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Improving Local Government Resilience: Highlighting the Role of Internal Resources in Crisis Management

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Abstract: A survey of U.S. local government officials ($n = 307$) investigates how to improve local governments' crisis resilience. The results indicate that internal resources (i.e., time, money, and staff) were deemed important to local governments' crisis management; however, there was a significant decrease in their perceived availability. Moreover, our results suggest that neither community size nor form of government predicted the availability of internal resources. Finally, internal resources were significant predictors of local government officials' evaluations of a crisis; however, internal resources did not predict the officials' evaluations of the strength of their crisis management. Theoretical and practical implications of the findings are discussed here.

Keywords: internal resources; crisis preparation; local government; crisis management

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1. Introduction

Crisis resilience includes planning, training, education, and networking [1]. An organization's crisis resilience can be increased by developing solid crisis plans, training and educating employees, and building good internal (e.g., cooperation with other departments in the organization) and external (e.g., information sharing with other organizations) relationships [1]. According to Somers [2] and Wildavsky [3], although crisis resilience manifests after a crisis occurs, proactive measures (e.g., having a high level of crisis preparedness) can minimize possible crisis damage and maximize an organization's resilience. Somers [2] notes that "(crisis) resilience is more than mere survival; it involves identifying potential risks and taking proactive steps to ensure that an organization thrives in the face of adversity. The objective is to build resilience by maximizing the capacity of the organization to adapt to complex situations" (p. 13). Therefore, exploring the measures that can bolster an organization's crisis management capacity (i.e., crisis preparedness) is critical.

Research on crisis preparedness clearly demonstrates a huge difference between how well-prepared and ill-prepared organizations manage and recover from crises. For instance, Cloudman and Hallahan [4] surveyed communication practitioners and found that the majority of communication practitioners believe that an organization that is prepared for crisis situations manages a crisis better than organizations that are not. Moreover, Burnett [5] found that when a crisis occurs in well-prepared organizations, the damage of the crisis is minimized, and the organizations are better prepared for the next crisis as they learn lessons from the successes and failures of managing the prior crisis. On the other hand, if an organization is not prepared for crisis situations, more crisis damage prevails [5]. Although many scholars have for years noted the importance of studies on crisis preparedness, research on crisis preparedness has been mainly conducted in the corporate sector [6] or in the non-profit sector [7]; thus, we extend the literature with this paper by exploring crisis preparedness in local governments. This pursuit is particularly

important as local governments are forced to manage crises with already strained budgets even for routine functions [8].

According to Bross, Wienand, and Krause [9], there is a close relationship between crisis preparedness, resource availability (e.g., time and budget), and crisis management; they contend that if an organization's resource availability is high, the possibility of crisis occurrence in the organization decreases as the organization's level of crisis preparedness increases. Similarly, Jin [10] argues that the amount of available resources (internal/external) is critical in crisis management and affects both crisis preparedness and management of the situation itself. Despite their obvious importance, little is known about the extent to which internal factors (e.g., internal resources) affect an organization's crisis management [11,12]; the availability of these resources is also central to organizational resilience during crises.

Considering that crisis resilience is a characteristic of communities rather than individuals [13], the role of the government in building resilience to better safeguard the public should not be neglected. Recently, the U.S. Resiliency Council was officially launched to educate people about the importance of resilience and to improve societal resilience [14]. This launch of the USRC is an indication of practical and academic requests for more intensive exploration.

A survey of U.S. local government officials ($N = 307$) investigates local governments' crisis resilience by exploring officials' perceptions of crisis preparedness measures, particularly examining the discrepancy between their needs and the resources available to them to manage crises, as well as analyzing the impact of resources on local governments' crisis evaluation and management. Theoretically, this research extends crisis resilience literature by assessing resilience measures in the local government context. Pragmatically, the current study provides valuable information to crisis managers by offering findings such as if and how the size of the organization affects its crisis management resources. Furthermore, this work offers survey-based evidence about how local governments' crisis resilience can be bolstered considering their crisis preparedness levels and resource availability.

