



Cascading disasters: The impact of hurricane Maria and Covid-19 on post-disaster Puerto Rican migrants' adaptation and integration in Florida

Elizabeth Aranda¹ · Rebecca Blackwell^{1,2} · Melanie Escue¹ · Alessandra Rosa¹

Accepted: 20 September 2022

© The Author(s), under exclusive licence to Springer Nature Limited 2022

Abstract

Based on data from 103 surveys of Puerto Rican migrants living in Florida and 54 in-depth interviews with a subgroup of them, we examine how Puerto Ricans who left the archipelago after Hurricane Maria have navigated settlement in their new homes. In this article, we observed and classified our participants' descriptions of how they managed opportunities and challenges regarding education, employment, and social relations, the traditional benchmarks for the assessment of societal integration. We also observed how our participants described Covid-19's interaction with these benchmarks. We found that our participants have experienced a series of cascading disasters since 2017—namely, Hurricane Maria, the earthquakes that affected Puerto Rico starting in late 2019, the humanitarian crises that followed both disasters, and now the global pandemic. These disasters, compounded with migration, have resulted in a process of adaptation to Florida in which social and labor-market integration and the ability to nurture social ties have been significantly diminished.

Keywords Cascading disasters · Hurricane Maria · Post-disaster migration · Adaptation · Covid-19 · Puerto Rico · Florida

✉ Elizabeth Aranda
earanda@usf.edu

Rebecca Blackwell
rblackwell@usf.edu

Melanie Escue
mescue@usf.edu

Alessandra Rosa
amrosa1@usf.edu

¹ University of South Florida, Tampa, USA

² St. Petersburg, USA



Desastres en cascada: El impacto del huracán María y COVID-19 en la adaptación e integración en Florida de los migrantes posdesastre de Puerto Rico

Resumen

Basándonos en los datos de 103 encuestas con migrantes puertorriqueños residentes en Florida y cincuenta y cuatro entrevistas a fondo con un subgrupo de estas personas, examinamos cómo los puertorriqueños que abandonaron el archipiélago después del huracán María han lidiado con la adaptación a sus nuevos hogares. En este artículo observamos y clasificamos las descripciones de los participantes: cómo manejaron las oportunidades y los retos relacionados con la educación, el empleo y las relaciones sociales, que son los puntos de referencia tradicionales para evaluar la integración social. Observamos también cómo los participantes describían la interacción de la pandemia de COVID-19 con estos puntos de referencia. Encontramos que estas personas han experimentado una serie de desastres en cascada desde 2017, específicamente el huracán María, los terremotos que comenzaron a afectar a Puerto Rico a finales de 2019, las crisis humanitarias que siguieron a ambos desastres y ahora la pandemia global. Estos desastres, agravados por la migración, han tenido como resultado un proceso de adaptación a la Florida en el cual ha disminuido significativamente la integración social y laboral y la capacidad de nutrir los vínculos sociales.

Palabras clave Desastres en cascada · Huracán María · migración posdesastre · Adaptación · COVID-19 · Puerto Rico · Florida

Since the early 2000s, scholars of U.S. migration have examined how Latinos/as are integrating into new destinations (Massey and Capoferro 2008), particularly in what has been called the “new south” (Winders 2005). The area, which roughly comprises a region from North Carolina in the north to Florida in the south and west to Arkansas, is called “new” because of the growth in Latino/a presence beginning in the mid-1980s and early 1990s (Kochhar et al. 2005). Integration outcomes differ depending on the contexts of reception (Portes and Rumbaut 1996), and research indicates that Latinos/as who migrate to the new south, particularly those who arrive with greater human capital such as higher education, English fluency, and legal status, gain greater access to opportunities within their workplaces and communities (Marrow 2011). Puerto Ricans would be among the groups in the new south that fit this upward-mobility profile, given their citizenship status in the United States and their overall human capital (Marrow 2011; Schleef 2009). Therefore, we might expect them to have very positive integration outcomes.

