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Ileana I. Diaz

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Navigating food futures post-disaster: the intersectional politics of race, gender, disability and access

Ileana I. Diaz 

Department of Geography and Environmental Management, University of Waterloo, Waterloo, ON, Canada

ABSTRACT

A historically devastating series of climatic events in September 2017 transformed lives in Puerto Rico and its diaspora. The impacts of Hurricanes Irma and Maria ruptured the functionality of lifeways in unprecedented forms. The events also characterize the longest disaster response muddle in the history of the United States. This focused case study investigates the ways that individuals navigate their island food system in a post-disaster context. It explores the political, social and economic circumstances which inform various experiences of food insecurity, hunger, gendered vulnerabilities, disability and the role that layered structural inequity plays in producing unequal access to food. Based on news media, photographic analysis and in-depth interviews conducted with those who lived through both hurricanes, an evidence-informed intersectional analysis is produced. Scaffolding the research conceptually through an intersectionality and Afro-diasporic futures epistemology, this paper contributes a geographical and feminist analysis to the study of disasters in relation to food insecurity. Markedly, people living with disabilities and women participants reported increased challenges to disaster recovery and resilience. Parents were found to be the most food insecure. Research findings show that gender, race, disability and income play a pivotal role in shaping food access and long-term wellbeing in post-disaster contexts.

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Navegando hacia un futuro alimentario tras desastres climáticos: La interseccionalidad de la raza, el género, la discapacidad y el acceso

RÉSUMÉ

Una serie de eventos climáticos históricamente devastadores en septiembre de 2017 transformó vidas en Puerto Rico y su diáspora. El impacto de los huracanes Irma y María alteró la funcionalidad de los modos de vida. Estos eventos también caracterizan el mayor embrollo en la respuesta a desastres en la historia de Estados

CONTACT Ileana I. Diaz  idiaz@uwaterloo.ca  Department of Geography and Environmental Management, University of Waterloo, Environment 1, 200 University Ave W Room 115 Waterloo, ON N2L3G1, Canada

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Unidos. Este estudio de caso investiga cómo las personas gestionan el sistema alimentario de su isla en un contexto de desastre. Explora las circunstancias políticas, sociales y económicas que influyen en diversas experiencias de inseguridad alimentaria, hambre, vulnerabilidades de género, discapacidad y el papel que la inequidad estructural en capas desempeña en la producción de un acceso desigual a los alimentos. Basándose en medios de comunicación, análisis fotográfico y entrevistas realizadas con quienes vivieron ambos huracanes, se produce un análisis interseccional. Con un andamiaje conceptual de la investigación a través de una epistemología de la interseccionalidad y los futuros afrodiaspóricos, este trabajo aporta un análisis geográfico y feminista al estudio de los desastres en relación con la inseguridad alimentaria. Personas con discapacidad y mujeres participantes reportan mayores desafíos para la recuperación y la resiliencia ante desastres. Se observó que las madres eran las más afectadas por la inseguridad alimentaria. Esta investigación demuestra que el género, la raza, la discapacidad y los ingresos desempeñan un papel fundamental en el acceso a los alimentos y el bienestar a largo plazo en contextos posteriores a desastres climáticos.

Introduction

When Hurricane Maria made landfall on the heels of Hurricane Irma in September 2017, the particularities of Puerto Rico's unique vulnerabilities and historical commonalities with much of the Caribbean were exposed through the spectacle of disaster photographs emerging in the hours, months and years following climatic events. Images of crumbling infrastructure, from fallen houses to roads ripped from the ground, were met with shock. As has been argued, the disastrous after-effects of the hurricanes, which include an approximate death toll of 2,975 following the disasters, was only possible because of centuries of colonial exploitation and neglect (Diaz 2021; Milken Institute 2018). The long and inadequate recovery process further reflects this historical trend of an archipelago (at times referred to as an island) that has been either reduced to what can be extracted from it or ignored based on arguments of its problematic dependence. While it was initially colonized by the Spanish in the early 1500s, Puerto Rico is now considered an unincorporated territory of the United States. This status informs the confounding political situation Puerto Ricans navigate daily. As holders of birthright United States citizenship, Puerto Ricans are only entitled to all their citizenship rights if they reside in one of the 50 states of the union. Beyond a single, nonvoting representative in Congress, Puerto Rico has no representation in the political decision-making bodies of the United States (Duany 2010). Puerto Rico is subject to the American Constitution but cannot participate in any US constitutional change directly.

In 1950, US Congress enacted Public Law 600 (Puerto Rico Federal Relations Act of 1950), which allowed Puerto Ricans to create their own constitution for island governance and, following various events of political violence, yet a new constitution was drafted in 1951 and adopted in 1952 (Córdova 2008). This new constitution engendered the Commonwealth of Puerto Rico and, while it established the archipelago would have its own governor, congress and court system, modeled after the United States, it did not

effectively change its territorial clause, political or economic status. Furthermore, implications of Puerto Rico's political status include a limited ability to participate in federal lawmaking and historically limited means to exercise sovereignty over its infrastructure and agri-food system (Diaz 2021, 2023). Going back even further, the colonial foundations of Puerto Rico's agri-food system are plantation agriculture, predicated upon enslaved labor, genocidal practices toward Indigenous peoples and outside political control (Chinea 2010). This context is essential for understanding the past and present reality of food import dependence on the archipelago. McCune et al. (2019) have shown that, before both hurricanes, Puerto Rico was highly dependent on food imports, leading to upwards of 85% of its food supply, predominantly from the United States.

Dependence on imports creates specific risks, such as being vulnerable to the volatility of the global economy and the uncertainty that comes with relying on long-distance shipments (Rosset 2009). In essence, Puerto Rico is vulnerabilized by the almost absolute control that the United States has over its food supply and the impact of US agricultural imports on the market value of island-based agricultural products. Thus, in addition to geopolitical constraints on their autonomy, many Puerto Ricans also face economic constraints to their food choices. The archipelago's 2015 economic crisis burgeoned an increased sales tax, unemployment rate over 12%, hospital and school closures and the gutting of social services (Diaz 2016). Many everyday consumer goods became unaffordable to the majority of the population. Rising food costs had become especially difficult to cope with by 2017; predating the two hurricanes. Before Hurricanes Irma and Maria made landfall, issues that plagued agriculture included labor shortages of willing farm workers and wage inequities for farmers (Diaz and Hunsberger 2018, 85–7). At the same time, government programs tended to focus on industrial-style farming practices and encouraged the use of agrochemicals. Many industrial and conventional agricultural activities were directly subsidized by the government of Puerto Rico through wage subsidies, preferential land lease terms for government land, and matching funds for infrastructural changes to mechanize farming. Currently these challenges in the agricultural sector persist.