2. Theoretical Background

2.1. Crisis Communication, Crisis Preparedness, and Crisis Management

Crisis communication is an important aspect of crisis management. It has been said that "crisis communication is the lifeblood of crisis management because crisis communication brings crisis management to life" [15]. When crisis communication is not effective, crisis management is likely to be ineffective, as well. Communication is critical throughout the entire crisis management process [16], and it can have a direct impact on how internal and external stakeholders view an organization's ability to effectively manage a crisis. Effective crisis communication will lessen the negative effects of a crisis for all involved stakeholders and the organization in crisis [15]. Because of this, the best practices for crisis management are rooted in crisis communication research.

How well an organization and its members are prepared for a crisis impacts crisis management at every stage of the crisis. According to McEntire and Myers [17], the damage inflicted by a crisis can be substantially decreased depending on the level of preparedness. Similarly, Mileti [18] notes that "effective preparedness and response activities help save lives, reduce injuries, limit property damage, and minimize all sorts of disruptions that disasters cause" (p. 239). For this reason, organizations invest time, money, and personnel resources to increase their levels of crisis preparedness.

Although many organizations know that their ability to cope with crisis situations can be enhanced dramatically with a minimal amount of crisis preparedness [19], research shows that not all organizations invest in preparing. McConnell and Drennan [19] categorized organizations into three types depending on their levels of crisis preparedness: high preparedness, medium/mixed preparedness, and low preparedness. According to the authors, low preparedness organizations pay little to no attention to potential threats and do not have plans for managing crises, while mid-range organizations tend to consider threats seriously but do not prioritize planning [19]. On the other hand, highly prepared

organizations take threats seriously and have detailed crisis plans. The authors propose that, with effort, an organization with low preparedness can be a moderately or highly prepared organization, while a highly prepared organization could be lowly prepared if people in the organization “bury their heads in the sand” [19] (p. 68). As discussed, in considering the importance of crisis preparedness and its impacts on crisis management, it is critical for an organization and its members to maintain a high level of preparedness to minimize the damages a crisis can inflict.

Despite its importance, research on crisis preparedness in the communication context needs further development. For example, in a review of 18 years of crisis communication research in communication journals, Avery, Lariscy, Kim, and Hocke [20] found that studies on crisis communication in public relations mostly focused on the effects of crisis management strategies. The authors argue that the majority of crisis communication research engages image restoration theory [21] or situational crisis communication theory [22] (81%), which posit message strategies for organizations to minimize damage after a crisis occurs. Based on Avery et al.’s [20] review, the authors contend that more efforts should be made to conduct research on the actions to take before a crisis occurs. Similar results were found in a study of crisis communication articles published in the past 20 years in communication journals. Ha and Boynton [23] identified that topics on post-crisis such as effects of crisis management, strategic use of media after a crisis, and evaluation of crisis management are dominant (more than 65%) in the crisis communication literature. Considering these results, future research in crisis communication needs enhanced focus on the pre-crisis stage—crisis preparedness. A context especially overlooked in the crisis preparedness literature is government [20], and within that area, a novel research focus is how resource availability affects planning.

2.2. Resources as an Important Factor in Government Crisis Management

Historically, all levels of government have been required to play a critical role in crisis management, which has even become a defining feature of contemporary governance. Often, public safety and economic recovery for entire communities is at stake depending on how well a government manages crises affecting its constituents. When a crisis occurs, communities and members of organizations expect public leaders to minimize the impact of the crisis situation. Likewise, the expectation exists for policy makers to establish a sense of normality and to foster collective learning from the crisis experience [24]. A major factor in a government’s ability to manage a crisis effectively is the availability of resources. Since it is the local level of government with which citizens often have the most direct contact, evaluating local governments’ crisis management capabilities is important [25]. Several scholars including Burnett [5] and Kash and Darling [26] note that the decisions that organizations make before a crisis occurs and the establishment of protocol to follow will allow for more effective management of the crisis itself. Strategic and proactive planning minimizes organizational risk and inefficient use of time and resources [27].