In this paper, we argue that measures of integration from traditional migration studies have been dominated by rational choice theories and economic and political analyses (Hollifield 2020) that neglect the inescapable emotional processes that complement the instrumental practices of adaptation for migrants (Aranda 2007). Despite what we know about Puerto Rican communities stateside (Acosta-Belen and Santiago 2018) and in Florida specifically (Duany 2011; Silver 2020),



researchers know little about the adaptation of the most recent migrants who fled Hurricane Maria's catastrophic effects. Moreover, the ways in which Covid-19 has shaped the challenges migrants confront as they adapt and integrate into a new society are yet to be explored from the perspective of migration studies, and the context in which post-disaster migrants have arrived raises questions regarding their trajectories of incorporation, particularly considering existing differences among groups in the Puerto Rican community's integration outcomes. This analysis is an effort to begin to fill in this gap. We thus ask, what do the adaptation outcomes look like for climate refugees, and how has the Covid-19 pandemic that began to affect the U.S. in 2020 shaped these incorporation processes? Moreover, how does the combination of previous and new stressors affect post-disaster migrants' adaptation and integration outcomes?

Our primary data source consists of 54 in-depth interviews, a subset of 103 Puerto Rican migrants whom we had initially surveyed in the context of a larger research project that investigates how Puerto Ricans are navigating the stressors of relocation to Central Florida after the traumatic events of Hurricanes Irma and Maria in 2017, while also confronting the Covid-19 pandemic. Moreover, some of our interviewees were also affected by the series of earthquakes that took place in the archipelago in December 2019, since they worried about their kin still living there. We combine a number of theoretical frameworks to gain understanding of the nuances in their adaptation process.

First, we provide a brief summary of the history of Puerto Rican migration. Next, we lay out our theoretical and conceptual framework, focusing on disaster risk, coloniality, and emotions in migration. Then we describe our method of analysis, present our findings, and discuss their implications.

Brief background of Puerto Rican migration

There is a long history of Puerto Rican migration to the continental U.S. Since 1898, Puerto Rico has been a U.S. colony, under the classification of an unincorporated territory. In 1917, Puerto Ricans were granted a collective citizenship provision under the Jones-Shafroth Act, but it was not until 1940 that the U.S. Congress passed the Nationality Act granting birthright citizenship to any person born in Puerto Rico (Venator-Santiago 2017). As U.S. citizens, Puerto Ricans have been able to move between the archipelago and the fifty U.S. states, in what has been described as "circular migration" (Duany 2002). More recent research has shown that migration for Puerto Ricans is viewed as a flexible survival strategy allowing them to capitalize on their ability to move in search of a better quality of life throughout the life course (Duany 2011; Aranda 2007).

Out-migration from Puerto Rico to the continental U.S. has grown consistently over the years, especially more so after the catastrophic effects of natural hazards. In Florida, the Puerto Rican population was recently estimated to be 1,190,891 (Social Explorer n.d.-a)—surpassing the population in New York and representing the largest concentration of Puerto Ricans in the continental U.S. We focus on the Florida region that encompasses cities in the Interstate-4 corridor, which crosses the center



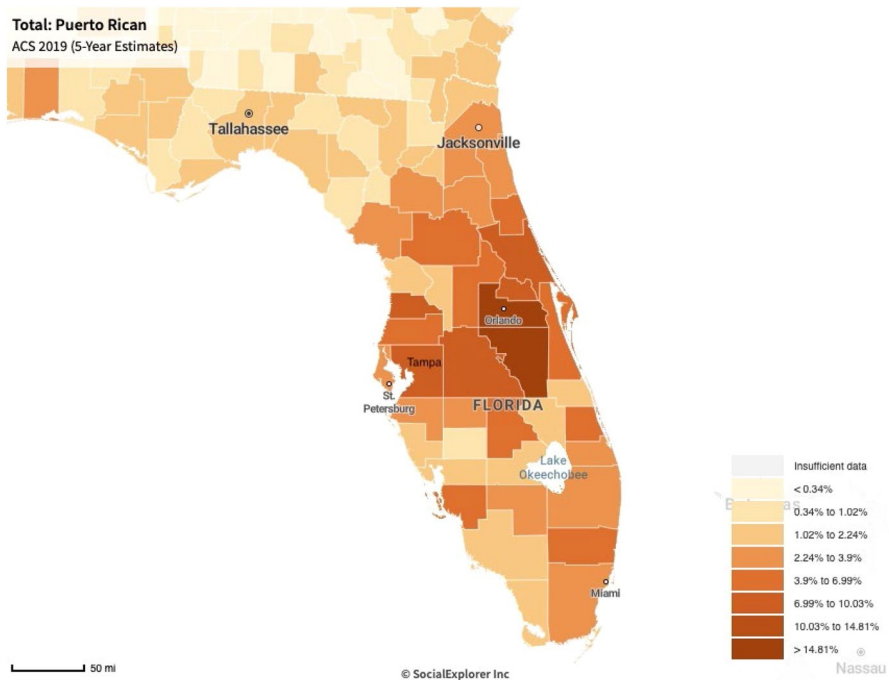


Fig. 1 Percent of Puerto Ricans, by Florida County. Source: SocialExplorer.com. (nd, b) ACS 2019 (5-year estimates)