However, research suggests that these subsidy programs have done little to address the decline of agriculture and are insufficient to cover all labor shortages (Borges-Mendez and Caron 2019). Yet, the matter of fewer people pursuing farming as an occupation in Puerto Rico needs further in-depth investigation. Agriculture on the archipelago has declined both in terms of the number of farms and in the market value of products sold. The most recent Census of Agriculture in 2018, shortly after the conditions caused by Hurricane Maria prevented data from being collected in 2017, showed that the number of total farms decreased considerably, from 13,159 in 2012 to 8,230 in 2018. Small farms – those with holdings of 10–50 *cuerdas* (a unit of measurement equivalent to 3,930 square meters) – have decreased by upwards of 80% since 2010, with the smallest farms of 10 *cuerdas* or less decreasing the most (USDA 2020). Mid-sized farms of 50–174 *cuerdas* marginally increased in number, by less than 10% (USDA 2020). Larger farms of 260 or more *cuerdas* decreased in number, with nearly 20% fewer in 2018 (USDA 2020). Additional factors which took a toll on the archipelago were conditions of severe drought, which increasingly affected the heavily populated eastern coast. In fact, census data from 2021 show that Puerto Rico's population had dramatically declined by 462,205 since data was last collected in 2010 (US Census Bureau 2021a).

All of these compounding factors signal that emigration from the archipelago has been vast and predominately influenced by economic hardship endured by islanders. For example, the median income in Puerto Rico is \$21,058, which is \$43,936 less than the median income of \$64,994 in the mainland United States (US Census Bureau 2021b). This places 43.3% of Puerto Ricans in poverty status (US Census Bureau 2021a). As well, the 37.6% employment rate in Puerto Rico is 22% lower than in the mainland, where 6.2% fewer people have a bachelor's degree or higher (US Census Bureau 2021b). The relatively high percentage of Puerto Ricans with bachelor's degrees, combined with the much higher rate of unemployment and poverty, suggests not merely an educational paradox, but is emblematic of the insidiousness of structural inequity and the marked limits to economic advancement and career opportunities. That is, educational attainment in Puerto Rico is not enough to ameliorate individual experiences of poverty. Yet, the literature on climate disasters and the case of Puerto Rico has predominantly focused on relief negligence, colonialism, political economy from a governance lens, environmental modeling and quantitative surveys related to health and healthcare before and after the 2017 hurricanes. Pointedly, studies before the climatic events found that one-third of Puerto Ricans living on the archipelago relied on food assistance to eat and provide food for their families (USDA Food and Nutrition Service 2015). Food insecurity was further exacerbated by the 2015 debt crisis, and a robust body of research on Puerto Rico's economic uncertainty as it surpassed 120 billion post-disaster has been produced (Zambrana 2021). Similarly, a growing body of disaster studies literature argues that the risk of food insecurity is deemed to be highest for marginalized peoples, yet there has been no sustained engagement with intersectionality, especially as it regards post-disaster food systems.

Taking a nuanced approach, this paper centers the ways in which systemic forces affect the daily lives of individuals as they attempt to survive climate disasters. It also explores how the experience of disaster intersects with identity and informs access to food, food system functionality and impacts on Puerto Ricans' food insecurity issues with in-depth qualitative mixed methods and theoretical anchoring. Scaffolding the research conceptually through an intersectionality and Afro-diasporic futures epistemology, this paper contributes a geographical and feminist analysis to the study of disasters in relation to food insecurity. This work uniquely situates race, gender, disability, small-scale farmers/producers and inhabitants of a climatically vulnerable region all together. There are several competing notions of what an ideal food system would look like, and most face a complex array of barriers. Through the perspectives of food producers and resident-eaters, this research illuminates how disasters have impacted the food system for Puerto Ricans in their daily lives. Through focusing on how individuals navigate their food system, this study offers insights into how systemic forces are intimately experienced. In the context of Puerto Rico's difficult economic and post-hurricane conditions, it is increasingly important to investigate and evaluate how people holding various identities and social locations navigate a system that continues to be increasingly untenable.

Afro-diasporic epistemologies, intersectionality, disasters and food access

The spatialization of race and "othering" in Puerto Rico also marks centuries of economic development, extraction of resources and the containment of bodies to accumulate

capital, maintain power and social hierarchies. While the archipelago's historical roots of inequality can be traced to enslavement and plantation agriculture, making space for alternative imaginaries liberates colonial subjectivity. McKittrick (2013) takes up the plantation, rendering it as a space which produced and continues to produce anti-Black violence and the conditions that produce death for Black peoples. The plantation is both a speculative and material space which shapes the conditions of Black life. McKittrick proposes the plantation reproduces itself temporally and spatially, its future must be re-imagined into a new discursive space. In this articulation of space, temporalities are not spatially bound, and the capacity of the past to produce the future must be interrupted. Adopting plantation futures as an entry point into issues of power, governance and violence which plague Puerto Rico's food system and its marginalized peoples also leaves space for cultural autonomy, a new discursive for the Afro-diasporic peoples of the archipelago and opens possibilities for new imaginaries.

While these spaces are both historic and concrete, McKittrick and Woods (2007, 4) note that theory must also contend with the relationship between "place-making with unknowable mysteries" of the transatlantic slave trade, those lost to the ocean and a passage both material and psychic. They also push back against the notion that Black lives and geographies are "always already catastrophic" (McKittrick and Woods 2007, 5). Ramírez (2014, 765–6) also contributes an evocative and meaningful contention of how alternative representations of marginalized peoples can proliferate nourishing knowledge and posits that "black geographies and other alternative geographies possess a differential knowledge and spatial politics that can radically reimagine the uneven geographies of the present". Along similar lines but certainly in a distinctly profound way, Reese (2019) elucidates that "food is never just about food. Neither is it solely about individual consumption, food sovereignty is integral to building Black futures and working toward liberation".

Building on this, Reese (2019) explicates that "theorizing racism in the food system deepens our understanding of the extent to which food institutions [and governments] are implicated in continued disinvestment" of Black lives and in the formidable creation of cyclical inequity. To this end, scholars must address racism and systemic harms, while also decentering a focus on suffering and dispossession. This paper echoes these assertions for the racialized people of Puerto Rico. This highlights new possibilities and the existing spatiality that might produce liberatory post-disaster imaginaries for Puerto Ricans and the people of the archipelago. Notably, the seeds of colonization alongside the harsh reality of climate change have accentuated precarious conditions and the question of sustainable livability remains prescient for islanders. Afro-diasporic epistemologies also contend with the brutal specificities of how race and racism developed alongside the interests of capitalism, resulting in segregated spaces, carcerality and spaces of violence (Gilmore 2007; Mills 2001).

Numerous political and economic forces shape the livelihood possibilities for those who produce and consume food. Puerto Rico's small-scale farmers face issues associated with access to land, access to resources, markets and the industrialization of farming (Diaz and Hunsberger 2018). Meanwhile, resident-eaters – defined here as anyone who does not engage in the production of food – may face a lack of choice in foods available, a lack of availability in culturally important foods, financial barriers to affording food and global supply chain issues (Chappell et al. 2018). All these issues for farmers/producers

and resident-eaters are bound up in complex global, economic, social and political systems which enable and constrain food production and access. These existing inequalities are further exacerbated in the context of extreme climatic events, which are of greater concern as climate change continues to affect those with the least access to resources.