Both internal and external resources are critical factors in crisis management [13]. Jin and Cameron [28] identified resources as things that can be allocated at any given time. The threat appraisal model they proposed comprises the situational demands (including danger, uncertainty and required effort) and the appraisal of organizational resources (including knowledge, skill level, time, finances, and support from key leadership) [29]. Budget deficits that strain personnel and a lack of money available to effectively manage a crisis situation are just a few of the particularly pressing challenges that local governments must navigate. In one of the few examples of crisis research in the local government sector, Avery and Hocke [30] interviewed public health information officers at health departments in the United States to uncover the most important considerations in their crisis management. Organizational resources (among others) emerged as a primary consideration, specifically in the areas of financial, staff, and time limitations [29]. The availability and adequacy of these resources are central to crisis management and thus organizational resilience.

2.3. Organizational Resilience

Considering the relationships between resource availability, crisis preparedness, and crisis resilience, it is expected that if an organization has sufficient available resources for crisis management, the organization's crisis preparedness is likely to be enhanced; thus, the organization is resilient and equipped for effective crisis management. Fittingly, a decent body of management research has been situated within the resilience and crisis preparedness domains. For instance, there have been studies about the resilience of fire-fighting teams [30], business and industry [31], and the university community [32]. Those studies suggest that to be a crisis-resilient organization, a high level of crisis preparedness is necessary. This argument could also be true for other types of organizations such as local governments. According to scholars, resilience is a key factor in government crisis management [33,34], and local governments are key players in managing societal crises [35]. Nevertheless, with notable exceptions [25], little is known about local governments' crisis resilience from local government officials' viewpoints [2].

Previous research has been conducted to try and explain the resilience process in organizations [36,37]. The research by McManus [38] is particularly useful because it examines resilience from both a communications perspective and a management perspective. McManus [38] identified two dimensions of resilience as it relates to organizations—planning and adaptive capacity—and measured it using 13 resilience indicators. The planning dimension within organizational resilience consists of the following five indicators: planning strategies, participation in exercises, proactive posture, capability and capacity of external resources, and recovery priorities [38]. On the other side, the adaptive capacity dimension consists of the following eight indicators: minimizing a silo mentality, meaning that organizational units should focus on both internal and external relationships; capability and capacity of internal resources; staff engagement and involvement, information, and knowledge; leadership, management, and governance structures; innovation and creativity; devolved and responsive decision making; and internal and external situation monitoring and reporting [38]. This study extends research on the adaptive capacity dimension of resilience [38], specifically how internal resources affect it.

Identifying and understanding the impact that the allocation of internal resources has on the ability of an organization to effectively manage a crisis can inform crisis preparation efforts. A recent study by Graham and Avery [39] highlighted the need for additional research in crisis management in the internal organizational resources domain; they argue that “even the most tailored recommendations for crisis management are rendered somewhat useless if the organization is unable to implement them due to challenges such as limited budgets” (p. 19). Given that local governments operate with complex layers and influences of bureaucracy and politics, looking at different facets of internal resources and how they affect the government's ability to be resilient before and during a crisis is of utmost importance.

2.4. The Indicators of Available Resources

Organizational size and type have been identified in previous research as playing key roles in crisis preparedness. Penrose [40] asserts that larger companies have more financial resources and prestige to better manage crisis situations than smaller, lesser-known companies. Similarly, according to Guth [41], large and for-profit organizations are better prepared to deal with crises than small or not-for-profit organizations. A study by Cloudman and Hallahan [4] also found a positive relationship between engagement in crisis preparedness activities and the size of the organization. Specifically, larger organizations reported having a crisis response plan and management team, and they committed more funding to train employees on proper crisis response techniques than smaller organizations [4]. Therefore, it follows that as the size of the organization increases, the level of crisis preparedness increases as well. However, Avery, Graham, and Park [42] offer contradictory evidence in a study that looked at local governments' crisis management capabilities; they found that there was no relationship between the size of the local government and the perceptions

of their abilities to effectively manage a crisis. Hence, based on contradictory findings, crisis preparedness of local governments is an area that requires more scholarly research, especially evaluating how the size of the local government and resources affect crisis preparedness and ultimately resilience, which is a primary focus of this research.