of the state from east to west. This area is a popular gateway for this group since more than a decade ago (Velez and Burgos 2010) and is home to four of the five largest communities in the state (Duany 2015). Our sample draws from the Tampa Bay area, where approximately 22 percent of the nearly 56,000 Puerto Ricans who relocated to Florida after Hurricane Maria settled (Gamarra 2018).

In September 2017, Hurricanes Irma (a category 5 storm) and Maria (a category 4 storm) impacted Puerto Rico within two weeks of each other. Though Hurricane Irma passed near Puerto Rico, it left in its wake power outages and water-service interruptions for several days (Rand Corporation n.d.). Then Hurricane Maria directly struck Puerto Rico and left a death toll of approximately 2975 people (George Washington University 2020), wiped out the archipelago's power grid, and affected its communication infrastructure. Residents lacked access to medication (Melin et al. 2018), fresh food, and potable water for an extended time period and had limited access to health services given that most roads were impassable (Rand Corporation n.d.).

In the aftermath of Hurricane Maria, the Federal Emergency Management Agency (FEMA) mismanaged the distribution of aid to Puerto Rico. Commodities shipped to aid Puerto Rico sat in FEMA's custody for approximately forty-eight days, and life-sustaining commodities like water and food experienced shipping delays of seventy-one and fifty-nine days, respectively (U.S. Department of Homeland Security 2020). Moreover, the local government did not adequately track the



supplies it received from FEMA, and 40% of Puerto Rico's municipalities (twelve out of thirty) had problems with receiving expired food (U.S. Department of Homeland Security 2020). As a result of these conditions, migration from Puerto Rico increased. Some scholars have described this type of migration movement as "displacement" (Vargas-Ramos and Venator-Santiago 2019), while others call these migrants "climate refugees" (Duany 2021). We use both the terms "post-disaster migrants" and "climate refugees" when we discuss our sample.

Just over half of these climate refugees from Puerto Rico moved to the U.S. South, and most moved to Florida. Within this state, Orange County (Orlando metropolitan area) received the greatest number of evacuees, followed by Osceola (also in Orlando), Miami-Dade (Miami area), Polk (Lakeland and surrounding communities), and Hillsborough (Tampa area) Counties (Hinojosa et al. 2018). It is estimated that between 159,415 and 176,603 Puerto Ricans left the archipelago in the year after the hurricanes (Hinojosa and Meléndez 2018). These numbers represent a significant increase compared to previous years. Moreover, migrants continued to arrive after the numerous earthquakes that began in December 2019, lasting through the spring of 2020 (Sanchez 2020).

Table 1 (see Appendix) illustrates the Florida counties with the largest shares of Puerto Ricans and shows how the population is significantly higher in the counties along the I-4 corridor (Orange, Osceola, Hillsborough, and Polk Counties). Though these data come from the ACS 2019 five-year estimates, they show the counties where Puerto Ricans have been concentrating both before and after the hurricanes. Figure 1 illustrates the geographic location of these counties and the proportion of Puerto Ricans in each.

Although Puerto Rican migrants have citizenship status in the United States (Grosfoguel 2003), as colonial migrants, they have undergone "decades of discrimination in labor and housing markets" (Silver and Vélez 2017, p. 99), which has challenged their adaptation and successful integration. Moreover, in the United States, there are strong cultural biases against migrants who speak Spanish or have Spanish heritage, for they can be perceived as noncitizens, inherently undocumented, poor, uneducated, criminally inclined, refusing to learn proper English, and, hence, outsiders (Parsons 2011).