Grounding the case of Puerto Rico's food system through an intersectionality lens offers an opportunity to highlight how the experiences of racialized women, people living with disabilities and marginalized communities are disproportionately affected and elucidates "multiple grounds when considering how the social world is constructed" (Crenshaw 1991). As Crenshaw (1991) argued, "women of color are differently situated in the economic, social and political worlds" and poverty does not exist as a discrete entity; rather, it is exacerbated or produced by other forms of social marginalization. As Hill Collins (2019) describes intersectionality as a critical social theory encapsulates not just categorizations of identities but places, times, perspectives and both unpacks these and critiques systemic forms of social inequalities. Cho et al. (2013, 795) contend intersectionality possesses analytical sensibility whereby meaning emerges through use, and that "what makes an analysis intersectional [...] is its adoption of an intersectional way of thinking about the problem of sameness and difference and its relation to power". In Puerto Rico, factors such as age, gender, disability and sexuality greatly influence disaster outcomes.

The human experience of disaster is intricately tied up in recovery processes, which can paradoxically have the effect of worsening a disaster. While much attention is rightly focused on state programs, funding availability and emergency aid, Stough, Ducey, and Holt (2017) argue that social relationships are one of the most important routes to disaster recovery, because they are sources of emotional and community support that last beyond initial aid. It is in the moments during and after a climate disaster that social relationships are at their most fragile; people may be dead or missing, they may end up displaced or resettled, or in economically precarious positions, which can weaken social ties and increase negative outcomes. In other words, a climate disaster is not only a force that disrupts physical space and infrastructure; it is a force that thrusts families and social networks sometimes to the breaking point. It disperses concentrated groups, cuts social ties through degraded communication and interferes with the rhythm of daily life, even if recovery strategies are generally effective. This is particularly salient for those on the margins of social life.

Women are much more likely than men to die during and after a climate disaster, and the more severe the disaster, the larger the gap in deaths between women and men becomes (Neumayer and Plümper 2007). The socioeconomic status of women directly impacts how likely they are to survive and have adequate food resources: greater inequality results in higher deaths of women. As Kimanthi, Hebinck, and Sato (2022) note, gender is not solely expressed along the binary of men and women, instead encompassing a vast ecosystem of identities and expressions, which can be further complicated by sexuality. One of the most significant impacts on transgender and nonbinary people in a disaster situation is being barred from gender-segregated emergency shelters, which was also reported in Puerto Rico. Those who are unsheltered face the greatest threat in a disaster context and, systemically, LGBTQI+ individuals are denied access, first to emergency shelters, then to recovery resources which are allocated to families, narrowly defined as a heterosexual couple with children. Dominey-Howes, Gorman-Murray, and

McKinnon (2014) note that, after Hurricane Katrina in New Orleans, many same-sex couples were separated and resettled in different cities. Finally, the strength of LGBTQI+ social connections is greatly challenged in disaster contexts, as their often-limited spaces and networks are deprioritized in recovery efforts.

In fact, the loss of these spaces and relationships can result in the greatest negative impacts, resulting in entrenched poverty and greater vulnerability to violence. Significantly, the shocks of Hurricanes Irma and Maria created profound impacts on family social networks and Puerto Rico's childcare systems in both rural and urban settings, thereby incentivizing communities to adapt to and generate systems of informal support (Villarrubia-Mendoza and Vélez-Vélez 2020). As both hurricanes created conditions of displacement, school and child center closures or destruction and disruption to established supports for parents, they relied on family, friends and community-led initiatives for childcare. The matter of adequate and sustained childcare was particularly challenging for single parents. The importance of proximal networks of care are also central to the experiences of people with disabilities in climate disaster contexts. Informal networks of care, such as friends, relatives and neighbors, can often provide supports that are personal, which positively impacts quality of life (Stough, Ducey, and Holt 2017). Yet, recovery efforts disrupt the patterns of life that preceded a disaster, making it difficult to resume these networks of care. In turn, people with disabilities either lack necessary supports or are forced to rely on hired supports which do not necessarily fulfill their social needs (Roure 2020).

However, the significance of social networks and supports does not negate the importance of ensuring that adequate resources are made available for people with disabilities. People with disabilities are already made structurally more vulnerable; for example, women with young children or people with mobility issues face physical barriers to evacuation and are more likely to die (Stough, Ducey, and Holt 2017). When women and people with disabilities survive disasters, they face more complex psychological impacts alongside disproportionate property repairs, while being least likely to be consulted in recovery plans (Bee et al. 2013). In a study on food insecurity among deaf adults who use American Sign Language, Engelman and Kushalnagar (2021) found that disabled adults (aged 25–61) experienced much greater levels of food insecurity compared to non-disabled peoples. They contend that structural interventions aimed at food deserts in both rural and urban areas and access to affordable, healthy food can play a significant role in improving food security for disabled peoples.

It is also important to note that the vulnerability associated with disability can often be linked to structural factors rather than disability itself. Good transit, well-planned public and private spaces and easily navigated services all ameliorate the negative impacts of disaster on people with disabilities while contributing to a better quality of life for everyone (Priestly et al. 2006). Notably, while preexisting disabilities contribute to vulnerability during disasters, climate disasters contribute to greater numbers of people needing permanent disability support because of injuries sustained during a climatic event (Villanueva et al. 2017). Yet, the experiences of people living with disabilities before and after disasters are underexplored and deserving of significant attention in the

academic literature. Indeed, this paper grapples with disability, intersectionality and food politics.

In another food security study, Riley and Dodson (2014, 228) contend that female-centered households are “twice as likely to be severely food insecure as nuclear households” and that gender shapes a “household’s ability to increase its food security by procuring food from the most affordable sources”. This, in turn, is another factor that informs a household’s ability to produce and purchase food. Concurrently, the investments made to a food system after a climate disaster can also tell us about what and who is valued in the recovery process. As Priestly and Hemingway (2006, 37) note, “[w]here there is exclusion from full participation and equality there is a human disaster waiting to happen” and, while Puerto Ricans remain entangled in the vicious cycle of colonization and food import dependence, they will also always be subjected to food insecurity. Food systems are fundamental to human life, co-constitutive with social and cultural practices and are inherently political in nature. Simultaneously, the production of food is a process that is mediated by multiple factors. By investigating the intersectional dynamics of food production, security, preference, availability, access and community, this study examines the dynamics and relationships that underpin the food system. Essential to these relations is the convergence of society and the environment, the intimacies of lived experience, colonialism and affordability.

Methodology

This paper uses mixed methods focusing on the one-year period from the landfall of Hurricanes Irma and Maria in 2017, with the understanding that one year does not mark the end of its effects, but rather a point to reflect with hindsight on what has happened and what could be done differently. The paper unpacks a central question: *how do individual experiences accumulate and interact within the Puerto Rican food system in a post-disaster context?* The time frame of the research allows for a focused and in-depth exploration of the case, rather than a general overview of the years following the hurricanes. The study utilized individual experiences of navigating a post-disaster food system to highlight the ways in which a person’s identity or social location affect their everyday experiences of growing and accessing food. Case study research is well-suited to this study, as one of its goals is particularization to highlight specific places, time or practice, and what it can contribute to broader knowledge (Simons 2012). Case study research seeks to explore the granularity of any phenomenon (Tight 2021). As Tobin (2012) points out, case study research is particularly effective at allowing the often-ignored or invisible aspects of events to emerge. Equally, case study research is aimed at theoretical contributions, in that the descriptions which emerge can provide essential scaffolding to or substantiate existing theory.

