coefficient	.707**
		Sig. (2-tailed)	<.001
		N	77

**. Correlation is significant at the 0.01 level (2-tailed).

Implications for Practice, Policy, and Recommendations

This study has some interesting potential for influencing future practice of emergency management. Currently, emergency management programs nationwide are a hodgepodge of approaches with varying levels of successes and failures. Identifying

repeatable and successful pathways towards improving emergency management program efficacy across the country would improve the entire emergency management system. Professional organizations, such as the International Association of Emergency Management (IAEM) and the National Emergency Management Association (NEMA), could utilize the findings from this study to help support continued development of emergency management programs. Hopefully, this would lead to improved post-disaster outcomes for communities nationwide.

This study found several potential ways forward for improving emergency management programs. Most notably, the correlation between FTEs and Total Efficacy Score implies that increased funding for emergency management positions in local jurisdictions would lead to better overall emergency management programs and efforts. Such an argument is backed up by other studies that had identified organizational capacity as being a key indicator of effective response efforts (Kapucu et al, 2024). While such a suggestion would have a financial impact to fund positions and the programs overall, research has indicated support from taxpayers for increases in taxes in exchange for better local emergency management programs, especially increases in full-time emergency management staffing (Choi & Wehde, 2024). Increases in local emergency management staffing should positively impact the inability to meet the mission needs of local jurisdictions identified in other studies (McEntire, 2024).

Another potential impact this study could have on future practice and policy would be a more careful consideration of the focus of local emergency management programs. The efficacy scores from this study indicate a greater focus on Preparedness and Response within emergency management programs (Figure 12). This is an issue

that has been found in other emergency management research, as well (McEntire, 2024). Some scholars have specifically argued that a shift away from response is needed as emergency management becomes a more complex and strategically oriented profession (Comfort, 1985; McCreight & Harrop, 2019; Topp, 2019; Wang & Wang, 2023). The study, likewise, indicates a need for greater focus on Mitigation and Recovery efforts. This is not a surprising consideration as these two areas of emergency management are known to historically get less focus, effort, and support (Lucus, 2006; McEntire, 2024).

The discussion regarding an over-focus on response also lends itself to a recommendation for public safety to not take a response-oriented approach to hiring practices for emergency managers. The complexities of the profession are increasingly shifting emergency management to a position where response experience may not directly correlate to being a good emergency manager (Chang & Neal, 2019; Gray, 2019; Topp, 2019). The characteristics of what makes a good emergency manager are no longer directly tied to on-scene emergency response experience. While response is certainly important and is the phase that is the most public in its successes and failures, emergency management response requires flexibility and adaptability to be successful (Ansell et al, 2020; Comes, 2013). A plethora of other characteristics are becoming increasingly important for productive, positive emergency management programs (Cwiak et al, 2017; Gray, 2019; McGuire & Silvia, 2010; Tyler & Sadiq, 2019). Characteristics such as leadership, effective communication, and decision-making ability have been identified as some of the most important characteristics for future

emergency management leaders (Cwiak et al, 2017; Demiroz & Kapucu, 2012; Malone, 2018).

While there appear to be structural characteristics of emergency management programs that have a correlational relationship to program efficacy, the results of this study would seem to indicate there are likely other non-structural influences that are likewise impacting emergency management program efficacy. Leadership is one example as it is a characteristic of successful emergency managers that is repeatedly mentioned in current research (Cwiak et al, 2017; Demiroz & Kapucu, 2012; Feldmann-Jensen et al, 2019; Tyler & Sadiq, 2019). The individual characteristics of the emergency management leadership in a jurisdiction may be more important than any structural characteristics of the program. This relates to the previous consideration regarding hiring practices for future emergency managers. Future research is needed on how leadership may have more direct, tangible impacts on emergency management program efficacy.

A final practical application of this research would be the utilization of this study to directly aid those in local emergency management who are struggling to both evaluate their own programs or lack the referenceable evidence for what their programs need in order to succeed. Being able to argue in favor of better support, more personnel, or greater overall investment in their emergency management programs would make this research a success. A more supportive structure for the emergency management program within a community benefits the overall community resilience.

Limitations of the Study

While this study provides some important considerations for the future of emergency management, it is also important to recognize the limitations that exist with this study. The survey distribution for this study was specific to the State of Georgia. That could certainly lead to the study findings not being widely applicable beyond the State of Georgia. While it is anticipated that many of the correlations found in this study would be applicable across the emergency management spectrum, the study structure limits the ability to make such assumptions.

Another limitation of the study is the imbalance between the types of questions asked between the more objective EMAP questions and the more subjective Self-Assessment questions. This imbalance could lend itself to limiting some of the assumptions and correlations indicated in the study results. The findings of this study are also mostly limited to local county-level jurisdictions as the vast majority of respondents worked in these types of organizations. This would make assumptions based on this study difficult to apply to other types of local emergency management organizations, such as institutes of higher education, hospitals, or K-12 schools.

A final limitation of this study is the reliance on the EMAP Standard as a gauge for each phase of emergency management. EMAP as a standard is often focused on systems, policies, and procedures that an emergency management program has in place. These are all pre-disaster indicators of emergency management capabilities. Ultimately, a jurisdiction’s emergency management program will be evaluated on its ability to meet the needs of its community during an actual emergency (Henstra, 2010).

Future Research Opportunities

This study leaves plenty of room for future research opportunities based on similar research design, some of which have already been mentioned in this paper. Future researchers could take the program efficacy data from this study and apply this study structure to a more national footprint. Such a study would build upon this research and could, potentially, draw even greater conclusions regarding the changing nature of emergency management programs and what characteristics could be correlated to increased efficacy.