Preliminary studies suggest that Florida and specifically parts of Central Florida present an advantageous context of reception (Velez and Burgos 2010), yet questions remain as to which populations benefit most from this context. While many Puerto Rican families have found a better quality of life in Florida than in Puerto Rico (Duany 2011; Duany and Matos-Rodríguez 2006), evidence suggests that there may be bifurcated integration patterns, separating professional and working-class Puerto Ricans (Delerme 2013).

Disaster risk, coloniality, and emotions in migration

We incorporate an analytical framework from disaster risk theory, an area of human geography that addresses the interaction of social and biophysical systems (McGowan and Donovan 2021) and theorizes that society's vulnerabilities, resilience, and



adaptation processes in the face of natural hazards are structurally affected by socio-political factors that can sometimes lead to *cascading disasters* (Pescaroli and Alexander 2015; Thomas et al. 2020). Moreover, given the colonial history of Puerto Rico, we also consider theories that explore disparities in the relationship between the continental U.S. and the Puerto Rican archipelago (Bonilla 2020), since they are the receiving society and the society of origin of our participants. We build on works that explore emotions in the migration experience and expose underlying factors affecting the self-perception of well-being after relocation (Aranda 2007) and works that explore the relationship between pre-migration trauma and migration stressors (Li 2016; Kilic et al. 2006).

Disaster risk theory

Thomas et al. (2020) draw from the fields of geography, political science, and health and behavioral science to develop a people-centered conceptual model—referred to as “CHASMS” (Cascading Hazards to disAsters that are Socially constructed eMerging out of Social vulnerability)—for the analysis of the preexisting social and structural forces that lead to inequitable outcomes. They build on the following definition of “cascading disasters” from the field of human geography:

Cascading disasters are extreme events, in which cascading effects increase in progression over time and generate unexpected secondary events of strong impact. These tend to be at least as serious as the original event, and to contribute significantly to the overall duration of the disaster’s effects. These subsequent and unanticipated crises can be exacerbated by the failure of physical structures, and the social functions that depend on them, including critical facilities, or by the inadequacy of disaster mitigation strategies, such as evacuation procedures, land use planning and emergency management strategies. Cascading disasters tend to highlight unresolved vulnerabilities in human society. (Pescaroli and Alexander 2015, p. 65)

The CHASMS model belongs to a body of literature that is currently underscoring the need to incorporate social sciences knowledge into research on disaster risk reduction. Its underlying premise is that in order to produce knowledge that can effectively assess hazards and risks and understand the futures that are being constructed in the present, various types of knowledge are necessary, including knowledge about situated power dynamics and cultural beliefs, alongside knowledge of structural vulnerabilities and possible geophysical forces (McGowran and Donovan 2021). The CHASMS model proposes that the vulnerability and resilience of a society in the face of cascading disasters (e.g., a prolonged humanitarian crisis generated by lack of electricity, food, or water after a natural hazard) may be further impacted by cascading hazards that occur in the same area before recovery is possible. The impact of Covid-19 in Puerto Rico before recovery from the hurricanes is an example of multiple hazards worsening or prolonging existing crises. An argument of this model is that in some cases the term “resilience” may be wrongly used to describe “survival.” These works also suggests that social vulnerability and



resilience are interrelated and that the concept of “resilience can deflect attention away from enduring vulnerabilities and the exhaustion of resilience in the face of multiple or cascading disasters” (Thomas et al. 2020, p. 3).

These propositions aim to complement more traditional apolitical and technical approaches to the study of disasters and disaster risk management by proposing the analysis of preexisting inequalities, with an emphasis on the role of structural factors in the generation of a cascade, which “emerges out of social, political, cultural, and economic systems that shape community and individual risk at multiple temporal and spatial scales” (Thomas et al. 2020, p. 3). These works have important points in common with scholarship on what has been called “disaster capitalism” (Klein and Smith 2008; Schuller and Maldonado 2016), which proposes that neoliberal actors profit from disasters by implementing measures on populations who accept them only because they are weakened by the hardship they are facing during the disaster.