To create a narrative of Puerto Ricans navigating their food system in a post-disaster context, it is important to include their own accounts. To this end, in-depth interviews (n = 84) were conducted. Simultaneously, discursive analysis of news stories provided additional context. Photographic analysis was employed to give further insights into the case. Interviews are an effective method for identifying the central concerns of participants and offer the opportunity to proximately clarify participants’ perspectives and motivations. In-depth interview practices are particularly well-suited to understanding

the viewpoints of people within a case because the method is inherently flexible, allowing the interviewer to ask follow-up questions. Thus, interviews can uncover views, emotions and experiences that cannot be observed in the field or captured in news stories. Interviews were conducted between May 2021 and May 2022. Due to the nature of the central research question, study participants were widely defined as anyone who identifies as Puerto Rican and who lived in Puerto Rico anytime between September 2017 and September 2018.

Recruitment included farmers, members of community food organizations and those who engaged in mutual aid efforts post-disaster (see [Table 1](#)). Recruitment was completed via snowball recruiting and e-mail script to identify further participants. While the proportion of men who were farmers was higher, at 24 of the 40 farmers recruited, women were more represented in the categories of food organizations and mutual aid providers, comprising 14 of the 21 interviews conducted with this group; though this also reflects the gendered dynamics on the ground. A further 23 people were interviewed who lived on the archipelago after Hurricane Maria, 13 were women and 10 were men. All participants identified as men or women. Ages of all participants ranged from 23 to 67, and all identified racially and ethnically as Puerto Rican, though the meaning of this category widely varied amongst participants, which is discussed in the results.

All interviews were conducted by the lead author in Spanish. Questions were designed to elucidate the connections between participants' socioeconomic locations and their experiences of the food system as it changed post-disaster. Participants were asked to share information about their age, gender, roles and livelihoods. Participants were also asked to comment on their understandings of their own race. To get a better picture of how Puerto Ricans navigated the food system, it was important to understand how the food system changed and what it was comprised of. Participants were asked questions about their typical diet, what they thought the typical diet of Puerto Ricans was like historically and currently, and the ways that they accessed food before and after the hurricane events. If they were farmers/producers, participants were asked about how conditions of production changed. Participants were also asked about their experiences of other environmental disasters.

This study was conducted during the COVID-19 pandemic, and because research travel was prohibited, all interviews were conducted over the internet or by telephone. This limited the ability to interview participants to those who had reliable access to these technologies and made it challenging to interview those still affected by issues with the electrical grid. In some ways, conducting research in this manner is more accessible for researchers, in that it does not involve travel, physical exertion or adjusting to unfamiliar conditions. It may also be easier for participants, who do not need to leave their homes or host a researcher to participate. In this context, the limits are related more toward being

Table 1. Interviewee characteristics.

	Total	Men	Women	Living in PR	Average age
Farmers interviewed	40	24	16	40	52
Members of food/mutual aid organizations interviewed	21	7	14	18	39
Interviewees (non-farmers/nonaffiliated with community groups)	23	10	13	21	34
Number of participants	84	41	43	79	41

unable to be immersed in the location of the research and in the participation of interviewees who cannot be reached by telecommunication technologies. Given that these conditions limited the potential number of participants, attempts were made to ameliorate this by opening the research area, so that participants were not required to be living in Puerto Rico, which offered the added benefit of interviewing those in the diaspora.

Analysis of interviews occurred after transcription of each interview in Spanish. The transcripts were coded thematically, and for social roles and identities that affected access to or relationships with food and observed changes to the food system. Selected quotes were transcribed into English. Further analysis focused on finding out if identifiable groups of people – particularly people of color – became more vulnerabilized to food scarcity, foods and supports available, and how different groups navigated their conditions. Additional analysis of news stories enhances interview data by filling in gaps that might be left out by focusing on individual experiences. As Simons (2012) notes, document and content analysis can give much needed context to case studies. News stories were chosen for this study as a barometer to gauge how discourse surrounding the disaster changed over time. As Bednarek and Caple (2014) posit, news stories are laden with values, which over time simultaneously contribute to discourse while being shaped by it. The news can therefore offer clues into the social contexts and general values of a society, indicating how power functions. Van Dijk (1993) suggests that discourse analysis should be done in service of understanding how discourse is informed by power and the ways in which a discourse can reinforce or offer a counternarrative to dominant groups and viewpoints. This paper adopts this position, as discourse analysis can be understood and applied in a diversity of ways, often making a generalizable working definition of the approach unwieldy.

In explicitly seeking to identify structures of power which inform the food system in Puerto Rico, the research positions an effort to highlight inequities and call attention to the workings of power without assuming predetermined outcomes. News articles, short-form first- and second-person narratives, reports and opinion pieces were collected through databases. Searches were limited to news produced during the one-year period following the landfall of Hurricanes Irma and Maria, mirroring the time frame that interviews focused on, again with the intent to be able to dig deeper into accounts of disasters in the immediate aftermath. Only articles that explicitly discussed food were selected for analysis; articles were coded for themes including identity, food insecurity, food choices, access, disaster response and collection, continued until saturation emerged.

General themes from news media are provided, with selected quotes. Photographic analysis of images included in news stories surfaced as important loci for analysis, as they portrayed another medium through which information about disasters were conveyed and are important sites that support discursive formation. Photographs offer a way to analyze both the viewpoints of photographers and the choices of publications to run images, while also allowing for the emergence of unexpected, unexplained and divergent narratives from the photograph and its subjects. It is important to highlight the particularities of photography produced during a disaster, where those experiencing disaster are much more likely to be photographed rather than to produce photographs. Images were

selected for analysis based on how they portrayed subjects, and if they were representative of the kinds of images made available in the aftermath of hurricane events.

A note on reflexivity and positionality

Regarding reflexivity and positionality in post-disaster qualitative research, Guzzardo et al. (2021, 18), embedding Tuhiwai Smith's decolonizing methodologies, describe caution about assumptions that insider status or community connections can be particularly indicative for claiming expertise, profound understanding of study participants' experiences, and that adopting humility and respect is essential for investigation as "one cannot assume that insider status is a gateway or facilitator" to the lived experiences of others. As a Puerto Rican born in the archipelago (on the main island) but raised in mainland United States, I am situated in the work as insider and sometimes outsider, for example by virtue of speaking Spanish (my first language acquired) and sharing cultural norms and practices (marking me an insider), or by being an academic researcher at a university outside of the United States (marking me transnational). I come to this work as a Puerto Rican person but also as a diasporic Afro-Puerto Rican whose ancestors were brought across the Atlantic Ocean to be enslaved. As such, despite social constructions of race, I carry my ancestry in my body as well as in generational biological inheritance as I conduct research and write about the people of Puerto Rico. I am also aware that, despite being socially constructed, socio-racial hierarchies are quite present and prevalent in Puerto Rico. In fact, while many Puerto Ricans may share in certain historical contexts, there are community and individual nuances to lived experiences.

