Drivers of Disaster Planning among African-American Households

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Drivers of Disaster Planning among African-American Households

Purpose – The paper seeks to explore the drivers of disaster planning in African-American households. While the paper is exploratory, we attempt to dialogue with substantial theoretical and applied research around vulnerability and disaster. Race, ethnicity, and vulnerability are issues deeply entangled with American disaster preparedness and response. In our study, we hope to illuminate the threads which bind them together and contribute to a more nuanced understanding of the relationship between race, ethnicity, class, and preparedness.

Design/methodology/approach – Data for this project comes from a disaster planning question placed on the 2020 Collaborative Multiracial Post-Election Survey (CMPS). We analyze a split sample of around 5000 African-American households descriptively and with multinomial logistic regression.

Findings: Disaster planning among African-American households is a product of past experiences, concern about other hazards, social trust, and gender identity. These results are similar to other findings within the study of household preparedness and help to advance the understanding of predictors within the African-American community. Key drivers such as income, education level, gender identity, social trust, and perceptions of other risks are consistent with previous studies.

Originality/value – This project is the first to examine issues of disaster planning utilizing a national sample of African-American households via the one-of-a-kind 2020 CMPS.

Keywords: Disaster, Preparedness, Vulnerability, African-American, Historically Marginalized Communities

Article Type: Research paper

Introduction

The impact of Hurricane Katrina along the Gulf Coast in 2005 accelerated efforts of disaster scholarship to better connect with the study of race and ethnicity to improve and inform the broad understanding of vulnerability and recovery for historically marginalized populations. Nearly two decades later, these efforts continue as researchers examine the lingering impacts of colonialism on disaster response in Puerto Rico after Hurricane Maria in 2017, inequalities in the distribution of funds during disaster recovery in Houston following Hurricane Harvey in 2017, and the disparities in COVID-19 treatment and outcomes for historically marginalized communities since 2020. These cases tragically illustrate that historically marginalized communities in the United States face higher risk from hazards and longer recovery times after a disaster.

Existing research suggests that race, ethnicity, and class compound to increase or reduce hazard vulnerability. Separately, related scholarship has demonstrated that these same characteristics correlate with household disaster preparedness. Drawing on data from the Collaborative Mulitracial Post-Election Survey, we explore drivers of disaster preparedness among historically marginalized populations, specifically African-American households. Since our project is exploratory and descriptive, our core research question asks, "what factors drive disaster preparedness within African-American households?"

While the paper is exploratory, we attempt to dialogue with the substantial theoretical and applied research around vulnerability and disaster. In particular, we are attentive to the differences between disaster preparedness, such as planning, and disaster resources, such as financial savings. Race, ethnicity, and vulnerability are issues deeply entangled with American disaster preparedness and response. In our study, we hope to illuminate the threads which bind them together and contribute to a more nuanced understanding of the relationship between race, ethnicity, class, and preparedness.

The data for this project comes from a disaster planning question which was placed on the 2020 Collaborative Multiracial Post-Election Survey (CMPS) . The CMPS has 17,000 respondents nationwide including a 5000 respondent oversample of African-American households. As **MAP 1** shows, even though the African-American oversample is most dense in Los Angeles county, respondents come from counties across the United States.

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Disaster and the 2020 CMPS
Disaster Planning Respondent Density by US County