Coloniality

Bonilla (2020) has argued that the management of resources and treatment of the people in the aftermath of Hurricane Maria revealed a historical “racialized neglect” on the part of the United States. The underlying assumption in her work (see also Bonilla and LeBrón 2019) is that the colonial occupation of Puerto Rico has been marked by the same form of racialized governance that is present in the continental U.S. This perspective, applied as a framework for the analysis of disasters stateside, is also found in works about Hurricane Katrina in New Orleans (Meyers and Hunt 2014). In Puerto Rico’s case, Bonilla (2020) argues that the hurricanes dismantled the notion that U.S. development had elevated the Puerto Rican standard of living. Racialized neglect is the social abandonment of a dispossessed people, which renders them vulnerable to the natural hazards of climate change. Hurricane Maria became catastrophic because of the archipelago’s vulnerability, making the colonial dispossession not only palpable but also reconfirmed by the lack of an effective emergency response on the part of the federal government (Bonilla 2020), but also the insular government (Rodríguez-Díaz 2018).

Together, the disaster risk theory concept of cascading disasters and the notion of a racialized governance provide a nuanced framework for the analysis of post-disaster migration in a colonial context. We apply these perspectives to examine our participants’ migration outcomes because we wish to further understand some of the ways in which colonially induced inequalities, including local governance failures affected by the extralocal political situation, may be taken for granted. These factors may be impacting trajectories of incorporation. Our goal is to gain insight into the multiple scales of time, space, and social systems at play in our participants’ migration experience.

Emotions in migration research

To study migrant integration in the U.S., scholars have typically measured “how different or similar to other Americans are immigrants and their children in terms of



socioeconomic standing, residential segregation, language use, and intermarriage?” (Waters and Jiménez 2005, p. 106). Moreover, what scholars call “straight-line” assimilation theories argue that successful integration often leads to upward social mobility (Gordon 1964; Portes and Rumbaut 1996). Existing theoretical understandings of “adaptation” and “integration” frequently associate these two concepts with processes of “acculturation,” or “the adoption of the host society’s mainstream values, attitudes, sentiments, behaviors, and practices” (Riosmena et al. 2015, p. 444), and “assimilation,” or the decline in the migrant’s ethnic characteristics (Alba and Nee 2009). By contrast, our analysis of the recent lived experiences of Puerto Rican migrants has been able to demonstrate, through the migrants’ perceptions of well-being, that ethnic traits and identity may remain the same or even increase during the incorporation process.

For post-disaster migrants, research has shown how stressors encountered in the new home shape social and health outcomes. Some scholars refer to these stressors as “secondary trauma,” referring to “events that prolong the disaster experience” (Gil 2007, p. 615), or “secondary stressors” (Kessler et al. 2012; Li 2016). Secondary stressors are the challenges that operate in conjunction with disasters and that have a negative effect (Kessler et al. 2012, p. 36), such as relocation, changes in career, or poor health related to the original trauma, as well as the overall slow pace of the practical recovery process.

Research has shown that post-disaster migration can lead to worse outcomes in mental health, and secondary stressors can compromise well-being upon resettlement (Li 2016). For instance, Kilic et al. (2006) found that post-disaster relocation was associated with poor mental health outcomes; they attribute this to disrupted social networks resulting from migration. Moreover, studies have shown that migrants who have been exposed to pre-migration trauma are more prone to experiencing acculturative stress upon resettlement, associated with the loss of roots; employment and language barriers; difficulties finding housing, health care, and education; social isolation; racism; and guilt for leaving loved ones behind (Li 2016). The traumatic losses due to major disasters can produce an expanded disruption and loss of the sense of community (Erikson 1976), and “the pile-up effect of multiple losses, dislocations, and adaptation challenges can be overwhelming” (Walsh 2007, p. 216).

We draw from this literature to analyze the patterns that we found in our sample of post-disaster migrants, related to their experiences of secondary stressors during their adaptation processes in the context of the global pandemic.

Data and methods

Epistemology

We combine naturalist and interpretivist methodologies, creating a confluence of epistemologies in order to better understand the experiences of a group of Puerto Ricans who migrated to Florida after Hurricane Maria. Our analysis involves two sources of data: a survey conducted with 103 individuals and in-depth interviews



with a subgroup of fifty-four individuals. While the survey data provide us a glimpse into the impact of the pandemic on migration outcomes, the interviews allow us to unpack these experiences.