Further to this, while I come from a family that were generational farmers in Puerto Rico, my family never owned large swaths of land and, in fact, lost much of their farming land before I was born. Thus, while I also share an agricultural past, much like many of my research participants, I am not, nor have I ever been a farmer or food producer in Puerto Rico. I have not experienced deep food insecurity in the archipelago and have been in many ways a transnational migrant in mainland United States and Canada. Indeed, I do have a lived experience of profound marginalization because of my ethnicity, race, gender, sexuality and disabilities. Due to this, it was necessary for me to incorporate reflexivity into my research, which I tapped into via journaling and meditating to expand on forms of being transparent. Performing those two actions throughout the research process has expanded how I have reckoned with my social location. Within the context of this research and in producing this work, I have also been grieving losses in my family; in particular, one that has profoundly affected me over the course of time, the death of my mother, and a reckoning with the abrupt changes and insights that has brought into my writing on socio-economic, ecological and loss of life post-disaster.

In many ways it feels disingenuous to separate myself from deeply grieving with the people that have so generously shared their stories, time and difficulties with me. So much of my relationship to Puerto Rico is also entangled in grieving for places and people that I can only intermittently connect to, or who live on only in my memories; and in the case of participant data collection, could only happen via digital and phone interviews. Furthermore, the fact that so many people left and continue to leave the archipelago, that infrastructure was effectively destroyed or transformed, and that so much changed in the process post-Hurricanes Irma and Maria, earthquakes, COVID-19

and the natural passing of time have indelibly made a mark on my life and work. Yet, I undoubtably hold the privileged position to write about all of these life-altering disasters in an academic context. Lastly, it is also a fact that I was not in Puerto Rico when all of these disasters struck, and as such, I do not carry that lived experience in my body.

Discussion and findings

Interviews

Resident-eaters' perspectives on the food system

Of the 44 resident-eaters interviewed, most had little interactions with local farmers. They articulated that they cared where their food came from and expressed a desire to consume healthier, fresher food. They also expressed that food was an important way to engage with cultural practices and its production could be an important economic activity. Most expressed a belief that their food options are constrained to what is available at the local supermarket. One participant's words summed up the general perceptions of resident-eaters: "I think food is a way that Puerto Ricans get to be Puerto Rican, but that doesn't mean that the ingredients are the best, or that the food we eat even comes from the island". Resident-eaters reported difficulty with sourcing local ingredients even before Hurricane Maria, and reported that even access to a supermarket could be a struggle, especially for those living outside of the San Juan metropolitan area. Every resident-eater used grocery store chains as their primary source of food before the hurricanes and many noted that they tried to buy vegetables from roadside stands or markets, but they were not reliable sources of food.

As one participant put it: "if you need something on a specific day at a specific time, you've got to get it from the supermarket". Participants' perceptions of the traditional Puerto Rican diet included "a lot of pork", "pretty hearty, flavorful food", "home-cooked", "time-consuming" and "stuff that is filling, economical, and delicious". When asked if this is how they think Puerto Ricans eat now, most stated that they felt people used more canned, frozen and other types of prepackaged ingredients. Furthermore, they stated that most people no longer have time to cook traditional food from scratch, and rely on pre-made sauces and spice mixes and staples such as canned beans which save time and are shelf stable. Participants stated that, even before Hurricane Maria, often fresh food "just went bad because I get so busy with other responsibilities".

Cost was reported as the primary factor that Puerto Ricans consider when sourcing food, ease and perception of how filling an ingredient is were secondary concerns, while perceived health, freshness and how ingredients were sourced were noted as occasional concerns. One consumer stated that:

With the economy being so bad, I can barely afford my house. My number one thing is that my family and I need a place to live. Then we can think about food. I can't even think about if the stuff I buy is healthy or not, I just get what's on sale, what I know my kids will eat, because nothing can go to waste.

For many, cost also reflected class divides, and foods such as organic ingredients and perishable items were viewed as luxury items by those who could not afford them. For those who bought organic items such as vegetables, dairy and meat and who tried to eat

locally, these kinds of ingredients were not seen as luxuries, but rather as necessary components of a good diet.

There was some correlation between higher income and the self-reported practice of buying more expensive foods. Attitudes regarding the necessity of what all resident-eaters in the study considered “higher quality” ingredients, such as organic foods, were cited as higher for those who had higher incomes. Unsurprisingly, those who could afford more expensive foods also found these types of food to be essential, suggesting that “essential” is a relative value when applied to food. While food hierarchies existed in the expressed attitudes of resident-eaters, they tended to reflect class values more than nutritional values. For example, if given the choice between an organic green pepper and a conventionally grown one, participants all stated that the organic pepper would be better, without citing nutritional analysis, but rather the more specialized conditions of production.

Most of the resident-eaters had direct experience with food insecurity and all participants stated that they knew people receiving food assistance and would describe it as “common” in Puerto Rico. Nearly three-quarters of the resident-eaters interviewed were receiving food assistance at the time of the interviews (see Table 2). It is important to note that food assistance in Puerto Rico is fundamentally different from the Supplemental Nutrition Assistance Plan (SNAP) that operates in the US and all its other territories. SNAP has a flexible funding structure which allows it to expand based on need, while food assistance in Puerto Rico comes from a US government block grant which funds the Nutrition Assistance Program (NAP). The block grant covers all food benefits and 50% of administrative fees while the Puerto Rican government covers the remaining percentage of expenses (CB, 2020). With NAP, there is a finite amount of money available to people who apply for assistance, and the only way to accommodate more people applying would be to lower benefits (Keith-Jennings and Wolkomir 2020). NAP provides about 25% less funding to Puerto Ricans than the Food Stamps Program it replaced and does not adjust for inflation, while poverty and unemployment rates remain far higher than anywhere in the US (US Census Bureau 2021a).

Experiences of food insecurity varied, and while income was the primary determinant of food insecurity, other factors of inequity also influenced the experience of food insecurity. No study participants reported malnutrition specifically, though they spoke of skipping meals, often being hungry or anxiety around their food budget. For example, a 34-year-old mother conveyed:

Honestly, it’s really hard. I can’t imagine not feeling stressed or not thinking about how to make one meal stretch into three. I’m always doing math and I’m always coming up short. Sometimes I just eat one meal a day because it’s most important that my kids eat.

While this may not be necessarily generalizable to the population, parenthood is likely an important indicator of food insecurity. Of the 30 NAP recipients in the resident-eater group, 20 were parents, while only nine people were not a parent on NAP. Being a single

Table 2. Characteristics of participants in the resident-eater group.

	Parents	Women (n = 31)	Men (n = 13)	Self-identified people of color
On NAP (n = 31)	20	26	4	28
No NAP (n = 13)	9	5	9	6

parent or in a single-income household greatly affected experiences of food insecurity. As a 36-year-old mother described:

where we live [rural area with a low population] there just isn't childcare. All my kids are under 5 and there's no one around here who can watch my kids. We must live off my husband's income and it's never enough.