Count of Repondents
- 250
- 200
- 150
- 100
- 50
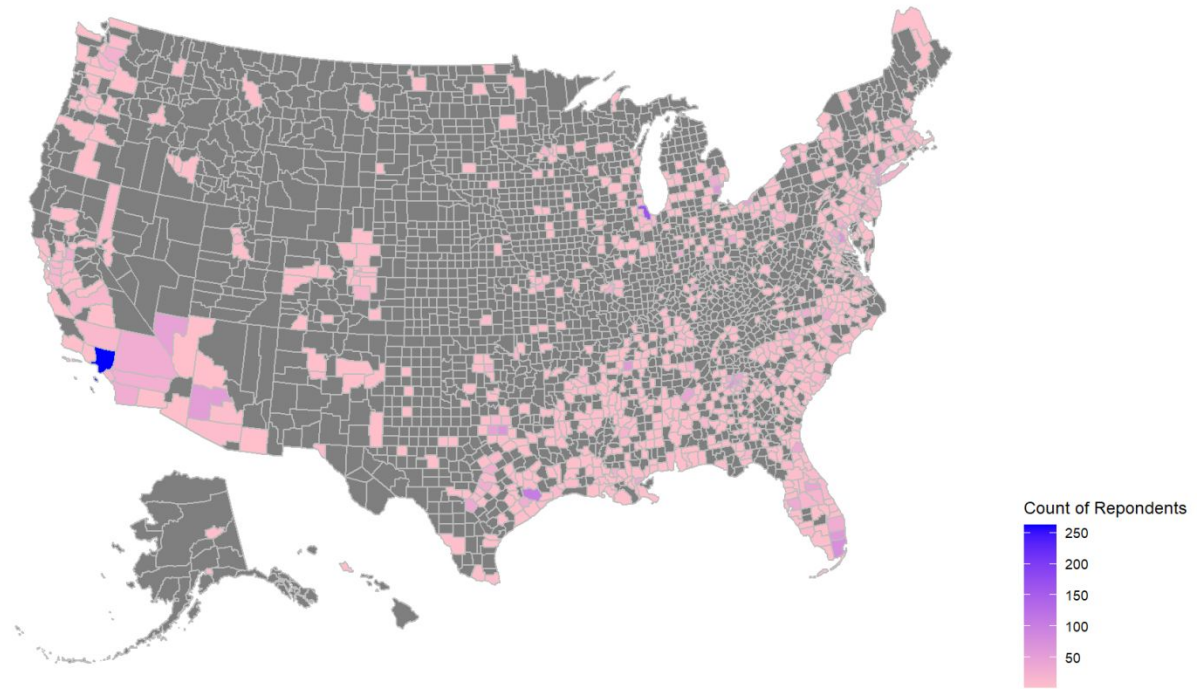
Map 1: Density of CMPS Participants by County

Additional variables on the CMPS include targeted questions about COVID-19 response along with traditional variables measuring household demographics, social trust, and similar areas of interest (Frasure et al 2021). Responses are analyzed using cross-sectional statistical analysis. The scale of the CMPS means that we can provide researchers and practitioners with a baseline of understanding of the drivers of disaster preparedness among historically marginalized communities in order to facilitate more effective disaster readiness, speedier recoveries, and improvements in future research.

The project draws on theory from public administration, disaster studies, critical theory, and theories around race and ethnicity. By looking within a single demographic group, we hope to add nuance to the study of hazard vulnerability among historically marginalized populations. Households in our study show a relatively high level of disaster preparedness planning. But, planning alone cannot overcome high-impact disasters fueled by climate change or human-caused disasters where public policy perpetuates vulnerability through the structural and systemic drivers of hazard exposure facing African-American communities.

Disaster Preparedness and Historically Marginalized Communities

Disaster research shows that historically marginalized communities suffer disproportionate impacts from disaster and during recovery (Domingue and Emrich 2019). Existing literature offers various explanations ranging from issues of preparedness (Maldonado et al. 2016), to questions of social and environmental vulnerability (Cutter, Boruff, and Shirley 2003), and the complex intersections of race and ethnicity in American society (Fothergill, Maestas, and Darlington 1999; Bolin and Kurtz 2018, Versey 2021).

We approach our project aware of several challenges in the study of preparedness and race in America. First, preparedness includes a range of preparedness and risk-reduction activities at the individual level (Lindell and Perry 2000; 2012). While not entirely embracing these approaches, we build on the Protective Action Decision Model (Lindell and Perry 2012) and the work on Individual Household Preparedness (for a good review see Nojang and Jensen 2020) to help inform our definitions of preparedness actions at the level of family units and individuals. These approaches use lists of actions, such as creating a disaster plan or saving for an emergency fund, to determine if households are ready to respond to a disaster.[1] There is considerable variety in how these questions are reported in research. Some create a composite index of all measures while others focus on the differences between disaster planning and education (usually low-cost actions) and disaster resources or hazard risk reduction actions (usually expensive and time consuming).

Since we want our results to be helpful for professional emergency managers and we are working in the United States, we consider how the Federal Emergency Management Agency (FEMA) conceptualizes household and individual preparedness and preparedness on the National Household Survey (FEMA 2021). Similarly structured questions are on the American Housing Survey (AHS 2017). While the FEMA National Household Survey is an imperfect measure, it is among the longest running nationwide preparedness surveys. On the CMPS, we were able to place a disaster preparedness planning question and rely on other variables to measure disaster preparedness resources.