In evaluating whether or not organizational type plays a role in crisis preparedness and resilience of local governments, this research looks at different types of local government structures. This is important since local governments in the United States are not all structured the same and this research can inform government leaders on the impacts the local government structures has on crisis management, specifically in the area of organizational resilience. A thorough review of the literature did not uncover existing crisis communication and management that included government structure. Five different municipal government organizational structures are most common in the United States today: council-manager, mayor-council, commission, town meeting, and representative town meeting. The council-manager system is the most common form of government, with more than 55 percent of local governments operating under this structure [43]. This structure is most commonly seen in cities with populations over 10,000 and the southeast and Pacific Coast areas [43]. Occurring in 34 percent of cities surveyed by the International City/County Management Association, the mayor-council government structure is the second-most common form of government. The commission form of government is the oldest in the United States; however, it exists in less than one percent of cities [43]. The town meeting local government structure exists in five percent of cities and is often viewed as the “purest form of democracy” because all voters have a voice in local policy decisions. Lastly, the representative town meeting structure is not as common as the other four (yet still in the top five), with this structure being used by less than one percent of cities [43]. Township and village governments are distinct from municipal governments because they are created to govern areas without a minimum population concentration. Townships and villages are commonly governed by an elected board of trustees [43]. The supervisor-council form of government is similar to a city council and the primary type of county government structure in Arizona, California, Iowa, Mississippi, Virginia, and Wisconsin [43].

Little empirical research exists on local governments and their crisis management capabilities, and this study expands this knowledge base specifically in the area of crisis resilience. Furthermore, this research seeks to evaluate the role internal resources play in local governments’ abilities to effectively manage a crisis. By addressing the impacts that the size of the organization and the availability of resources have on effective crisis management, we can inform crisis managers working in local governments about ways to strengthen their crisis preparedness and, ultimately, their crisis resilience efforts.

2.5. Research Questions

Based on the literature previously reviewed, we developed the following research questions to understand crisis preparedness in local governments:

RQ1: How important are internal resources to local government officials?

RQ2(a): To what extent do local government officials say they had sufficient internal resources available to them to manage crises?

RQ2(b): Is there a difference between the perceived importance of internal resources and the actual resources available to local governments?

RQ3: What are the indicators of the internal resources of local governments?

RQ4(a): How does the availability of time, money, and personnel resources affect officials’ crisis evaluations?

RQ4(b): How does the availability of time, money, and personnel resources affect officials’ crisis management?

3. Materials and Methods

3.1. Recruiting Participants

To understand local governments' crisis resilience, a research firm specializing in surveying local government and public policy officials was hired. In the firm's survey pool, more than 4500 United States local government officials are registered. The firm selected diverse participants in terms of population sizes of the officials' governments and the form of their governments (e.g., mayor-council, commission). Based on IRB-approved protocol, officials received an email from the firm that requested their survey participation. After they agreed to complete the survey by clicking the survey link, the participants were directed to the online survey. The first page included informed consent and explained the purpose of the survey. All of the identifying information was removed from the data, and the responses were entered into a SPSS file before being provided to the researchers. Then, the data were cleaned and screened by the researchers. As an incentive for their participation, the officials received an aggregate summary report of the data.

3.2. Participants

The email request was sent to 4511 officials working for local governments in the United States. A cover letter from the researcher was included in the request. The survey firm constantly updates the list of officials via direct human research, seeking U.S. local government officials' email addresses on the Internet and, in some cases, by calling the office directly to request contact information. Although every local government in the U.S. was not represented in the sample, decent efforts were made to cover a broad range of geography and community types. As a result, 660 local government officials opened and began the email survey. Participants with multiple missing answers (228 respondents) and with disqualification criteria (e.g., did not perform a communication function, did not recall a crisis (125 respondents)) were removed from the data set, resulting in a final sample of 307 respondents (46% completion rate).