This participant also noted that rural areas were not prioritized in recovery efforts. She recounted that in the immediate aftermath of the storm, food was difficult to procure and, in the months following the storm, less money was available for food as her family focused on more emergent household repairs. Further to this, Hurricanes Irma and Maria disproportionately impacted single mothers. The number of single mothers in Puerto Rico is comparatively higher than single fathers, accounting for mothers having a higher representation as single parents. Ravi (2018) noted that, from "2010 through 2014, 42% of Puerto Rican households were female-headed with children, meaning that during that time, 148,642 families were managed by a single mother without a male present in the home" and, by 2021, "62% of children in Puerto Rico lived in a single parent household", marking the potential ratio for single mothers to have increased (Hinojosa et al. 2023). Thus, women in Puerto Rico were particularly vulnerabilized long before and leading up to the time that Hurricanes Irma and Maria made landfall, but post-disasters this gendered vulnerability became exacerbated for women.

In addition to this, women resident-eaters reported that gender-based discrimination directly and indirectly influenced their ability to access food. For example, a 23-year-old woman stated:

As a woman I don't think I have the same opportunities that men do. There are good paying jobs where it's totally rare for women to work. And I personally don't want to work in an industry that is mostly men, there's too much harassment. This affects my life today and my future. It's hard to afford food but my number one priority is having a place to live, for my safety.

Another resident-eater, a 47-year-old woman, stated: "All my life, I have tried over and over to just make a good living, and again and again I see men in my profession getting ahead, getting paid more. Even if I changed fields, I wouldn't have more options". These two examples from women in different age groups highlights the gender-based precarity that can compound over time. It also illustrates the pressure and anxiety associated with gendered access to good job opportunities, which in turn shape the experience of food insecurity. These experiences were worsened in the aftermath of Hurricane Maria.

In comparison to their experiences before Hurricane Maria, women resident-eaters reported increasing food insecurity, diminished livelihood opportunities and a lack of options for food in the aftermath of the storm. As one 38-year-old woman shared:

In the year after the hurricane, I just ate what I could find, if I could afford it. My job is kind of considered women's work and after the storm, no one really valued it, and it was hard to make money. So, I definitely felt like food was hard to come by.

All women resident-eaters reported feeling like women were less valued in recovery efforts and noted that rebuilding tended to be associated with men and their efforts. For example, a 51-year-old woman stated:

There's this link that people make between masculinity and the recovery that I really hate. It's this idea of manly men building up buildings, fixing what's broken and they're considered heroes. It doesn't matter that *everyone* is doing work to recover and that it just seems harder to be a woman trying to get the things we need to survive.

Being a woman was thus associated not only with increased difficulty accessing food but also with an increased likelihood of having fewer livelihood opportunities to support gaining access to necessities.

Out of the 44 resident-eaters, 14 individuals identified as living with disabilities or as people that would soon identify this way because they drew a strong connection between being elderly and becoming disabled. Participants emphasized more generally that, due to precarious economic conditions and low income resulting from lack of government supports for disabled peoples and the precarious nature of adequately accessible working conditions and work itself, they experienced periods of food insecurity before both hurricanes. Moreover, all 14 of the participants expressed that acute hunger, anxiety and desperation were prevalent post-disaster. For example, a 40-year-old woman declared:

I had an accident ten years ago where I was injured and have trouble walking for long periods of time, getting up from low places if I sit down, and some days I still feel sharp pains as if like it happened yesterday, so that leaves me sitting sometimes for a long time waiting to recapture my energy and move out of spaces. During the storms, I felt those sharp pains in my bones and moved very little, and after everything was destroyed, I could not move at all to get help or get food. I am so lucky my neighbor is a good person, showed up, and extended support and brought me food.

Disabled participants described how their neighbors came together to share, make food with them and that these acts of kindness and solidarity were paramount in keeping them from sustained periods of going without access to food. Another disabled participant, a 38-year-old woman living with multiple sclerosis, stated:

I have never been so hungry, thirsty, and dizzy in my life as I was after the storms, I am so grateful that this neighborhood came together in the most difficult of circumstances. It was because of their kindness that I was able to eat, because during Maria, I faced the storm in my bathtub and was unable to get up following the storm. My neighbors brought water, food, necessities, and told me where to find and connect with generous helpers and the mutual support centers.

Race was another significant vector in influencing food outcomes for individuals and households. This is complicated because race in Puerto Rico has specific features and complexities linked to its long history of colonization and imperialism. As Arroyo (2010) argues, the category of "Puerto Rican" is most often understood as "the racial mixing of three cultures [Indigenous peoples, Black people who were enslaved and Spanish colonizers]". Yet this "mixing" operates to limit Puerto Ricans' association with Blackness while positioning some Puerto Ricans as adjacent to whiteness. Simultaneously, "Puerto Rican" can operate as a racial category associated only with being nonwhite on the mainland. Taken together, these are reminders that race is a slippery, yet stubbornly durable category which both suspends the outcomes of peoples' lives and can sometimes be the conduit through which people seek change. With study participants, the racial category "Puerto Rican" and the subsequent idea of Puerto Rican-ness functioned as

a rallying point, both in terms of solidarity and political demands. For example, a 25-year-old community organizer posited:

No one in the United States cares about us. They think we are just backwards, brown *crowds* without individual identities. But that's fine, I say, let them think that, and we can use this idea to unify ourselves and get what we deserve [in the recovery process].

At the same time, race functioned to divide Puerto Ricans, with those in the study who identified as “Brown”, “Black”, or as nonwhite Puerto Rican found themselves with exacerbated vulnerability to food insecurity after the storm. As a Black participant stated:

the white people, and the lighter-skinned people already have advantages when it comes to jobs or having a place to live. Of course it happens with food too. And when you're better off before the hurricane, you'll still be better off after the hurricane. The only thing different about my life after Maria is that it is harder.

Racism was articulated by participants of color as a major contributor to their life outcomes after disasters. In other words, their experiences of racism had meant that they already had fewer opportunities and fewer resources, which only worsened post-disaster.

Producers' perspectives on the food system

Before 2017, the food system in Puerto Rico was plagued by issues of import dependence and an agricultural system that was geared toward export (Carro-Figueroa 2002). Food producers in this study did not orient their agricultural activities toward export and instead sold produce through local channels, including markets and roadside stands. In this case, producers are defined as anyone who engages in agricultural activities (including hired farm workers) which produce food for the purpose of selling or exchanging food. This is widely interpreted in order to encapsulate a variety of small-scale practices and there is no requirement that producers grow or sell a minimum amount of food to be considered, though these differences are discussed below. It also includes those who formerly produced food but no longer do. All producers interviewed expressed that, before Hurricane Maria, they had a desire for farming to be their only livelihood activity, if it was not already. Over the year that followed Hurricane Maria, half of producers began to focus on other livelihood activities. Reasons for this shift generally hinged on the precarity of livelihoods that are climate sensitive. As one farmer stated:

I don't think I can go through losing everything in one day like that again. I put years into my farm, and I am working on bringing it back, but it'll be smaller. I think it's only going to get worse with climate change.

One farmer lost all his crops due to Hurricane Maria and made the decision to leave Puerto Rico and farming altogether.

Other farmers made it a long-term goal to incorporate climate change adaptation strategies. One participant stated that:

I've begun attending workshops, doing research and talking to my neighbors. I want to keep farming; I don't want to downsize and I want to grow enough food to really start making it

possible for my community to have better options in a reliable way. I can't do that if every couple of years a hurricane ruins me. So, I'm investing time and energy and money now, hoping that this will save me later.