Second, there are considerable tensions among competing theories of race and ethnicity in America, and how they relate to various elements of preparedness (Bolin and Kurtz 2018; Fothergill and Peek 2004; Tierney 2007). Looking at the state of the field in 1999, Fothergill et al saw that race and

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[1] For examples, see https://www.ready.gov/plan operated by FEMA or the Red Cross checklists found at https://www.redcross.org/get-help/how-to-prepare-for-emergencies.html

ethnicity had important but unclear relationships with the relatively easy-to-measure issues of socioeconomic class and the less quantifiable, but never-the-less tangible, effects of culture (Fothergill, Maestas, and Darlington 1999). Carrying this research forward, Elliot and Pais developed a framework built around three premises: race supersedes class, class supersedes race, or neither is predominant in affecting preparedness (Elliott and Pais 2006). This framework is not entirely satisfactory as follow-up studies illuminated hard-to-explain interactions between race, class, and preparedness actions, like the purchase of flood insurance in hurricane-prone areas (Lindell and Hwang 2008; Maldonado et al. 2016). Further theoretical developments have led to an increased understanding of the complexities and nuances in the field (Bolin and Kurtz 2018). Most notably, the growth of critical theory has been highly beneficial for disaster studies.

Critical disaster theory and the environmental justice movement situate the disparate impacts of disasters on historically marginalized communities in terms of power, capitalism, imperialism, and the long-lasting structural effects of those forces (Hagen 2021; Remes and Horowitz 2021; Leach and Rivera 2021; Meriläinen 2020). Emergency management and disaster preparedness scholars and practitioners tend to promote ideas and policies to increase awareness, preparedness, or resilience. However, it seems most likely that these efforts and policies may not make much difference beyond the margins. If marginalized groups are located in the places most vulnerable to disaster, think Hurricane Katrina, there may be no individual level of preparedness that individual households can take to mitigate natural hazard risk short of relocating. In fact, such emergency management practices may be causing risk as opposed to alleviating risk (Clark-Ginsberg et al 2021). The continual neglect of marginalized communities reinforces the long-term effects of racism and classism causing them to consistently face disproportionate levels of hazard exposure (Rivera and Miller 2007; Laditka, Murray and Laditka 2010). This line of research points towards the structural issues which can supersede individual preparedness and still result in high vulnerability for highly prepared households.

Third, past studies on this topic often suffer from insufficient sampling to identify meaningful differences within American racial and ethnic communities. The lower sample sizes have meant that researchers often create simple white/non-white binaries (Lindell and Hwang 2008; Elliott and Pais 2006). However, looking within demographic blocks using high quality samples has shown significant nuance about preparedness behavior. Both Rivera (2022), using the FEMA National Household Survey, and Zamboni and Martin (2020), using the American Housing Survey, show strong differences within Hispanic-American and African-American households with planning preparedness and resource

preparedness. Since our preparedness question is placed on the Collaborative Multiracial Post-Election Survey (CMPS), we benefit from standard demographic and socioeconomic variables, nuanced conceptualizations of race and ethnicity, along with oversampling of non-white and historically marginalized populations with over 17,000 respondents.

This brief review of theoretical backgrounds informs our research question. Much of the data and analysis to follow is descriptive and preliminary as we learn from this novel data source. In the project, we attempt to answer "What factors predict disaster preparedness within African-American households?" Before moving on to the next section, it is also important to address the question, "Why study Black disaster readiness?" In an ideal condition, race or ethnicity would not matter for disaster readiness. However, in America, race and ethnicity intersect with issues of socioeconomics, national identity, and political power. For example, Lucero et al (2020) observes an increasing likelihood that individuals follow evacuation warnings when they come from members of their own demographic community. This intersection means that, in America, the study of disaster preparedness is incomplete without considering the intersectionalities of race, ethnicity, class, gender, and power (Kadetz and Mock 2018, Ryder 2017, Versey 2021).

Measuring racial and ethnic communities is a difficult undertaking, especially in America. Markers of communities often include language, religion, geography, and, in America, skin tone. Members of racial and ethnic communities may identify with these markers by choice or may have these categories put upon them against their volition. This is especially true when "the census, the map, and the museum" are used by those in power as weapons against those without power (Anderson 2006). In the United States, the U.S. Census has been used to imagine and reify racial and ethnic communities. Complex, diverse, and rich communities have been collapsed into single categories of "Black", "Native", "Asian", or "Hispanic". Scholarship shows that because of these classifications, Black Americans have been denied access to financial resources, voting and representation, quality infrastructure , and suffer high rates of natural hazard vulnerability. As a result, these structural conditions within political and social systems are exasperated and even perpetuated by disaster (Kadetz and Mock 2018). In other words, because of historical and structural racism in the United States, it is important to focus on disaster readiness of specific communities of Americans.