Survey

We partnered with a nonprofit organization, *Mujeres Restauradas por Dios* (MRD), a faith-based local agency established by Nancy Hernandez in November 2013 to serve victims of intimate partner violence and human trafficking. By January 2014, MRD was continuing its work supported by the Tampa Underground Network (UG), a Christian organization that supports more than 100 small mission communities. Once Hurricane Maria climate refugees began to arrive in Tampa, the organization expanded its services to provide emergency disaster relief services for this population. MRD received funding from the Tampa Bay Disaster Relief and Recovery Fund through the Community Foundation of Tampa Bay to continue assisting the Puerto Rican families that were arriving. By establishing a one-stop hub, MRD facilitated access to local services such as job placement, housing, social services coordination (e.g., school enrollment, health care, food assistance), emotional support, and as a faith-based organization, spiritual guidance.

We obtained MRD's list of clients affected by Hurricane Maria (over 1000) and contacted them through phone to administer a survey that took about forty-five minutes to complete. Survey questions were adapted from a survey of Hurricane Katrina survivors conducted by the Hurricane Community Advisory Group, at the Harvard Medical School (Kessler 2010). Our cooperation rate was 63% (AAPOR 2016, Cooperation Rate 1). Of those surveyed, a subset of the sample was interviewed virtually (i.e., over Zoom, Facetime, or WhatsApp). All surveys were conducted in Spanish by native Spanish speakers. Table 2 illustrates the main demographic characteristics of the sample, and Table 3 illustrates some of their experiences post-migration, such as their employment status during the Covid-19 pandemic, changes in their financial stability, and changes in their social ties (see Appendix).

It is important to mention that this sample is not representative of Puerto Ricans who moved stateside; given their financial and other needs (for which they sought MRD's services), it is a disadvantaged sample, especially considering all that they lost due to the hurricanes. Most survey participants were women (82%), the average age was forty-seven, and most identified as having white or light skin (88%). Thirty-five percent were married, 43% were single, and most had children (85%). Regarding education, 21% had a high school diploma or less, and 36% had a bachelor's or graduate degree. Most of those surveyed did not know English very well or not at all (60%), and the average number of months they reported living in the Tampa region was twenty-eight months. Regarding changes in their relationships, the average number of loose and close ties diminished when comparing their ties



pre-hurricane to those they had post-migration.¹ Of those who reported that their employment changed due to the pandemic (just under one-third of the sample), one in three were laid off, and one in five permanently lost their jobs or had their hours reduced. In addition to the precarity in employment, when asked about their financial difficulties, the percentage who reported very difficult financial problems before the hurricane (20%) declined after migration (15%) and subsequently increased during Covid-19 (27%). Given the character of the sample (e.g., predominantly women, somewhat older in age, and disadvantaged when it comes to English fluency), it is possible that these characteristics introduced certain biases in the data and led to some of the outcomes we report below. Thus, while some of the issues we discuss may be pertinent to other Puerto Rican climate refugees, we cannot say that they are representative of the Puerto Rican post-disaster experience.

In-depth interviews

Several months after the survey, we contacted respondents to gauge their interest in participating in interviews, and 54 individuals agreed. Interviews lasted approximately two to three hours. The themes in the interviews included their experiences of the hurricanes; their reasons for migrating to Florida; their experiences finding jobs, housing, and social services; and their perceived physical and mental health at various times throughout the migration journey. We also probed how they were handling the social restrictions due to the pandemic. All interviews were conducted in Spanish.

Data analysis

For the qualitative data, a constructivist grounded theory approach was adopted, which allowed theory to be developed from data in an iterative process (Charmaz 2014). This approach involved an interplay between inductive and deductive reasoning; an important aspect of this perspective involves employing the existing literature and interweaving it throughout the research process. Grounded theory carries the potential of developing new theories that not only are rooted in participants' accounts but also can be set into the context of existing theories (McGhee et al. 2007).

All interviews were transcribed verbatim and entered into MAXQDA, a qualitative analysis software. Data were coded based on conceptual themes developed following the interviews. For example, one code that was used was "adaptation," and subcodes of "adaptation" included what the source of the challenge was (e.g., problems with the language, social ties, etc.). Through the patterns in the qualitative data, specifically those related to the code "adaptation," we identified social ties,

¹ Loose ties were measured by asking respondents about the number of people they could ask for favors such as saving their mail if they went on a trip, and close ties by asking about number of friends or family they could share private feelings with.



education, and employment as among the major challenges to adaptation that were most affected by Covid-19. Thus, in the findings, we focus our analysis on these three challenges, especially since they are also among the most often used benchmarks to measure integration (Waters and Jiménez 2005).