3.3. Measures

Before answering the survey questions, the officials were asked to consider a recent crisis situation their community faced. To answer RQ1, the officials' perceived importance of internal resources (i.e., time, money, and staff) was measured by asking three questions: "In general, when your city is managing a crisis situation, how important is the following to your management of the crisis: (1) time; (2) money; (3) staff", rated on a 5-point scale (1: not at all important; 5: very important). For RQ2(a) and (b), the actual amount of internal resources available during their past crises was inquired. For instance, on a 5-point scale (1: not at all; 5: a great deal), the officials indicated their levels of agreement on the statement: "The amount of available time your office had to manage the crisis was sufficient." Availability of money and staff resources were measured similarly. To answer RQ3 and identify the indicators of internal resources, community size was measured by asking respondents to indicate the population of their communities as one of the following: less than 5000; 5000–9999; 10,000–29,999; 30,000–49,999; 50,000–99,999; 100,000–199,999; 200,000–299,999; 300,000 or more. For the forms of government, the 7 categories listed above (i.e., board of trustees, commissions, council-manager, major-councils, presidents, supervisor-councils, and village boards) were utilized. Lastly, for RQ4(a) and (b), participants were asked to recall a specific crisis that they had, and the officials' crisis evaluation was measured with three questions (Cronbach's $\alpha = 0.72$): "On a scale of 1 to 5, with 1 being strongly disagree and 5 being strongly agree, please indicate your level of agreement with the following statements regarding your crisis: (1) The crisis situation was full of unknowns regarding the nature of the crisis; (2) The crisis situation was full of unknowns regarding what response protocol citizens should follow; (3) The crisis situation was full of uncertainty among the public regarding the situation." To measure the local governments' crisis management, another three questions were asked (Cronbach's $\alpha = 0.76$): "On a scale of 1 to 5, with 1 being strongly disagree and 5 being strongly agree, please record your

level of agreement with the following statements about your crisis management of the situation: (1) My office's post-crisis response (recovery) was strong; (2) My office's overall crisis management of the situation was strong; (3) My office managed the crisis well." Finally, based on previous research [43], officials' ages and working years were queried to control for the effects of their past experience. *T*-tests, ANOVAs, and hierarchical multiple regressions were performed to answer the research questions.

4. Results

4.1. Perceived Importance of Internal Resources and Its Availability in Local Government

Before answering the research questions, the job titles of the officials were analyzed. Although they all performed communication functions for their governments, the job titles of the respondents varied and included the following: public information officer, mayors, city administrator, director of administration, city manager, village manager, council member, director of public safety, president of the council, village administrator, and town supervisor. The most common titles were mayor and city manager. Ages ranged from 28 to 85; the mean age was 55, the median was 57, and the mode was 62. There were officials from 44 states in the sample. Local government officials representing population sizes from less than 5000 people ($n = 8$, 2.6%) to 300,000 or more ($n = 1$, 0.30%) were included in the sample, and the largest categories were populations of 10,000–29,000 ($n = 130$, 42.3%) and 5000–9999 ($n = 76$, 24.8%). Forms of government included board of trustees, commissions, council-manager, major-councils, presidents, supervisor-councils, and village boards.

RQ1 asked how important internal resources (i.e., time, money and staff) are to local government officials. As indicated in Table 1, the average scores were slightly different by resource type: time ($M = 4.40$, $SD = 0.79$); money ($M = 4.23$, $SD = 0.91$); and staff ($M = 4.51$, $SD = 0.66$). Three paired sample *t*-tests indicated that participants' perceived importance of staff was higher than of time [$t(295) = 2.81$, $p < 0.01$] and money [$t(295) = 5.92$, $p < 0.01$]. Additionally, perceived importance of time was significantly higher than of money [$t(295) = 3.19$, $p < 0.01$]. For RQ2(a), which asked about the amount of internal resources that the officials had available during crises they had managed, the participants reported lower overall scores for time ($M = 3.30$, $SD = 1.28$), money ($M = 3.47$, $SD = 1.25$), and staff ($M = 3.13$, $SD = 1.32$) than their scores of perceived importance for all three resource types. Another series of *t*-tests was performed to identify any difference between resource types. The results indicated that the amount of money they had during a crisis was more important than time [$t(295) = 2.02$, $p < 0.05$] and personnel resources [$t(295) = 4.58$, $p < 0.01$]. Furthermore, the amount of time was more important than personnel resources [$t(295) = 2.71$, $p < 0.01$]. To answer RQ2(b), three one-way between-subjects ANOVAs were performed. As Table 1 shows, the difference between perceived importance and the actual availability of internal resources was significant for time [$F(1,598) = 160.75$, $p < 0.01$], money [$F(1,598) = 162.72$, $p < 0.01$], and staff [$F(1,598) = 142.12$, $p < 0.01$].

Table 1. Mean, standard deviation, and ANOVA results for importance and availability.