Often, given the neoliberal structure of emergency management policymaking, proposed actions and general definitions of preparation require socioeconomic resources (Kadetz and Mock 2018). This tradition runs the risk of conflating issues of race and structural poverty without respect to

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the nuances of individual structural inequalities that are the original sources of the inequities leading to the disproportionate vulnerabilities faced by marginalized groups. If such communities demonstrate similar levels of preparedness as white communities, the implications for emergency managers and other practitioners are vast. In this case, current neoliberal policy practices for promoting preparedness would be wholly insufficient (Teo et al. 2019) and empirically, this would mean the structural forces leaving marginalized communities disproportionately exposed to disaster can only be remedied through evacuation, relocation, and justice minded planning and development. Given the complex relationship between marginalized communities and government directives (Lucero et al. 2022), it will take extensive and deconstructive policy action to societally reduce the risks faced in vulnerable communities. The intention of this project is to provide additional empirical evidence that could be used to guide, and if necessary alter, the current practices utilized by practitioners to reduce risk.

Data and Variables of Interest

Data Source

Data for this project comes from the Collaborative Multiracial Post-Election Survey (CMPS). The CMPS is a novel data set with various oversamples from historically marginalized communities. The online survey was fielded from April 2021 through October 2021 to include responses to real-time events after the 2020 election. The data is weighted to match ACS estimates for each population group following the weighting guidelines provided by the CMPS (Frasure et al 2021). We limit our analysis to a split sample of around 5000 observations from African-American households. This is because our disaster planning question was on the African-American portion of the study and not included on the wider sample. While this limits our ability to study preparedness across racial and ethnic groups, the focused sample allows us to carefully explore within group differences for African-American respondents. This approach is similar to exciting work by Rivera with the FEMA National Household Survey (Rivera 2022) and Maldonado et el in their comparison of Hispanic communities in Miami and Houston (2016).

Additional data about natural hazard history and risk is drawn from the National Risk Index (https://hazards.fema.gov/nri/) maintained by FEMA. The National Risk Index combines historical natural hazard patterns, social vulnerability, community resilience, and expected annual losses into a single risk index. We use the risk index as a best-approximated measure of natural hazard impact at the zip code level. This baseline measure helps to identify communities that should have heightened

preparedness based on existing or expected risk to natural hazards or significant impact should a disaster occur.

We also compare our results to the National Household Survey (NHS) which is also maintained by FEMA. Since our preparedness question was only included on the African-American sample of the CMPS, we use the NHS to help demonstrate external validity. While the NHS is a valuable tool in learning about self-assessed preparedness by American households and is matched to the US Census, the NHS sample may be too small for within group or sub-national analysis. For comparison, the NHS sample contains 800 self-identified African-American respondents (around 12% of their sample and similar to US Census national estimates) compared to 5000 African-American respondents in the CMPS. This means that we can explore multiple sub-analysis and still maintain statistical power.

Variables of Interest

The dependent variable for the study is disaster planning. The question wording asks: "do you have a plan for disasters or emergencies for your household?" Respondents are given the option to indicate that they have a disaster plan, they are working on a disaster plan this month, they will work on a disaster plan later, they will never work on a disaster plan, or they don't know. The categories of the variable have theoretically interesting temporal sequencing, but the time interval between each level of the variable is not meaningful. **TABLE 1** shows that just over 30 of respondents affirmed having a disaster plan which is older than one month while a majority of respondents have just started to prepare (13%) or will prepare in the future (32%). The question wording mimics that of the FEMA survey by prompting respondents to think about past, current, and future preparedness (FEMA 2021).

While we were grateful to have this question on the CMPS, it is the only disaster planning question present on the survey. As a result, while we cannot evaluate a full range of household preparedness items, we can use the CMPS study as a reference point for the broader empirical realities of disaster planning.

Table 1: Dependent Variable of Disaster Planning

Disaster Planning	Percent of Sample

Yes - Have been prepared for over a month	30.03
Yes - I began preparing this month	13.29
No - I plan to start preparing in the future	32.36
No - I am not going to make a plan	10.83
Don't Know	12.17
Refused	1.32

Causal variables for the project include a range of traditional measures and some unique to the CMPS. Following previous research, we believe that prior disaster experience may have a positive relationship with disaster planning. Previous disaster experience is a binary question that primes respondents to think about disasters caused by natural hazards. The question asks "Think about events that have prevented 10 or more people from being able to live their lives normally such as tornadoes, tsunamis, earthquakes, or wildfires. Excluding the ongoing COVID-19 pandemic, have you ever been affected by such an event or have you never been affected by such an event?".