One potential research opportunity previously mentioned in this paper would be to look for potential relationships between FTEs and jurisdiction size and how those two variables interact with one another when predicting overall program efficacy, especially considering the established correlation between these two variables (Table 9). How these variables interact and how they impact one another has the potential to influence our understanding and ability to predict emergency management program efficacy.

Another future research consideration mentioned previously would be to look at how the chief emergency management official themselves impact overall program efficacy. This could look at demographic information about the chief emergency management official, such as age, experience, education level, etc. and see how these characteristics may impact program efficacy. Such a study could help to build the future considerations of best characteristics for emergency managers by discovering what has made past emergency managers successful or not successful. Such information could also positively impact best hiring practices for administrations looking to bring on dedicated emergency management staff.

Other future research opportunities could include studies centered on specific areas, such as coastal areas or urban areas, to identify specific characteristics that impact efficacy in those areas. It could also include studies that consider other potential characteristics within an emergency management program that could impact efficacy. This could include FTE-per-capita, budget allotment, grant award amounts, and previous disaster declarations. A study focused on the reporting structure of local jurisdictions as a potential predictor of emergency management program efficacy would also be a potential future research opportunity. The lack of correlation found in this study was surprising and may require further investigation.

Future research could also expand upon this study to develop more detailed and specific research on each phase of emergency management. This study takes a broader approach and takes a look at each phase of emergency management to provide a holistic view of emergency management program efficacy. Studies with more specific focus on preparedness, mitigation, response, or recovery may find more direct correlations between program structural characteristics and efficacy in each phase of emergency management.

Lastly, a future research opportunity could revisit this study and perform this same efficacy in local emergency management in Georgia study at specific intervals in the future. Such a study could potentially identify consistent areas of improvement or identify potential areas where growth is still needed within emergency management. This study could look at how efficacy has changed over time throughout the State of Georgia and see if there is an underlying reason for those jurisdictions that make improvements on what was found in this study.

Chapter 6: Conclusion

Determining the efficacy of emergency management programs has shown to be a conceptual challenge for practitioners and researchers alike (Henstra, 2010). Identifying what makes for better emergency management programs outside of an actual disaster response could help to ensure a more resilient and better prepared community once a disaster does strike (Romanowski et al, 2016). The complexity of emergency management, especially considering the importance of each phase of emergency management, makes a full assessment of program efficacy difficult. Additionally, determining what characteristics impact emergency management program efficacy was ultimately the goal of this study. The identification of such characteristics would allow for a blueprint of success for local emergency management programs to at least provide a starting point from which programs could thrive.

In this study, the EMAP Standard was utilized to formulate a survey to gauge overall emergency management program efficacy. Overall, 77 respondents answered questions regarding both the efficacy of their emergency management program within each phase of emergency management and structural characteristics of their programs and jurisdictions. This study found that local emergency management programs have significant differences in efficacy (Figure 6). By identifying potential program characteristics that could improve efficacy, there would be an identifiable pathway to move all emergency management programs forward across all phases of emergency management. The survey responses identified FTEs and Jurisdiction Population size as having a weak but statistically viable correlation to program efficacy. Reporting structure for the emergency management program did not find a statistically viable correlation.

Additionally, the study found that all phases of emergency management also had efficacy correlations to one another – with the correlation between Preparedness and Response being the strongest. Such a finding is not surprising considering the amount of research that has identified links between these two phases of emergency management (Das, 2018; Jung et al, 2019; Kahan, 2015; Kapucu, 2008).

Ultimately, the findings of this study provide at least a glimpse of how emergency management program efficacy could be improved. While jurisdiction size is not something that can be controlled on a local level, the number of FTE personnel dedicated to emergency management is something that local jurisdictions can improve. Adding additional FTEs should lead to more robust programs and greater efficacy. Such a solution would help alleviate some of the burden on current emergency managers who feel overworked while trying to meet their identified missions (McEntire, 2024).

Improving emergency management, especially at the local level, could have wide-ranging, positive impacts on the local community. A greater focus on mitigation actions, increased preparedness for all potential hazards, and improved response protocols and incident management processes could all make for a more resilient community that is better positioned to recover after a disaster. That is the ultimate goal of emergency management – to create a more resilient and better prepared community for when disasters strike.

References

Abdussalaam, S.A.; Olatunde, K.A.; Babajide, E.I.; Adedeji, O.H.; & Adeofun, C.O. (2024). Institutional framework for disaster risk management in Nigeria: Need for a paradigm shift. *Journal of Applied Sciences and Environmental Management, 28*(8). 2483-2491

Alexander, D. (2003). Towards the development of standards in emergency management training and education. *Disaster Prevention and Mitigation, 12*(2), 113-123. https://doi.org/10.1108/09653560310474223

Alexander, D. (2005). Toward the development of a standard in emergency planning. *Disaster Prevention and Management, 14*(2), 158-175. DOI: 10.1108/09653560510595164

Alshayhan, N., Hill, S., Saitgalina, M., & Yusuf, J. (2024). Leadership in collaborative emergency management for compound hurricane-pandemic threats: Insights from practitioners' experiences. *Risk, Hazards, and Crisis in Public Policy, 15*(3). https://doi.org/10.1002/rhc3.12278

Amaya, J., Serrano, I., Cantillo, V., Arellana, J., & Perez, C.C. (2024). Implications of trust, preparedness, risk perceptions, and local context on deprivation costs and disaster relief planning. *Soci-Economic Planning Sciences, 91.* https://doi.org/10.1016/j.seps.2023.101780

Ansell, C., Sørensen, E. & Torfing, J. (2020). The COVID-19 pandemic as a game changer for public administration and leadership? The need for robust governance responses to turbulent problems. *Public Management Review, 23*(7). 949-960. https://doi.org/10.1080/14719037.2020.1820272

Aspiras, M. (2023). Placement of emergency management organizations in county government: Effects on disaster recovery and mitigation. (Publication No. 30315279) [Master's Thesis, California State University, Long Beach] ProQuest.