Resources	Perceived Importance <i>M</i> (<i>SD</i>)	Actual Availability <i>M</i> (<i>SD</i>)	ANOVA	
			<i>df</i>	<i>F</i>
Time	4.40 (0.79)	3.30 (1.28)	1, 598	160.57 **
Money	4.23 (0.91)	3.47 (1.25)	1, 598	162.72 **
Staff	4.51 (0.66)	3.13 (1.32)	1, 598	142.12 **

** $p < 0.01$ (two-tailed).

4.2. Indicators of Local Governments' Internal Resources

To test the indicators of local governments' internal resources (RQ3), several ANOVAs were performed with community population and form of government as independent variables and the types of resources as dependent variables. The results reveal that neither

community population nor form of government was a significant predictor of internal resources availability (see Tables 2 and 3). Specifically, for all three types of internal resources, population of community was not a predictor: time [$F(7,289) = 1.70, ns$]; money [$F(7,289) = 0.36, ns$]; and staff [$F(7,289) = 1.53, ns$].

Table 2. Mean and standard deviation for internal resources by population of community.

Resources	Population of Community							
	<5000 (<i>n</i> = 8)	5000–9999 (<i>n</i> = 74)	10,000– 29,999 (<i>n</i> = 129)	30,000– 49,999 (<i>n</i> = 35)	50,000– 99,999 (<i>n</i> = 42)	100,000– 199,000 (<i>n</i> = 9)	200,000– 299,999 (<i>n</i> = 1)	>300,000 (<i>n</i> = 1)
Time	3.00 (1.30)	3.36 (1.25)	3.31 (1.37)	3.23 (1.31)	3.26 (1.06)	3.67 (1.11)	4.00 (0.00)	1.00 (0.00)
Money	3.13 (0.84)	3.42 (1.24)	3.64 (1.29)	3.32 (1.09)	3.31 (1.20)	3.70 (1.25)	1.00 (0.00)	1.00 (0.00)
Staff	3.25 (1.04)	3.16 (1.31)	3.15 (1.36)	3.03 (1.18)	3.17 (1.38)	3.20 (1.32)	1.00 (0.00)	3.00 (0.00)

Table 3. Mean and standard deviation for internal resources by form of government.

Variable	Form of Government				
	Mayor-Council (<i>n</i> = 172)	Council-Manager (<i>n</i> = 106)	Commission (<i>n</i> = 17)	Village Boards (<i>n</i> = 3)	Other (<i>n</i> = 11)
Time	3.28 (1.25)	3.37 (1.31)	2.29 (1.38)	4.67 (.58)	3.27 (1.27)
Money	3.09 (1.32)	3.21 (1.30)	3.29 (1.60)	4.33 (1.16)	2.73 (1.27)
Staff	3.48 (1.26)	3.53 (1.20)	3.00 (1.41)	4.33 (.58)	2.91 (1.38)

Similarly, form of government did not predict the availability of time [$F(4,292) = 1.57, ns$], money [$F(4,292) = 0.82, ns$], or staff [$F(4,292) = 1.00, ns$] in local government crisis management.

Two hierarchical multiple regressions were performed to answer RQ4(a) and (b). For both dependent variables (crisis evaluation and crisis management), a block that included age and number of working years in current office was entered first to control for the effect that may come with experience, followed by a second block that included community population and form of government. As shown in Table 4, age and working years did not account for any significant variance in crisis evaluation [$R^2_{\text{change}} = 0.01, F(2,293) = 0.95, ns$] or crisis management [$R^2_{\text{change}} = 0.00, F(2,243) = 0.39, ns$]. Similarly, the second block that encompassed community population and form of government did not explain variances in crisis evaluation [$R^2_{\text{change}} = 0.00, F(2,291) = 0.00, ns$] or crisis management [$R^2 = 0.01, F(2,241) = 1.56, ns$]. However, the third block that included the three types of internal resources significantly explained variance in crisis evaluation, $R^2_{\text{change}} = 0.05, F(3,288) = 5.04, p < 0.01$, but not for assessments of crisis management, $R^2_{\text{change}} = 0.00, F(3,238) = 0.09, ns$. For crisis evaluation, the regression coefficients of all three internal resources were significant: time ($B = -0.20, p < 0.01$); money ($B = -0.17, p < 0.05$); and staff ($B = -0.18, p < 0.05$).