We also believe that living in geographic proximity to a disaster may have a positive relationship with disaster planning. We developed an imperfect measure using county-level location data and the date respondents joined the study to determine if they were in a county that had been affected by a federally declared disaster in 2021 before they joined the CMPS. Counting just the months the survey was active, January and then April through August, 18 disasters were causing a billion dollars of damage or higher (NOAA 2023). During the same window, FEMA reported over 80 disaster declarations. While some of this count includes the 2020 inauguration and response to COVID-19, the vast majority were to discrete disaster events such as winter storms, hurricanes, or wildfires (FEMA). These sources do not capture localized disasters or those which do not rise to guidelines of disasters and most likely undercount the true number of events each year. Nevertheless, we find that 36% of our respondents

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came from counties with a federally declared disaster of any type but excluding COVID-19. Additionally, we find that 13% of respondents joined after a disaster.

In the United States, 2021 began with late-January flooding in California. A few weeks later, Texas experienced several winter storms which left millions without power and led to multiple fatalities. Coal and gas power plants were not properly winterized, leading to cascading failures (Cai et al 2022). Fire, flood, and wind were a constant in the Western, Midwestern, and Ohio Valley states and respondents joined the survey before and after various fire or storm-related disaster declarations. Much of the worst severe weather for the Southeast arrived later in the year with flood events and several hurricanes along the Gulf Coast, including the category 4 Hurricane Ida in August. Similarly, the Marshall Fire in Colorado arrived too late in the year for inclusion in the survey window. Despite the floods, the year was one of continued drought with Western states and Texas battling for water and to avoid summer blackouts. While incomplete, this snapshot should help to situate our respondents vis-a-vis the various natural hazards they faced in 2021. We use this before/after distinction as a control variable in the study.

Additional disaster-related controls include concerns about COVID-19 and climate change. The CMPS provides several options for measuring responses to the COVID-19 pandemic. Participants were asked about the "most important issues for the new President and Congress" to address and were allowed to select three options from a list of over twenty options. We count any respondent who responded with COVID-19 as an important issue as showing high concern and all others showing low concern. Similarly, we score the same way with climate change. While direct attribution to climate change is possible but difficult (Stott et al 2016), 2021 saw significant weather and climate-related disasters. We believe that high concern for COVID-19 or climate change may be associated with higher planning since it may show higher sensitivity to risk perception.

Additional controls include other common explanations such as household income, gender identity, family size, employment status, educational status, urban vs rural location, political ideology, social trust, and similar. There continues to be quite a bit of disagreement about which of these predictors is most explanatory, when, and under what conditions (Wachinger et al 2013, Rivera 2020, Albright and Crow 2022). Income is measured on a scale but we expect a minimal effect since making a plan is nearly a no-cost activity. Gender identity is ordinal and collapses to male, female, and all others. Family size is ordinal ranging from no children to four or more. Education status is also measured on a scale and we expect those with higher education to show higher planning levels. Similarly, political

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ideology is measured on an ordinal scale from liberal to conservative. We omit a measure of party identity due to the strong overlaps between party and ideology and the problems of applying party labels outside of non-white populations (Mason 2015, Cuik 2023, Jefferson 2020).

Lastly, we include a measure of urban-ness and community risk. Location is an ordinal scale of self-reported large urban to rural areas. Previous studies have suggested that participants are mostly accurate with this kind of self-reporting (Igielnik et al 2019). Risk is measured by incorporating data from the National Risk Index (NRI). As mentioned earlier, the NRI is a measure that combines historical natural hazard risk with social vulnerability, community resilience, and expected financial impacts into a single baseline estimate of risk. The NRI uses a score from 0 to 100. This score is then converted into quintiles and named from very low to very high. Risk is mapped onto geographic locations at the county and census tract level data.

We use county level data for two reasons. First, the CMPS contains zip code data for respondents and the NRI uses county and census tract geographic data. To include the NRI information with our CMPS sample, we converted the zip code and county data to county-level FIPS codes to allow for mapping in the R environment using ggplot2 and usmaps. While conversion to the more fine-tuned census tract is technically possible, we opted for the county level due to accuracy concerns and common usage.[2] More importantly for our project, much of the emergency management infrastructure around the US operates at the county level. After importing and formatting the NRI data, we found that 15.52% of our respondents are in a Very High risk county, 30.33% in Relatively High, 37.14% in Moderate, 13.95 in Relatively Low, and 3.06 in a Very Low risk county. The next section combines these variables into a single analysis with some discussion placing the results in context with previous research.