Barbu, G.R. (2023). Evaluating the Romanian administrative framework for the instruments of natural hazard management. *Cinq Continents, 13*(28). 164-177.

Basurto-Cedeno, E. & Pennington-Gray, L. (2024). Navigating the storm: Transformational leadership in engaging on robust crisis response planning. *Journal of Contingencies and Crisis Management. 32*(2). https://doi.org/10.1111/1468-5973.12586

Beerens, R.J.J. & Haverhoek-Mieremet, K. (2021). What do practitioners expect from an evaluation report? A qualitative analysis of Dutch crisis management professionals' expectations. *International Journal of Emergency Services, 10*(1). https://doi.org/10.1108/IJES-12-2019-0063

Beerens, R.J.J., Tehler, H., & Pelzer, B. (2020). How can we make disaster management evaluations more useful? An empirical study of Dutch exercise evaluations. *International Journal of Disaster Risk Science, 11*, 578-591. https://doi.org/10.1007/s13753-020-00286-7

Betten, T., Vian Pettersen, K., & Albrechtsen, E. (2021). Learning in municipalities after disasters. *Disaster Prevention and Management, 30*(3), 400-411. https://doi.org/10.1108/DPM-04-2020-0092

Birkland, T.A. (2009). Disasters, lessons learned, and fantasy documents. *Journal of Contingencies and Crisis Management, 17*(3), 146-156. https://doi.org/10.1111/j.1468-5973.2009.00575.x

Bodas, M., Kirsch, T.D., & Peleg, K. (2020). Top hazards approach – Rethinking the appropriateness of the all-hazard approach in disaster risk management. *International Journal of Disaster Risk Reduction, 47.* https://doi.org/10.1016/j.ijdrr.2020.101559

Broekema, W. (2025). Conceptualizing organizational forgetting in a crisis context. *Risk, Hazards, & Crisis in Public Policy, 16*(2). https://doi.org/10.1002/rhc3.70007

Broekema, W., Jong, W., & Perlstein, S. (2025). From crisis to inquiry: A framework for designing and assessing crisis inquiries from a learning perspective. *International Journal of Disaster Risk Reduction, 123*, https://doi.org/10.1016/j.ijdrr.2025.105355

Buchtmann, M., Wise, R., O'Connell, D., Crosweller, M., & Edwards, J. (2023). Reforming Australia's approach to hazards and disaster risk: National leadership, systems thinking, and inclusive conversations about vulnerability. *Disaster Prevention and Management, 32*(1), 49-73. https://doi.org/10.1108/DPM-08-2022-0168

Caruson, K. & MacManus, S.A. (2012). Interlocal emergency management collaboration: Vertical and horizontal roadblocks. *Publius, 42*(1), 162-187. https://www.jstor.org/stable/41441076

Chang, R.H. & Neal, D. (2019) Promotion or transition: From fire officer to emergency manager, *Journal of Emergency Management, 17*(2). 101-110. https://doi.org/10.5055/jem.2019.0402

Choi, J. & Wehde, W. (2020). Trust in emergency management authorities and individual emergency preparedness for tornadoes. *Risk, Hazards, & Crisis in Public Policy, 11*(1). 12-34. https://doi.org/10.1002/rhc3.12185

Choi, J. & Wehde, W. (2024). Who wants to pay more? Exploring citizen willingness to pay for supporting local emergency management. *Public Performance and Policy Review, 47*(4). https://doi.org/10.1080/15309576.2024.2326443

Collins, M.L. & Peerbolte, S.L. (2011). An exploratory research design further demonstrating the need for the integration of critical thinking skill curricula in homeland security and emergency management higher education academic programs. *Journal of Homeland Security and Emergency Management, 8*(2). https://doi.org/10.2202/1547-7355.1796

Comes, T. (2013). Robust emergency management strategies: Supporting interdependent decisions. *2013 46th Hawaii International Conference on System Sciences, Wailea, HI, USA. https://doi.org/10.1109/HICSS.2013.467*

Comfort, L.K. (1985) Integrating organizational action in emergency management: Strategies for change. *Public Administration Review, 45*(special issue). 155-164. https://doi.org/10.2307/3135010

Comfort, L.K.; Waugh, W.L.; Cigler, B.A.; & Springer, C.G. (2012) Emergency management research and practice in public administration: Emergence, evolution, expansion, and future directions. 538-547. *Public Administration Review, 72*(4). https://www.jstor.org/stable/41506804

Comfort, L.K. & Wukich, C. (2013). Developing decision-making skills for uncertain conditions: The challenge of educating effective emergency managers. *Journal of Public Affairs Education, 19*(1), 53-71. https://www.jstor.org/stable/23608934

Cordova, M., Menoscal, J. & Moreno Flores, E. (2023). Governance and the design of post-disaster policies: A comparative analysis from Latin American and the Caribbean. *Disasters, 47*(3). 766-787. https://doi.org/10.1111/disa.12561

Cwiak, C.L., Campbell, R., Cassavechia, M.G., Haynes, C., Lloyd, L.A., Brockway, N., Navarini, G.O., Piatt, B.E., & Senger, M. (2017). Emergency management leadership in 2030: Shaping the next generation meta-leader. *Journal of Emergency Management, 15*(2). 81-97. https://doi.org/10.5055/jem.2017.0317

Das, R. (2018). Disaster preparedness for better response. *International Journal of Disaster Risk Reduction, 31*, 153-159. https://doi.org/10.1016/j.ijdrr.2018.05.005

Demiroz, F. & Kapucu, N. (2012). The role of leadership in managing emergencies and disasters. *European Journal of Economics and Political Studies, 5.* 91-101.