Methodological considerations

The research team consisted of five women with diverse backgrounds: two are Puerto Rican (the PI and Co-PI); two are Latin American immigrants, from Venezuela and Colombia; and one is a white woman. The interviews were conducted by the two Puerto Rican women and the Venezuelan woman, whose positionalities helped to gain the trust of the population studied. The PI and Co-PI are Puerto Rican women who were raised in Puerto Rico, which facilitated the connection with the organization we worked with (headed by a Puerto Rican woman). In addition, these two researchers had family who experienced the hurricanes and connected with participants in this regard.

Findings

Many of our participants moved to the continental U.S. because they lived through dire conditions in the aftermath of Hurricane Maria. In some of the examples below, participants describe the prolonged experience of enduring in a state of emergency. They report a lack of federal response to the devastation of the hurricane, which constitutes an example of the racialized neglect that Bonilla discusses (2020). The pandemic then occurred before they were able to overcome previous crises and compromised their path to adaptation and integration. The pandemic is a hazard event that piled onto previous disasters caused by preexisting inequalities, which is consistent with the CHASMS model (Thomas et al. 2020). The pile-up effect (Walsh 2007) of Covid-19 has also been exacerbated by the process of migration, which with its linguistic, cultural, economic, and individual challenges operated as a secondary stressor (Kessler et al. 2012; Li 2016) prolonging the trauma (Gil 2007, p. 615) of the experience of the hurricanes.

Participants described suffering hunger in the aftermath of the hurricane. Fabiola,² who is twenty years old, has an associate's degree, and works in hospitality and leisure, said, "I tell you, it was eating once a day, going to bed hungry." They described losing their jobs, as did Laura, a 49-year-old mother of two who attained a bachelor's degree and currently works as a clerk at Walmart. She explained, "I didn't have a job. They closed the school where I worked. And I said to myself, 'Where am I going to go? What do I do? What can I do?'" Some lost their homes, like Aurora, who is a 40-year-old housewife, high school graduate, and mother of one child. She reported having been denied all forms of assistance by FEMA: "I don't know what is

² All names of participants are pseudonyms that we use to protect their identity.



the problem with those people. They denied us all the types of help they supposedly offered.” Aurora struggled to describe the traumatic experience of the hurricane:

Hurricane Maria marks you, because nobody is prepared for something like that to happen. It was something so strong. Our house fell apart. ... God had mercy that the door of my house didn’t explode, because it was something where the winds, ... the water got into my house. It was a horrible thing. It was horrible, horrible, horrible. It was something that no one could understand unless they live it.

With the pandemic, the sense of helplessness that many of our participants felt from the hurricane reawakened. Many of them lost their jobs again or experienced reduced working hours, with their children forced into stressful remote-learning situations complicated by language barriers in the family. Some participants experienced physical health issues related to isolation and lack of resources to pay for medicines, and some lost access to medical services. Many reported stress related to the worry over the health of family members left behind in Puerto Rico. We identified in the data three salient stressors that challenged adaptation and integration: the absence of social ties, educational challenges, and the loss of employment and financial stability.

Social ties

Ironically, what is needed to foster resilience after disaster-induced trauma is what is compromised upon migration—social support. As Walsh (2007, p. 220) states, “The comfort and security provided by warm, caring relationships is especially critical in withstanding trauma events, which induce social and personal uprooting, family disruption, separation and loss, mental and physical suffering, and vast social change.” When participants described the most difficult aspects of moving to the continental U.S., an overwhelming majority of them mentioned that leaving families behind was the hardest, showing a sign of acculturative stress (Li 2016). Some could not avoid crying while talking about this aspect. Aurora, for instance, said, “The most difficult part for me was having to leave my family.” Migration also had compounding effects beyond missing family and kin relationships. For Aurora, adapting to life in the continental U.S. has been complicated by the language barrier, which has made communication with those who can provide her with assistance seem impossible: “I cannot go to Catholic Charity because of Covid, and I cannot speak English with the American on the phone.” Her English classes were also interrupted by the pandemic lockdown, halting her acculturation process. Despite these challenges, individuals employ their creativity to overcome loneliness. Aurora used her love of plants to make herself spend time outdoors: “With this problem of Covid, I go outside. I love plants, so I plant things and take my chair outside and sit there in the afternoons when the sun goes down, and if there is someone, I say hello.”