Analysis and Discussion

Initial descriptive analysis of the dependent variable suggests that just above 30% of respondent households reported already having a disaster plan in place. Yet, 2020 and 2021, when the CMPS survey study was fielded, was a busy year for disasters. To better understand the distribution of this initial result and to help with exploring causal mechanisms, we collapsed and mapped the planning variable to visualize where planning was most likely. Counties were assigned a planning ratio by measuring the

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[2] https://mcdc.missouri.edu/geography/ZIP-resources.html,
https://www.huduser.gov/portal/periodicals/cityscpe/vol22num1/ch12.pdf

percentage of respondent households which reported having an existing disaster plan. Counties in green had high planning ratios near 1 while purple had low planning ratios near 0. Grey counties were not part of the African-American CMPS sample. As seen in **MAP 2**, no clear patterns emerge. Moving from a visual and descriptive approach, we next turn to statistical analysis.

Respondents with a Disaster Plan
Percent of respondents with an existing disaster plan grouped by county
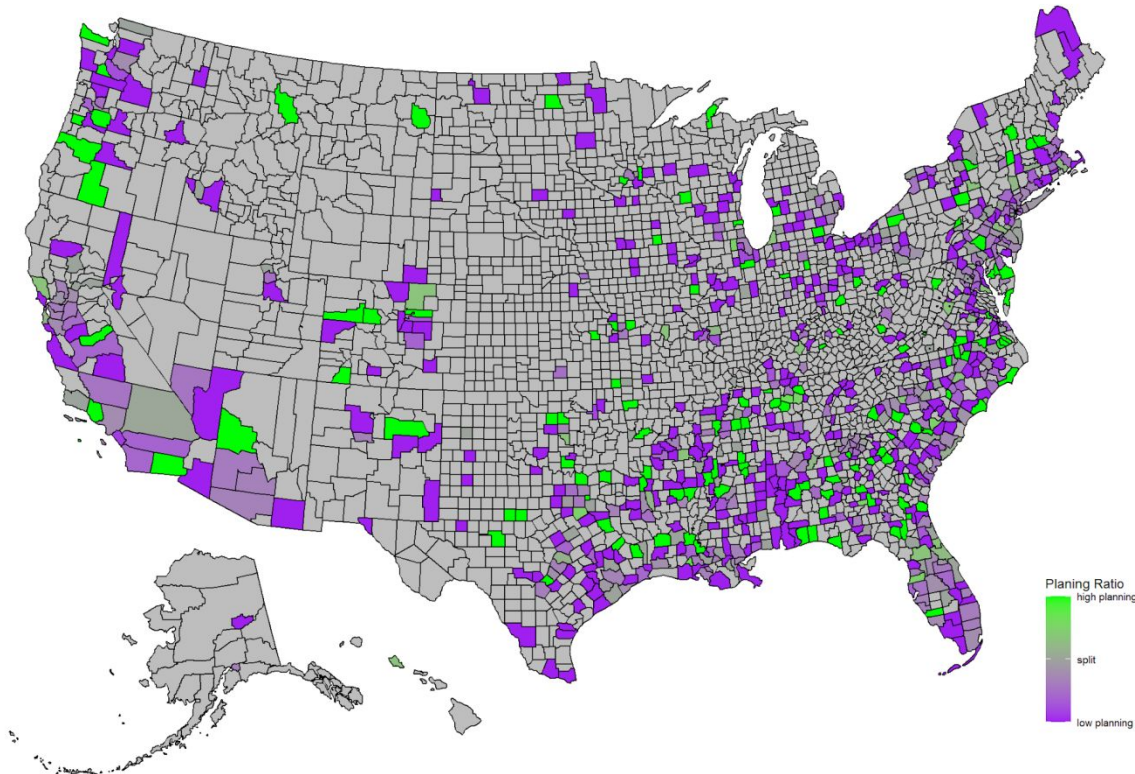
Map 2: Ratio of Respondents with a Household Disaster Plan Displayed by Counties with CMPS Participants

We use multinomial logistic regression for the initial analysis of the data. This method is employed due to the unordered but categorical nature of the dependent variable of disaster preparedness planning. As presented in **TABLE 2**, the analysis suggests that the strongest predictors for disaster planning are linked to previous disaster experience, increased education, concern about climate change, increased age, gender identity, and increased trust of neighbors.

The initial analysis also suggests variations in the power of these predictors across the temporal dimension of preparedness. The questionnaire provides options of "plan in place for over a month", "starting planning this month", "will plan later", "don't know", and "will not plan". This last option is set as a reference category for the multinomial regression. As a result, the analysis should show how the various independent variables predict the odds of a survey participant selecting any of the other four options.