Table 4. Mean and standard deviation for internal resources by form of government.

Predictors	Dependent Variables	
	Crisis Evaluation	Crisis Management
Block 1	Age	0.06
	Working Years	−0.04
Block 2	Community population	−0.01
	Form of government	−0.01
Block3	Time	−0.20 **
	Money	−0.17 *
	Staff	−0.18 *
R ² change when Block3 added		0.06 ** (0.05 **)
		0.02 (0.00)

* $p < 0.05$, ** $p < 0.01$ (two-tailed).

5. Discussion

Planning and adaptive capacity are two dimensions of resilience [38]. The components of planning—planning strategies, participation in exercises, proactive posture, capability and capacity of external resources, and recovery priorities [38]—require the allocation of resources to develop and implement plans beyond those needed for more routine functions. Furthermore, the availability of internal resources constitutes the adaptive capacity of organizational resilience [38] as well as all other aspects of resilience, from preparedness to organizing to responding. As Doerfel and Prezelj [44] note, “given the nature of resilience—that it requires perpetual attention from multiple points of view—a variety of approaches seems a logical consequence of the fact that critical infrastructures are complex socio-technical systems” (p. 1). So, not only is there a scholarly obligation to engage in multidisciplinary research to inform the conceptualization of resilience, but also there is motivation to better understand the infrastructure underlying resilience within both structural and situational complexities.

The planning component of resilience [38] necessitates consideration of the foundational support mechanisms in place for the government office managing crises. The requisite investments of risk management require adequate time, staff, and fiscal resources in order to be effective. Of course, not all risks can be addressed—some are left to chance or even luck, but, as Doerfel and Prezelj [44] note, which risks are not targeted and why are central questions to avert negative ramifications of future crisis events. If risk management priorities are in part made by perceived ability to avert risk, these decisions will be informed by the resources available in order to do so.

Toward an understanding of that process, this examines how crisis managers respond to internal and external influences when a crisis occurs, and an early part of that process is examining the role of organizational resources. Although managers may not tend to modify behaviors in response to external crises [45] and place the majority of their attention on internal factors [45], resources as an internal factor have not been adequately explored for their effects on resilience in the adaptive capacity. Thus, the importance and availability of resources were explored along with the differences therein among different government offices. Furthermore, indicators of internal resources and their effects on crisis evaluation and management were also analyzed. The following discussion reviews analyses of each question along with recommendations for future research, then turns to overall conclusions and limitations.

RQ1 asked how important time, money, and staff resources are to local government officials and found that all three ranked high on a five-point scale, with means ranging from 4.34 to 4.51. However, when asked about the amount of available resources during crises, the means were much lower, ranging from 3.13 (staff) to 3.47 (money). To examine the significance in difference between importance and availability, ANOVAs were conducted and revealed that for all three internal resources, there was a significant gap between the two. This disparity indicates that although all three types of internal resources were deemed important to crisis management, there was a significant decrease in their perceived availability. This offers a disturbing consideration to understanding resilience—how can government officials engage in more resilient planning if they do not have the resources they perceive as necessary to do so? The word “coping” (or a synonym of it) seems to appear in most definitions of resilience [39,46], but it is difficult to equip crisis managers for successful coping without the time, money, and staff support they need.

Future research must continue to explore this disparity and its effects on the resilience and success of crisis management. Toward bolstering community resilience, local government officials may need to be educated on how to work more efficiently with different levels of available resources. These results suggest that they are aware of the importance of resources in crisis management but also forced to manage crises with diminished resources. An important consideration in understanding organizational resilience may be parceling out how crisis managers can successfully allocate scarce resources. Future research should also explore the effects of resource availability on direct measures of resilience, which may

identify facets of resource management that need specific targeting and development of best practices to mitigate shortcomings.