Emergency Management Accreditation Program (2023). *Emergency Management Standard.* https://emap.org/wp-content/uploads/2023/04/EMAP-EMS-5-2022-Emergency-Management-Standard.pdf

Emergency Management Association of Georgia (n.d.). *Emergency Management Resources*. https://www.emagonline.com/resources

Farris, D. & McCreight, R. (2014). The professionalization of emergency management in institutions of higher education. *Journal of Homeland Security and Emergency Management, 11*(1). 73-94. DOI 10.1515/jhsem-2013-0074

Feldmann-Jensen, S., Jensen, S.J., Smith, S.M., & Vigneaux, G. (2019). The next generation core competencies for emergency management. *Journal of Emergency Management, 17*(1). DOI:10.5055/jem.2019.0393

Fu, Y.; Liu, L.; & Yuan, D. (2024). What leads to effective emergency management? A configurational analysis of empirical cases of local Chinese governments. *Land, 14*(4). https://doi.org/10.3390/land13040469

Gall, M., Li, P., & Friedland, C.J. (2024). Strategic hazard mitigation planning. *International Journal of Disaster Risk Reduction, 114*. https://doi.org/10.1016/j.ijdrr.2024.104923

Georgia Emergency Management Act of 1981, GA Code § 38-3-27 (1981). https://law.justia.com/codes/georgia/title-38/chapter-3/article-2/section-38-3-27/

Gerber-Chavez, L., Montano, S., Savitt, A., Corbin, T.B., & Downey, D.C. (2023). Emergency management performance grant (EMPG) funding allocations and relevance for US disaster policy. *Risk, Hazards, & Crisis in Public Policy, 15*(1). 67-87. https://doi.org/10.1002/rhc3.12269

Gillespie, D.F. & Streeter, C.L. (1987). Conceptualizing and measuring disaster preparedness. *International Journal of Mass Emergencies & Disasters, 5*(2), 155-176. https://doi.org/10.1177/028072708700500204

Gray, J.R. (2019). Professionalization of Emergency Management: Are we our own worst enemy? *Journal of Emergency Management, 17*(2). 136-138. https://doi.org/10.5055/jem.2019.0405

Habets, M. Jackson, S.L., Baker, S.L., Huang, Q., Blackwood, L., Kemp, E.M., & Cutter, S.L. (2023). Evaluating the quality of state hazard mitigation plans based on hazard identification, risk, and vulnerability assessments. *Journal of Homeland Security and Emergency Management, 21*(3). 331-358. https://doi.org/10.1515/jhsem-2022-0060

Haque, C.E., Choudhury, M. & Sikder, M.S. (2019). “Events and failures are our only means for making policy changes”: Learning in disaster and emergency management policies in Manitoba, Canada. *Natural Hazards, 98*, 137-162. https://doi.org/10.1007/s11069-018-3485-7

Harris, J.B.; Tollefson, W.; Bartlett, G.; Hart, M.; Joyner, T.A. (2021). Modification of the priority risk index: Adapting to emergency management accreditation program standards for institutes of higher learning hazard mitigation plans. *Journal of Emergency Management. 19*(2). 165-171. doi: 10.5055/jem.0568

Haupt, B. (2021). The use of crisis communication strategies in emergency management. Journal of Homeland Security and Emergency Management, 18(2). https://doi.org/10.1515/jhsem-2020-0039

Haupt, B. & Knox, C.C. (2018). Measuring cultural competence in emergency management and homeland security education programs. Journal of Public Affairs Education, 24(4). 538-556. https://doi.org/10.1080/15236803.2018.1455124

Hendrix, L. (2021). Lessons from disaster: Improving emergency response through greater coordination of federal, state, and local response efforts. *Public Contract Law Journal, 51*(1), 69-88. https://www.jstor.org/stable/27305567

Henstra, D. (2010). Evaluating local government emergency management programs: What framework should public managers adopt? *Public Administration Review, 70*(2). 236-246. https://www.jstor.org/stable/40606375

Hochrainer-Stigler, S., Trogrlic, R.S., & Reiter, K. (2024). Multi-risk instruments for emergency response: A multi-hazard and multi-risk assessment of the European Union's Solidarity and Emergency Aid Reserve. *Disasters, 49*(1). https://doi.org/10.1111/disa.12650

Hodges, L.R. & Larranaga, M.D. (2021). Emergency management as a complex adaptive system. *Journal of Business Continuity & Emergency Planning, 14*(4). 354-368.

Jackson, B. A., Faith, K. S., & Willis, H. H. (2010). *Evaluating the Reliability of Emergency Response Systems for Large-Scale Incident Operations* (pp. 9–50). RAND Corporation.