Table 2: Multinomial Logistic Regression Displaying Drivers of Household Disaster Planning

	Over a Month		This Month		Later		Don't Know	
	Odds Ratio	*p-value*	*Odds Ratio*	*p-value*	*Odds Ratio*	*p-value*	*Odds Ratio*	*p-value*
Age	**0.99**	**<0.001**	**1.01**	**<0.001**	**1.00**	**<0.001**	**1.01**	**<0.001**
Climate a priority issue	**1.43**	**<0.001**	**1.17**	**<0.001**	**1.46**	**<0.001**	**1.35**	**<0.001**
COVID-19 a priority issue	**1.19**	**0.003**	**1.23**	**0.006**	1.10	0.092	1.11	0.2
Education Level	**1.20**	**<0.001**	1.05	0.3	**1.07**	**0.042**	0.97	0.5
FEMA Risk Score	**1.01**	**0.05**	**1.02**	**<0.001**	**1.01**	**0.013**	1.01	0.08
Gender (female)	**1.51**	**<0.001**	**1.44**	**<0.001**	**1.85**	**<0.001**	**1.82**	**<0.001**
Ideology (conservative)	1.03	0.4	1.05	0.2	1.06	0.11	**1.25**	**<0.001**

Income	1.00	0.5	1.00	0.10	1.00	0.9	**1.00**	**0.049**
Kids under 18	1.01	0.9	**1.18**	**0.008**	1.06	0.4	0.98	0.8
Location (rural)	1.00	0.9	1.07	0.2	1.01	0.8	**1.12**	**0.014**
Previous Disaster (yes)	**1.82**	**<0.001**	**2.25**	**<0.001**	**1.32**	**<0.001**	**0.80**	**0.003**
Trust Neighbors	**1.44**	**<0.001**	**1.32**	**<0.001**	**1.14**	**0.026**	1.07	0.3

Residual Deviance: 13213.16
AIC: 13325.16
Pseudo R2: 0.038
Observations: 5346

The reference category for planning is "never". Diagnostics for the multinomial regression model suggest that the analysis fits within the assumptions of this type of test. For visualization purposes, 95% confidence intervals are not shown.

Several results of interest stand out due to their effect on household planning. Odds ratios show how much more likely respondents are to select a category of the dependent variable. In this case, values over 1 show increasing likelihood of a response while values less than 1 show decreasing likelihood. For readability, statistically meaningful effects are bolded in **TABLE 2**.

First, the key driver of planning is previous disaster experience. Those who had experienced a non-COVID disaster within the last year were more likely to already have a disaster plan (OR 1.82 for "over a month") or to self-identify as starting a plan (OR 2.25 for "this month" and OR 1.32 for "later") compared to those who indicated that they would "never" plan. The result is consistent with other research suggesting an initial interest in disaster planning immediately following a natural hazard impact. Second, gender identity seems to matter for preparedness. Overall, respondents identifying as female are more likely than other respondents to already have a disaster plan (OR 1.51) or to be working on a disaster plan this month or later (OR 1.44 and 1.85 respectively). This finding aligns with research

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demonstrating that show African-American women seem to distinctly internalize environmental threats and the impacts of disaster (Fothergill 1996; Campbell, Bevc, and Picou 2013) and desire to foster disaster resilience (Laditka, Murray, and Laditka 2010). Third, households with a higher number of children under the age of 18 had higher odds of planning later this month (OR 1.18), but were not more likely to already have a plan. Fourth, trust in neighbors is an important driver for disaster planning. Higher trust in neighbors is associated with higher odds of having an existing plan (OR 1.44), planning this month (OR 1.32), or developing a plan later (OR 1.14). Fourth, attention to other hazards seems to play a weak role in disaster preparedness. Respondents who view COVID as an important issue for the president and Congress to address had higher odds of already having a plan or starting a disaster plan this month (OR 1.19, 1.23). Similarly, respondents in areas with higher FEMA risk scores had higher odds of already having a disaster plan (OR 1.01) or making a plan this month (OR 1.02). Concern about climate change seems to motivate planning at all levels, even and confusingly, for those who don't know.

Taken as a whole, the results are mixed but suggest that disaster planning among African-American households in this study is a product of past experiences, concern about other hazards, connected to social trust, and gender identity. These results are similar to other findings within the study of household preparedness and help to advance the understanding of predictors of preparedness within the African-American community. While there is considerable debate and variations across studies, key drivers such as income, education level, gender identity, social trust, and perceptions of other risks are consistent with other research.