Next, several analyses were used to examine different indicators of the sufficiency of local governments' internal resources. Interestingly, given earlier results that larger organizations are better equipped to manage crises than smaller organizations [44,45], neither community size nor form of government predicted the availability of time, staff, or financial internal resources. The lack of disparities among size of community and type of government is, in a sense, encouraging. As the crisis manager has no direct control over either size or government type, disparities would be somewhat dooming on the manager's ability to improve resilience. Yet, given the findings above that resources were considered important significantly more than they were considered sufficient, these results indicate the need for local government crisis managers to be trained in efficient and creative ways to utilize the resources available to them. Given that the resource disparity was present across community sizes and government forms, future research should inform the generation of recommendations tailored to meet the unique needs of both large and small communities. Research can parcel out how internal resource deficits impact different sizes and types of communities in distinct ways to avoid a "one size fits all" approach to bolstering resilience across local governments. Furthermore, future research should identify which resources were most necessary across different crisis types to inform efficient utilization across crisis scenarios and to identify priorities for resource allocation in different situations.

Next, even after controlling for the effects of age, working years in office, community population size, and form of government, internal resources affected local government officials' evaluations of the uncertainty present during the crises they had experienced. In fact, time, money, and staff were all three significant predictors of their evaluations of their crisis experience; however, internal resources were not significant predictors of the officials' evaluations of the strength of their crisis management. Crisis evaluation included measures of the unknowns surrounding the situation, the nature of the crisis, and the response protocol people should follow. The fact that the availability of all three internal resources was significantly and negatively related to evaluations of uncertainty (i.e., as resources decreased, uncertainty increased) is troublesome. Keeping the public informed during a crisis is key to its resilience [47], but the more uncertainty an organization is facing, the less it is able to do so. Although it is too early to make causal claims, scarce resources may increase organizational and, in turn, public uncertainty. Further research should explore the possible causal nature of uncertainty considerate of resources. There could be also factors that affect individuals' perceptions such as gender and political orientation. Based on previous studies [15,48], only age and years of experience were considered as covariates in this study; however, future research should explore the impacts of other demographic variables that emerge as relevant in the literature.

As Jin and Cameron [28] note, threat appraisal comprises both situational demands including danger, uncertainty, and required effort as well as the appraisal of organizational resources such as knowledge, skill level, time, finances, and support from key leadership. Avery and Hocke [29] offer evidence of the burden that strained resources impose on local public health information officers. Taken together, those findings and these results support and extend the threat appraisal model by offering evidence that limited resources (an organizational resource) indeed affect a situational demand—uncertainty and the nature of the relationship between these variables and their effects on resilience merit future investigation. However, in terms of management, it is interesting that internal resources did not affect recovery, quality of management, or overall management of the situation. Perhaps this reflects a self-serving bias, in that the local government officials were hesitant to negatively evaluate their own management. Even so, it is somewhat encouraging that those with fewer resources did not believe—or at least report that they believed—that their crisis management was negatively affected. If resources negatively affected individual management assessments, which in a sense reflect the individual's resilience, that would be problematic for interventions designed to boost local governments' crisis resilience.

Of course, this research does have some limitations. The crisis managers' assessments, as noted, may reflect subjective personal bias. Additionally, the government officials were asked to recall a particular crisis situation. Although this method was deemed to have better external validity by relying on a real, not contrived, crisis event, recall may be a less reliable measure. Moreover, availability of internal resources was reported using self-reports; there may be differences among officials about what is considered "adequate". Future research may probe this further using concrete measures such as budgets and staff sizes; however, to do so with a large national sample was beyond the scope of this study. However, what ultimately matters most is likely their perceptions of adequacy. Next, although the response rate would have ideally been higher, given that these are elected officials operating in busy government offices, the response rate, as determined by the firm specializing in survey research with this population, was satisfactory and did not indicate any measurement problems.

Finally, future research should consider using an even scale, because utilizing scales with a neutral answer could force the respondents to indicate a mean value when they have limited knowledge on a particular topic. Another important area for future research is parceling out resource types beyond three general categories to identify how availability aligns with processes for utilization. Additionally, these findings should be tested in other local government types in different political systems to reveal disparities. Overall, the results of this survey suggest that internal resources represent a key consideration in understanding crisis resilience, and the disparity between the perceived importance of internal resources in managing crises and the availability of those resources is troublesome. More encouraging findings are that community size and form of government did not affect resources, but deficits in internal resources exasperated the uncertainty surrounding the crisis that crisis managers and individuals must navigate, which will likely compromise resilience. This research positions internal resources, especially those of local government offices, as a central consideration in understanding and even boosting community resilience.

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