Janssen, M. & van der Voort, H. (2020). Agile and adaptive governance in crisis response: Lessons learned from the COVID-19 pandemic. *International Journal of Information Management. 55.* https://doi.org/10.1016/j.ijinfomgt.2020.102180

Jensen, J. & Kirkpatrick, S. (2022). Local emergency management and comprehensive emergency management (CEM): A discussion prompted by interviews with chief resilience officers. *International Journal of Disaster Risk Reduction, 79.* https://doi.org/10.1016/j.ijdrr.2022.103136

Jensen, J. & Ferreira, M. (2023) An exploration of local emergency management program accreditation pursuit. *Journal of Homeland Security and Emergency Management, 20*(3). 351-384. https://doi.org/10.1515/jhsem-2022-0019

Jensen, J. & Waugh, W.L. (2014). The United States' experience with the Incident Command System: What we think we know and what we need to know more about. *Journal of Contingencies and Crisis Management, 22*(1). 5-17. https://doi.org/10.1111/1468-5973.12034

Ji, H. & Lee, D. (2021). Disaster risk reduction, community resilience, and policy effectiveness: The case of the hazard mitigation grant program in the United States. *Disasters, 45*(2). 378-402. https://doi.org/10.1111/disa.12424

Jung, K, Song, M. & Park, H.J. (2019) The dynamics of an interorganizational emergency management network: Interdependent and independent risk hypotheses. *Public Administration Review, 70*(2). 225-235. https://doi.org/10.1111/puar.12993

Kahan, J.H. (2015). Emergency management and homeland security: Exploring the relationship. *Journal of Emergency Management, 13*(6). 483-498. https://doi.org/10.5055/jem.2015.0258

Kapucu, N. (2008). Collaborative emergency management: Better community organizing, better public preparedness and response. *Disasters, 32*(2), 239-262. https://doi.org/10.1111/j.1467-7717.2008.01037.x

Kapucu, N. & Khosa, S. (2013). Disaster resiliency and culture of preparedness for university and college campuses. *Administration and Society, 45*(1). 3-37. https://doi.org/10.1177/0095399712471626

Kapucu, N., Parkin, A., Lumb, M., & Dippy R. (2024). Crisis coordination in complex intergovernmental systems: The case of Australia. *Public Administration Review, 84*(3). 389-399. https://doi.org/10.1111/puar.13830

Kim, K.W., Andrew, S.A., & Yoon, D.K. (2024). Interorganizational collaboration for the implementation of hazard mitigation strategies. *Natural Hazards Review, 25*(3). https://doi.org/10.1061/NHREFO.NHENG-1871

Kirkpatrick, S. & Jensen, J. (2025). The rise of chief resilience officers in U.S. cities: A necessary evolution for managing the complex urban challenges associated with disasters? *Cities, 166*. https://doi.org/10.1016/j.cities.2025.106234

Kline, J., Geruso, A., & Preziotti, E. (2020). Rising oceans, flooded towns: How Georgia coastline communities are readying to recover despite a changing climate. *Journal of Business Continuity & Emergency Planning, 14*(1). 55-64. DOI: 10.69554/lryw5682

Kovel, J.P. (2000). Modeling disaster response planning. *Journal of Urban Planning & Development, 126*(1), 26-39. DOI: 10.1061/(ASCE)0733-9488(2000)126:1(26)

Krogh, A.H. & Lo, C. (2023). Robust emergency management: The role of institutional trust in organized volunteers. *Public Administration, 101*(1). 142-157. https://doi.org/10.1111/padm.12894

Lorenzoni, N., Kainrath, S., Unterholzner, M., & Stummer, H. (2022). Instruments for disaster preparedness evaluation: A scoping review. *Australian Journal of Emergency Management, 3*, 56-64. DOI:10.47389/37.3.56

Lucus, V. (2006). Analysis of the baseline assessments conducted in 35 US state/territory emergency management programs: Emergency Management Accreditation Program (EMAP) 2003-2004. *Journal of Homeland Security and Emergency Management, 3*(2). https://doi.org/10.2202/1547-7355.1212

Malesic, M. (2019). The concept of trust in disasters: The Slovenian experience. *Disaster Prevention and Management, 28*(5), 603-615. https://doi.org/10.1108/DPM-11-2018-0375

Malone, M. (2018). Public service motivation of county-level emergency managers. *Journal of Emergency Management, 16*(6). 387-395. https://doi.org/10.5055/jem.2018.0387

Mamuji, A.A. & Etkin, D. (2019). Disaster risk analysis part 2: The systematic underestimation of risk. *Journal of Homeland Security & Emergency Management, 16*(1). DOI: 10.1515/jhsem-2017-0006

Manning, S.R. (2020). Strategic planning in emergency management: Evaluating the impacts on local program quality. *Journal of Homeland Security and Emergency Management, 17*(3). https://doi.org/10.1515/jhsem-2019-0051

Manning, S.R. (2023). Strategic planning in emergency management: Highlighting the critical role (and impacts) of the planning process. *Journal of Homeland Security and Emergency Management, 20*(3). 209-238. DOI: 10.1515/jhsem-2022-0011

Marchezini, V. (2019). The power of localism during the long-term disaster recovery process. *Disaster Prevention and Management, 28*(1), 143-153. https://doi.org/10.1108/DPM-05-2018-0150

Marchezini, V., Saito, S.M., Londe, L.R., Damacena, F.D.L. (2025). Implementation challenges of disaster risk management policies: The organizational capacities of municipal civil defense units. *International Journal of Disaster Risk Reduction, 119*. https://doi.org/10.1016/j.ijdrr.2025.105291