Another producer felt that stopping farming or downsizing would:

make it so that big corporation can just take over the whole island. I want to fight that. I want Puerto Rico to belong to Puerto Ricans. And I want Puerto Ricans to be able to buy food grown near their homes. Our island can support so many crops. We must take care of it.

Of the farmers interviewed, women intimately described the ways in which food production and consumption are intertwined in gendered dynamics and limited access to resources being a supreme challenge for farming. One of the women who decided to maintain and expand operations after the hurricanes noted that it is rare to see women as the principal operator of a farm, and for her:

it is difficult sometimes, because all of my peers are men, but this is also a job where you are your own boss. I inherited my land and changed things completely, made everything organic and everyone thought I was crazy. But that's what's great about farming: you answer to yourself, and your results reflect that. It's empowering.

However, another woman farmer noted:

I have a micro-farm. I couldn't afford much when I started, and I can afford less now. Sure, if you already have money and land you could be set, but for me, I almost feel stuck here. Nobody wants to buy a tiny farm, and I can't afford to get bigger.

In the year following Hurricane Maria, many of the farmers noticed a shift in their relationship to food. "It just became more precious", stated one farmer, while another noted that, "seeing how bad it was for everybody after the hurricanes, I just wanted to be able to feed my community. That's what keeps me in this. I didn't like seeing all those FEMA boxes with junk food". Farmers also experienced food insecurity as they recovered from the disaster; however, those with savings or other sources of income tended to recover more quickly. Societal inequities were reflected in the experiences of food insecurity for farmers. For example, an older farmer who left a high-paying career to begin focusing on small-scale farming was able to make repairs, shift focus and begin growing crops much faster than his neighbor, who lived off the crops they sold, which was an unreliable source of income.

Media: photographs and news stories

The photographs selected for analysis came from news articles (local Puerto Rican news outlets, US and international news media) and were selected not only for what they conveyed but for the context that they offered to the overall case. In particular, photographs are a powerful way to analyze the workings of race in a given context. People of color – and particularly dark-skinned women of color – in news photographs were typically portrayed as a mass. [Figure 1](#) shows a child and a woman clutching two containers of apple sauce from behind a gate. Other people of color form a crowd behind them, as they wait for food aid, and they are depicted as part of the crowd rather than



Figure 1. Woman with child receiving food. Photograph source: Tama (2017).

separate from it. The way the gate and subjects are framed gives the impression that they are imprisoned along with the crowd behind them. In this photograph, there is a sense of helplessness conveyed, where the crowd must wait for those in power to dispense food or “liberate them”. In general, images in news coverage featured how demeaned, sad or desperate people seemed, and most often in Puerto Rico these images were of women of color. Only when news coverage specifically attempted to convey resilience were men depicted in an agentic position. Men were depicted as focused and precise, while engaging in repair work or food production practices. Images of men conveyed them as exercising control and agency post-disaster.

Furthermore, news sources depicted what was deemed worthy, often emphasizing “Proximity (geographical or cultural ‘nearness’); Negativity (negative aspects, e.g. conflict, death, disaster, accidents, negative consequences); Eliteness (elite status); and Superlativeness (‘the more X, the more newsworthy’)” (Bednarek and Caple 2014, 137). The aspects of Puerto Rican experiences of disaster which were considered newsworthy elucidate much about the discursive construction of Puerto Rico as a site which, in turn, shapes the context of how food systems are navigated by individuals after a disaster. News coverage of Puerto Rico following Hurricane Maria dramatically increased in number and overwhelmingly focused on infrastructural challenges to recovery. Food remains an integral part of the question of recovery, but was often overshadowed by ever-increasing death counts, issues with the electrical grid and its poor management. Food issues were predominantly framed through critiques of the Federal Emergency Management Agency (FEMA).

The news values of proximity, negativity and superlativeness are particularly reflected in coverage of Puerto Rico. Proximity is heavily reflected in nearly all news coverage, emphasizing that the archipelago is an American territory, suggesting that audiences should care about this disaster because its survivors were Americans. Paradoxically, its “otherness” within the Union also made it superlative; the fact of Puerto Rico’s political,

racial, cultural and economic distinctiveness and its undervaluing by the US also contributed to what made it appear to be such a remarkable catastrophe. Nearly all news stories examined (in US news outlets) emphasized the magnitude of this particular disaster being rooted in poverty and inadequate Puerto Rican infrastructure. This also contributed to a stereotype of the helpless Puerto Rican masses, particularly women, making their need for aid seem like a feature of the Puerto Rican people and their culture rather than a simple reality of surviving disaster and an outcome of American policies. For example, quotes such as “Helping Puerto Rico recover is a gargantuan task”, “without help from their husbands or other males, women are not able to complete their tasks” and “the island [is] severely crippled and desperate for help” highlight the perceived utter powerlessness.

News coverage across local Puerto Rican, US and international media characterized the food system after Hurricane Maria as a state lack. This lack described not only the amount of food but also the utility of the food. Stories on food availability also invariably invoked the political relationship between the United States and Puerto Rico. For example, one report stated: “The most basic necessities like food and water, are scarce. Power still out to the entire U.S. territory leaving folks there wondering if they’ve been forgotten by the U.S. mainland and forgotten by their federal government” (Boulduan 2017). Concurrently, FEMA stated that their efforts were “the ‘largest federal response to a disaster’ in American history” (Fernández Campbell 2018). Both quotes are characteristic of the competing discourses of enormous efforts versus failed attempts. The logistics of recovery on the archipelago formed in the shadow of Puerto Rican infrastructure.

News coverage continued to emphasize lack and consistently focused on the general disorganization that plagued relief efforts, often citing corruption, poor infrastructure and Puerto Ricans as the culprits. Even news coverage that critiqued recovery efforts as inadequate ubiquitously characterized the disaster conditions as coming from Puerto Rico itself, in a manner that ultimately obfuscates colonialism. For example, quotes that emphasize “the largest government bankruptcy in U.S. history, with some \$120 billion in combined bond and pension debt” (Brown 2018) or President Trump “casting the U.S. territory’s challenges as self-inflicted during a Monday press conference” (Lima 2017) emphasized challenges faced. In turn, the role that specific American policies, practices and procedures played in creating disastrous conditions for over a century were obscured.

Similarly, the effects of these policies, practices and procedures on Puerto Rico’s food system were invisibilized in news coverage, emphasizing instead a debate over the nutritional quality of food aid provided. Nutritional analyses of food aid found that even when “junk food” items were excluded, canned vegetables and fruits and shelf-stable meats contained added sugar and sodium, which, when paired with the reality that most Puerto Ricans already had “low access to healthy food”, was generally presented as an even more egregious error on the part of FEMA (Watson 2018). Coverage also included rebuttals stating that “junk food can – and frequently is – part of the solution” and that food aid provided to Puerto Rico was similar to that of other FEMA operations (Dewey 2017), especially in instances where there is no electricity, high temperatures and issues with transportation. To be sure, these are important issues and deserving of attention, yet the emphasis on the crisis as it unfolded served to obscure the food crisis that already existed.