Conclusion

The study began with a question, "what factors predict disaster preparedness within African-American households?" To answer this question, we developed a survey item for the 2020 CMPS survey, a one-of-a-kind national survey with significant sampling among historically marginalized communities. The findings showed that past experience and non-resource-based factors seem to be the strongest predictor of disaster planning among African-American respondents in the CMPS survey.

These results must be considered alongside the limits of our project. Due to the preliminary nature of the study, the dependent variable was not included for the other samples of the CMPS. As a result, we cannot compare our results among African-American respondents to those of other groups included in the CMPS. Second, we only have one disaster preparedness question while other studies like

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the FEMA survey or the AHS often include a battery of knowledge and action checks. As a result, comparisons between our project and the FEMA study should be done with caution. Third, because the survey was fielded during the first year of the COVID-19 pandemic, we cannot rule out some recency bias with respondents over reporting their level of disaster planning or disaster experience due to their experiences with COVID-19. However, given the near universal impact of the pandemic, we believe this bias to be unavoidable. Fourth, our analysis is still ongoing. While we have endeavored to be thorough and careful, it is possible that continued analysis of the CMPS may alter these findings. With these limits in mind, we conclude with a tentative answer for each research question.

By looking within group for this analysis, we add nuance to the discussion of race, ethnicity, and disaster preparedness. Notably, explanations such as income or urban/rural have little predictive power when a sufficient within-group sample is used, such as the CMPS. Instead, previous disaster experience, climate concern, gender identity, and age stand out as the strongest predictors of whether African-American respondents created disaster plans for themselves and their households.

Applying this conclusion towards the larger study of preparedness and vulnerability, our study echoes the findings of others, suggesting that resources alone are not a sufficient explanation of disaster planning once within group differences are considered (Maldonado et al 2016; Rivera 2022, Zamboni and Martin 2020). Our findings may suggest the systemic or structural impacts of racism and classism in American history could be the most critical factors driving hazard exposure and thus individual household and disaster preparedness (Hendricks and Van Zandt 2021). It appears this project will add to the growing body of research demonstrating that for certain contexts, individual household preparedness is not sufficient on its own. As the climate continues to change and severe weather events proliferate, practitioners and policymakers must refocus efforts on providing structural solutions to support and protect increasingly vulnerable communities. Emergency managers should advocate for justice in planning, response, and recovery. Including, encouraging their community planners and leaders to meaningfully reduce hazard exposure for marginalized communities (Jacobs 2019) and partnering with African-American communities to go beyond planning by providing needed resources for preparedness kits or enabling mitigation actions. Decades of lost income or housing located in hazard prone areas cannot be overcome through awareness alone.

Our study is too preliminary to offer detailed analysis of types of disaster planning or preparedness beyond generalized household plans. Nevertheless, the study does demonstrate drivers of planning levels within African-American households. This study also suggests that placing disaster

preparedness questions on CMPS or similar studies can help with descriptive understanding of disaster preparedness at the individual and household level for historically marginalized communities and thus solidify documentation of the empirical reality that structural forces turn "acts of God" and other natural hazards into systemic disasters.

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Appendix 1: Summary Table of Key Variables

Variable	Percent of Sample	Variable	Percent of Sample
Income		*Location (Urban to Rural)*	
Under $20,000	21.65	Large Urban	36.10
$20,000-39,999	22.78	Large Suburb	26.77
$40,000-59,999	17.17	Small Suburb	15.63
$60,000-79,999	10.51	Small Town	13.89
$80,000-99,999	6.05	Rural Area	7.61
$100,000-149,999	8.26	*Ideology*	
$150,000-199,999	3.08	1 - very liberal	16.21
$20,000 or more	2.00	2	19.32
Employment		3	37.65
Full-time	37.31	4	9.01
Part-time	12.66	5 - very conservative	6.56
Full-time student	5.98	none of these	11.24
Retired	18.25	*COVID-19 Issue*	
Unemployed	19.72	0	70.91
Homemaker	6.08	1 - important issue	29.09
Education		*Climate Issue*	
Grades 1-8	1.33	0	92.65
Some High School	7.18	1 - important a issue	7.35
High School Grad or GED	35.57	*Family Size*	
Some College	20.70	no children	68.42
2 year degree	11.80	one child	15.71
4 year degree	13.71	two children	10.15

Post-graduate Degree	9.71	three children	3.76
Affected by Prior Disaster Experience		four or more	1.96
Yes, excluding the COVID-19 pandemic	35.72		
Gender Identity			
male	44.18		
female	55.30		
something else	0.52		