McCreight, R. & Harrop, W. (2019). Uncovering the real recovery challenge: What emergency management must do. *Journal of Homeland Security and Emergency Management, 16*(3). https://doi.org/10.1515/jhsem-2019-0024

McEntire, D. (2024). What's next for the disaster profession? A study of the opinions of local and state emergency managers and their recommendations for a more resilient future. *Journal of Emergency Management, 22*(5). 461-480. http://dx.doi.org/10.5055/jem.0848

McGuire, M. & Silvia, C. (2010) The effect of problem severity, managerial and organizational capacity, and agency structure on intergovernmental collaboration: Evident from local emergency management. *Public Administration Review, 70*(2). 279-288. https://doi.org/10.1111/j.1540-6210.2010.02134.x

McIntyre, K. (2023). Leadership emotion: How leaders influence employee wellbeing and performance in the disaster and emergency management context. *Australian Journal of Emergency Management, 38*(1). 60-63.

Miao, Q. & Davlasheridze, M. (2024). Estimating the loss-reductions effects of disaster preparedness and mitigation: An empirical study of US coastal states. *Risk Analysis, 45*(2). 307-321. https://doi.org/10.1111/risa.16111

Miresmaeeli, S.S.; Zavareh, D.K.; Seyedin, H. (2023). A comparative study: Accreditation of universities' disaster risk management for health promotion. *Journal of Education and Health Promotion, 12*(245). doi: 10.4103/jehp.jehp_590_22

Nohrstedt, D. (2022). When do disasters spark transformative policy change and why? *Policy & Politics, 50*(3), 425-441. https://doi.org/10.1332/030557321X16508834302815

Olonilua, O. (2016). State mandate influences on FEMA-approved hazard mitigation plans under the disaster management act of 2000. *World Medical & Health Policy, 8*(1). 27-45. https://doi.org/10.1002/wmh3.177

Oloruntoba, R. & Sridharan, R. (2017). A proposed framework of key activities and processes in the preparedness and recovery phases of disaster management. *Disasters, 42*(3). 541-570. https://doi.org/10.1111/disa.12268

Painter, M.A., Villarreal, M., & Peek, L. (2025). State hazard mitigation plans and social vulnerability. *Journal of Homeland Security and Emergency Management, 22*(2). https://doi.org/10.1515/jhsem-2024-0023

Palmer, L. (2019). Emergency preparedness in Canada: The role of recreation. *Journal of Emergency Management, 17*(5). 371-379. https://doi.org/10.5055/jem.2019.0432

Pescaroli, G. & Alexander, D. (2018). Understanding compound, interconnected, and cascading risks: A holistic framework. *Risk Analysis, 38*(11). 2245-2257. https://doi.org/10.1111/risa.13128

Renken, K, Jackman, A.M., & Beruvides, M.G. (2020). Comparing pre-disaster mitigation grant spending with post-disaster assistance spending: Are mitigation investments saving federal dollars? *Journal of Emergency Management, 18*(4). 349-354.

Renken, K, Jackman, A.M., & Beruvides, M.G. (2020). Quantifying the relationship between pre-disaster mitigation spending and major disaster declarations for US states and territories. *Journal of Emergency Management, 18*(4). 341-347. https://doi.org/10.5055/jem.2020.0478

Rivera, J.D. (2016). Organizational structure and collaboration: Emergency Management agencies and their choice to work with voluntary organizations in planning. *Risk, Hazards, and Crisis in Public Policy, 7*(4). 160-175. https://doi.org/10.1002/rhc3.12105

Romanowski, C.; Schneider, J.; Raj, R.; Roario, R.; Stein, K.; Solanki, B. (2016). Response and recovery: A quantitative approach to emergency management. *2016 IEEE Symposium on Technologies for Homeland Security (HST),* Waltham, MA, USA. doi: 10.1109/THS.2016.7568899.

Sanderson, D., Heffernan, T., DeSisto, M., & Shearing, C. (2024). Community-centered disaster recovery: A call to change the narrative. *Disasters. 49*(1). https://doi.org/10.1111/disa.12655

Sydnes, M., Kjeve, M., & Sydnes, A.K. (2025). Interorganizational coordination during emergencies and crises. *International Journal of Disaster Risk Reduction, 121.* https://doi.org/10.1016/j.ijdrr.2025.105310.

Tom, A. & Kim, A. (2024). Partnerships in the recovery planning process: Lessons from Puerto Rico after Hurricane Maria and Irma. *Disaster Prevention and Mitigation, 33*(4), 321-334. https://doi.org/10.1108/DPM-09-2022-0205

Topp, W.S. (2019). Making the transition from law enforcement to emergency management: Organizational, occupational, and cultural issues. *Journal of Emergency Management, 17*(1). 45-52. https://doi.org/10.5055/jem.2019.0396

Tyler, J. & Sadiq, A. (2019). The essential skill set of a resilient emergency manager. *Journal of Emergency Management, 17*(1). 35-42. https://doi.org/10.5055/jem.2019.0395

Urby, H. & McEntire, D.A. (2015). Emergency managers as change agents: Recognizing the value of management, leadership, and strategic management in the disaster profession. *Journal of Emergency Management, 13*(1). 37-51. https://doi.org/10.5055/jem.2015.0216

Urby, H. & McEntire, D. (2021). A cadre of professionals: Credentialing emergency managers to meet the disaster challenges of the future. *Journal of Emergency Management, 19*(6). 531-540. https://doi.org/10.5055/jem.0560