Furthermore, the news emphasized concerns by women and community organizations that food to the archipelago reflected a disregard for the lives of Puerto Ricans because they are racially and linguistically distinct from much of the US mainland. In this instance, what might be most salient is the fact that even if the food provided by FEMA was within its normal operating parameters, people felt race was a factor in the quality of food provided. In other words, Puerto Ricans are so accustomed to treatment that is incommensurate to that of mainland US citizens that the provision of poor food could only be interpreted through the lens of race. At the same time, the one area that seemed to showcase anything other than dire helplessness in the news was food. Coverage of people feeding huge crowds, of neighbors sharing generator power and propane stoves, and of restaurants reopening while grocery stores still lacked basic necessities seemed to indicate that food was a site of resurgence and resilience in a few news stories across Puerto Rican media. These suggested that despite the fact that infrastructure failed and their local government was largely ineffective, the people of Puerto Rico pooled resources, shared and “reconnected” (Jervis 2018).

While various themes which emerged from this research have been described throughout, further juxtaposing interview data, news stories and photographs identified strong key concepts in each form’s narrative (see Figure 2). Essentially, for the people of Puerto Rico, despite how they may have been represented in the media globally, participant interviews provide a counternarrative in that they emphatically reveal nearly all interviewees classified themselves as growing in community, in solidarity as islanders, becoming empowered despite respective conditions, growing resilient and strongly vocalizing a deep desire to gain more knowledge on aspects of local food production to further a food sovereignty agenda in Puerto Rico.

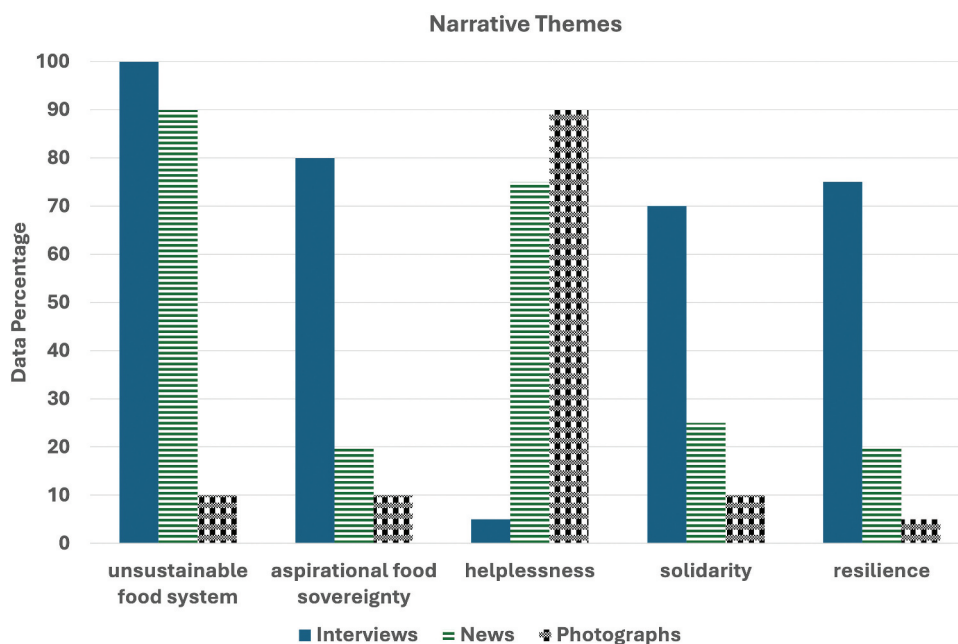


Figure 2. Juxtaposition of interviews, news, photographs and key themes.

Conclusion

Taken together, the news stories, photographs and interviews analyzed here show the profound changes that a year can make in the lives of millions. Food is an essential part of life, and what emerged from this case study is the importance of social location in determining the outcomes of recovery efforts regarding Puerto Rico's unsustainable food system before and after environmental disasters. In particular, gender, disability and race were specific areas that delineated how much and how fast an individual could partake in recovery efforts. In this regard, women, Black people, people of color and people living in poverty all experienced increased challenges to recovery and resilience. Another very gendered aspect of the findings was that parenthood seems to increase the likelihood of experiencing food insecurity, especially in the case of single women parents and families with one income. News coverage and photographs painted a dire picture of desperation and deprivation for many months in the aftermath of Hurricanes Irma and Maria, and, in particular, the ways in which US media portrayed the people of Puerto Rico was overwhelmingly as peoples entrenched in poverty, while local media occasionally represented the people in Puerto Rico as determined, working together, actively being resourceful and showing up for each other.

Furthermore, the interviews conducted highlight the lived realities of social difference. This paper scaffolded research conceptually through an intersectionality and Afro-diasporic futures epistemology, contributing a geographical and feminist analysis to the study of disasters in relation to food insecurity. This work uniquely situated race, gender, disability, small-scale farmers/producers and inhabitants of a climatically vulnerable region all together. There remains substantial significant work to be done on topics of sexuality, age and other social indicators that are subject to marginalization and oppression in the context of disasters in Puerto Rico and elsewhere. These topic areas would benefit from deeper examination in future research.

Recovery is not a given outcome, and it can be defined in as many ways as there are people and interest groups. As such, in this paper, the recovery focused on is not a single overarching plan that covers all of Puerto Rico. Instead, recovery refers to the myriad ways that food producers and resident-eaters strategize, respond and adapt to the challenges incurred from Hurricanes Irma and Maria. The transformation of what many thought was inadequate or inappropriate food assistance into survivability is exemplary of this dynamic. Interviewees spoke of sharing one generator amongst a group of neighbors, taking turns using a single propane burner, sharing large jugs of water with elderly neighbors and generally finding alternatives when infrastructure failed them. There was a tendency at the beginning of recovery efforts to romanticize the ways in which people appeared to come together, bound by shared need. As the months passed, certain people saw power and water return, and the inequities that make people more likely to die in a disaster began to take their societal toll.

Yet, people held together in whatever means they could and the persistence, courage and humble resilient roots of the people of Puerto Rico to survive and clear paths forward despite death-making conditions are undeniable. The profound lived experience of solidarity has also played a part in elucidating what is

possible, that food system changes, food sovereignty and ameliorating food insecurity on the archipelago is not a distant aspiration but something that is imaginable. To conclude that the majority of Puerto Ricans were powerless would be a misreading of the situation. Instead, disasters have revealed that there are multiple pathways to recovery and resilience, all of which may be flawed and many of which expose the cost of inequity in Puerto Rico. Still, the people of Puerto Rico navigate and make possible new imaginaries for viable food system futures.

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Notes on contributor

Ileana I. Diaz is a doctoral candidate in the Department of Geography and Environmental Management at the University of Waterloo. Her research explores matters of inequity, race, gender, accessibility, imperialism, politics and food studies. She has published in the academic journals *Area*, *Citizenship Studies*, *Geoforum*, *Geopolitics*, *Journal of Gender, Agriculture, and Food Security*.

ORCID

Ileana I. Diaz  <http://orcid.org/0000-0002-6234-1076>

Ethical approval and informed consent statement

This study received ethical approval from the University of Waterloo Research Ethics Board (approval #43076) on 12 April 2021. Informed consent to participate in this research and publish was obtained verbally and in written form.

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