Wang, M. & Wang, J. (2023). Performance evaluation of urban emergency governance: Conceptual connotations and empirical research based on the crisis life cycle theory. *Evaluation Review, 48*(5). https://doi.org/10.1177/0193841X231215208

Waugh, W.L. (1994). Regionalizing emergency management: Counties as state and local government. *Public Administration Review, 54*(3), 253-258. https://doi.org/10.2307/976728

Weaver, J.M. (2014). Quantifying effectiveness in emergency management. *Journal of Emergency Management, 12*(5). 378-382. https://doi.org/10.5055/jem.2014.0202

Wenger, C. (2017). The oak or the reed: How resilience theories are translated into disaster management policies. *Ecology and Society, 22*(3). https://doi.org/10.5751/ES-09491-220318

Westbrook, J.R. (2021). The efficacy of emergency management certification training in Georgia through the lived experiences of local emergency managers. [Doctoral Dissertation, Liberty University] https://digitalcommons.liberty.edu/doctoral/3200/

Wu, J.; Yang, S.; Wang, W.; & Jaeger, C. (2023). How effective are community-based disaster reduction strategies? Evidence for the largest-scale program so far. *Risk Analysis, 43*(8). 1667-1681. https://doi.org/10.1111/risa.14043

Zaychik, D., Beeri, I., Rein-Sapir, Y., Avni, N., & Altschuler, A. (2025). Innovation and adaptation in local governments in the face of COVID-19: Determinants of effective crisis management. *Risk, Hazards, and Crisis in Public Policy, 16*(2). https://doi.org/10.1002/rhc3.12311

Zulean, M. & Prelipcean, G. (2013). Emergency preparedness in Romania: Dynamics, shortcomings, and policy proposals. *Technological Forecasting and Social Change, 80*(9). 1714-1724. https://doi.org/10.1016/j.techfore.2012.11.004

APPENDIX

Appendix A: Study Survey

Hazard Identification and Risk Analysis

1. Taking an all-hazards approach (including natural and manmade/technological hazards), has your emergency management program conducted a hazard identification and risk assessment (HIRA) within the last five (5) years?
    a. No, this was not completed in the last five (5) years
    b. Yes, this was completed once in the last five (5) years to meet the requirements of our Hazard Mitigation Plan Update
    c. Yes, this has been completed two (2) to three (3) times in the last five (5) years
    d. Yes, this has been completed four (4) to five (5) times in the last five (5) years
    e. Yes, this is completed annually

2. When your emergency management program identified hazards and risk, were the following stakeholders included: elected officials/administration, public safety, jurisdictional departments, public health, utilities, non-governmental organizations, private industries, and surrounding jurisdictions?
    a. Emergency management only
    b. One (1) or two (2) of the above groups
    c. Three (3) or four (4) of the above groups
    d. Five (5) or six (6) of the above groups
    e. Seven (7) or more of the above groups

3. On a scale of one (1) to five (5), with one (1) being the lowest and five (5) being the highest, how much effort did your emergency management program put into the most recent hazard identification and risk assessment (HIRA)?

Hazard Mitigation Projects and Programs

4. Does your emergency management program have a plan for the implementation of identified mitigation projects?
    a. Yes, there is a standalone, formalized plan for the implementation of mitigation projects
    b. Yes, the Hazard Mitigation Plan is considered as the formalized plan for the implementation of mitigation projects
    c. Yes, there is an informal plan for the implementation of mitigation projects

   d. Yes, there is only section related to implementation within our Hazard Mitigation Plan
   e. No, there is not a plan for the implementation of mitigation projects
5. Does your emergency management program have a process to monitor the overall progress of the mitigation projects and strategies listed in your Hazard Mitigation Plan?
   a. Yes, a formal process is in place
   b. Yes, an informal process is in place
   c. No, there is not have a process in place

6. On a scale of one (1) to five (5), with one (1) being the lowest and five (5) being the highest, how would you rate the quality of your emergency management program's hazard mitigation efforts?

Emergency Operations Planning

7. Has your emergency management program updated your Emergency Operations Plan within the last four (4) years?
   a. Yes, the EOP is annually
   b. Yes, the EOP is updated every two years
   c. Yes, the EOP is updated every three to four years
   d. No, the EOP has not been updated in the last four years, but an update is scheduled
   e. No, the EOP has not been updated in the last four years

8. Does your emergency management program have a formalized strategic plan?
   a. Yes, there is a formalized, multi-year strategic plan in place
   b. Yes, there is a formalized, annual strategic plan in place
   c. No, there is an informal strategic plan
   d. No, but a strategic plan is in development
   e. No, there is not a strategic plan in place or in development

9. One a scale of 1 to 5, with 1 being the lowest and 5 being the highest, how would you rate the quality of your Emergency Operations Plan?

Training and Corrective Action

10. Does your emergency management program provide emergency preparedness training to members of the community and to employees of your local jurisdiction?
    a. Yes, training is regularly provided to both community members and employees
    b. Yes, training is regularly provided to either community members or employees
    c. Yes, training is provided to both community members and employees but it is not regularly scheduled
    d. Yes, training is provided to either community members or employees but it is not regularly scheduled
    e. No, emergency preparedness training is not provided

11. Following a planned exercise or actual incident, does your emergency management program have a process for identifying, prioritizing, and tracking corrective actions?
    a. Yes, this process is completed as part of a formal After Action Review
    b. Yes, but this process is not completed as part of a formal After Action Review
    c. Yes, corrective actions are identified and tracked but not prioritized
    d. Yes, correction actions are identified but not prioritized or tracked
    e. No, there is not a process for identifying corrective actions

12. On a scale of one (1) to five (5), with one (1) being the lowest and five (5) being the highest, how would your rate your emergency management program's overall preparedness efforts (i.e. planning, training, exercises, etc.)?

Incident Management

13. Does your emergency management program utilize an incident management system?
    a. Yes, and the system has been formally adopted by the jurisdiction
    b. Yes, but the system has not been formally adopted
    c. No, an incident management system is not utilized

14. Do you have a hardened and properly equipped Emergency Operations Center facility from which you can effectively coordinate response operations?
    a. Yes, we have a hardened and properly equipped Emergency Operations Center
    b. Yes, we have a properly equipped Emergency Operations Center, but it is not hardened
    c. Yes, we have a hardened Emergency Operations Center, but it is not properly equipped
    d. No, we have an Emergency Operations Center, but it is not hardened or properly equipped
    e. No we do not have an Emergency Operations Center

15. On a scale of one (1) to five (5), with one (1) being the lowest and five (5) being the highest, rate your emergency management program's readiness to implement an effective response to a disaster?

Resource Management

16. Does your emergency management program perform a gap analysis to identify resource needs and shortfalls?
    a. Yes, a gap analysis is performed annually
    b. Yes, a gap analysis is performed every other year
    c. Yes, a gap analysis is performed every three (3) to five (5) years
    d. No, but there is an informal process for identifying resource gaps
    e. No, there is no progress for identifying resource gaps

17. Does your jurisdiction maintain mutual aid agreements, contractual service agreements, memorandums of understanding, or regional/state arrangements that provide additional resources during an emergency?
    Yes, all four (4) types of agreements are in place
    Yes, three (3) of the four (4) types of agreements are in place
    Yes, two (2) of the four (4) types of agreements are in place
    Yes, one (1) of the four (4) types of agreements are in place
    No, none of these types of agreements are in place

18. On a scale of one (1) to five (5), with one (1) being the lowest and five (5) being the highest, how would you rate your emergency management program's readiness to

identify and acquire needed items or services during a disaster utilizing locally available governmental and non-governmental resources?

Volunteers and Donated Goods

19. Does your emergency management program have a plan for volunteer and donated goods management during a disaster?
    a. Yes, there is a plan for volunteer management and donated goods management
    b. Yes, there is a plan for volunteer management or donated goods management, but not both
    c. No, there is not a plan for volunteer management no donated goods management
20. Are Volunteer Organizations Active in Disaster (VOADs) invited to participate in your emergency planning process and exercises?

    Yes, VOADs are invited and participate in planning and exercises
    Yes, VOADs are invited but don't participate in planning and exercises
    No, VOADs are not invited to participate in planning and exercises

21. On a scale of one (1) to five (5), with one (1) being the lowest and five (5) being the highest, how would you rate your emergency management program's readiness to manage volunteers and donated goods post-disaster?

Continuity and Recovery Planning

22. Does your local jurisdiction have a Continuity of Operations (COOP) or Continuity of Government (COG) Plan?
    a. Yes, a COOP/COG Plan is in place
    b. No, there is a COOP/COG processes but not a written COOP/COG Plan
    c. No, there is not a COOP/COG Plan or process in place

23. Does your emergency management program have a formal Recovery Plan?
    a. Yes, it identifies short-term and long-term recovery priorities and assigns specific areas of responsibility
    b. Yes, it identifies short-term and long-term recovery priorities, but does not assign specific areas of responsibility

c. No, short-term and long-term recovery priorities and areas of responsibility have been discussed but not formalized
d. No, short term and long-term recovery priorities have been discussed but assigning areas of responsibility have not been discussed
e. No, recovery priorities have neither been discussed nor formalized

24. On a scale of one (1) to five (5), with one (1) being the lowest and five (5) being the highest, how would you rate your emergency management program's overall recovery capabilities?

Emergency Management Program Characteristics

1. Number of full-time equivalent employees dedicated to your jurisdiction's emergency management program
    a. Less than 1
    b. 1
    c. 1.5
    d. 2
    e. 2.5
    f. 3
    g. 3.5
    h. 4
    i. 4.5
    j. 5
    k. 5.5
    l. 6
    m. 6.5
    n. 7+

2. What is your reporting structure for your emergency management program?
    a. Emergency management is a stand-alone department, reporting directly to the jurisdiction's Chief Elected Official, County Manager, Administrator, or Chief Executive Officer
    b. Emergency management is a stand-alone department but reports to someone other than the jurisdiction's Chief Elected Official, County Manager, Administrator, or Chief Executive Officer (such as a Fire Chief, Deputy County Administrator, etc.)
    c. The jurisdiction has dedicated emergency management personnel, but emergency management is not a stand-alone department

   d. Emergency management is a secondary (or tertiary) role for a jurisdictional employee(s)

3. What is the approximate population size of your jurisdiction?
   100,000+
   50,000 to 100,000
   25,000 to 50,000
   15,000 to 25,000
   Less than 15,000

4. For which type of organization do you work?
   a. State Government Agency
   b. College or University
   c. County Government
   d. Municipal Government
   e. Hospital/Care Facility
   f. K-12 District or Private School
   g. Private Company
   h. Other (please specify)

5. What GEMA/EMAG Area are you in?
   a. 1
   b. 2
   c. 3
   d. 4
   e. 5
   f. 6
   g. 7
   h. 8