Participants used to look forward to visiting or receiving kin from Puerto Rico, particularly if their stateside networks were underdeveloped, but Covid compromised their ability to travel. Such was the case of Yanira, a 28-year-old housewife



and high school graduate whose youngest son is on the autism spectrum and who felt a great deal of anxiety because of the confinement and loss of her son's therapies but also because of their inability to travel due to the pandemic. Yanira told us,

We had plans to go to Puerto Rico in March, but I wasn't going to expose the children to being in a plane. ... I said to my grandparents, "I'm sorry. I know I've not seen you for two years, but for now we cannot go there." So that was one of the hardest things for us during the beginning of Covid.

Visits such as these are important, since research has shown them to be a mechanism that migrants use to uplift their emotional well-being, which is affected by the loss of face-to-face contact with kin upon migration (Aranda 2007).

Some participants described their anguish in the isolation of the pandemic. Social-distance restrictions on outings were particularly difficult when migrants did not have communities of support; perhaps these outings filled the void that the loss of social ties left. Nando, a 34-year-old father of two who attained an associate's degree and works in manufacturing, discussed how pandemic restrictions on the family's mobility exacerbated the effects of having lost the connection to a support network:

Well, in a way it affected us. We are always a family that doesn't follow a routine. We like to go out, to experiment. ... In that sense, the lockdown affected us. So, not being able to keep discovering or traveling, going out and sharing ... Because here it's not like in Puerto Rico. It's more lonely here. ... People live in their own world.

Laura, mentioned earlier, discussed how the pandemic interrupted a process by which she was making friends and developing relationships, which is part of social integration: "I had to change my routine, change my lifestyle. I can't go to places anymore, see friends. I don't have much contact with friends. It's like a process was interrupted." One way that Laura manages to maintain social ties is to keep up with her friends who are in Puerto Rico; this includes her family too: "I stay in touch with my friends there ... [through] Facebook. They've come to see me here ... before the pandemic. ... I have few friends, but I see my family as friends too." Like other immigrants who are part of transnational kinship networks, Puerto Ricans stay in touch through phone and other social media to increase feelings of connectedness with these networks, particularly during the pandemic, when mobility was restricted.

Confinement seems to have been extremely challenging for many of our participants when the trauma that they had previously experienced because of the hurricane is considered. Natalia, a thirty-four-year-old mother of two who earned a graduate degree and works in administrative services, made an association between the confinement of the pandemic and what she lived after the hurricane: "The [pandemic] confinement gives me a lot of anxiety because I was locked up for a year due to the hurricane. There was no light. There was nothing to do. It was confinement all the time." Here, we see that emotional responses to the pandemic are conflated with those experienced after Hurricane Maria. The pandemic brings back memories of Maria's aftermath. Among the things that brought Natalia some relief was that she



connected with a friend from Puerto Rico who introduced her to a Latino church that resembled the church she attended in the archipelago. She continued to attend this church despite the pandemic. And as much as the stay-at-home order was hard on her, she thinks the experience would have been more difficult had she be living in Puerto Rico. Despite having to relive the trauma of the hurricane, she shared that she was generally happier living in Tampa than in Puerto Rico.

Overall, the loss of face-to-face social ties after migration was worsened by the restrictions associated with Covid. Moreover, how Puerto Ricans cope with these losses (e.g., outings, visits to Puerto Rico) is also affected by the pandemic as the process of social integration stalls.

Education

The change to remote learning proved to be particularly difficult for our participants. For some, online education represented a hazard to their children's physical health. Lydia, a 36-year-old health worker who had an associate's degree, described the hardship and chaos her family endured because she and her partner had to continue working outside their home and her children stayed home taking virtual classes without supervision. Both of her children struggled with anxiety and had sleeping and eating issues. Lydia described how the pandemic affected her family:

It was chaos for me. This is a moment when you most need your family, who are not around. You also have the panic that something can happen to your parents, who are in Puerto Rico alone, and you cannot do anything. You need them here with you helping you. ... You end up having a lot of feelings, depression, anxiety. It's very difficult. ... You have two children without supervision, who do not know what to do, for whom the online process was very complicated. It was chaos. ... They were constantly awake, all night sometimes. ... They gained a lot of weight. They ate a lot out of anxiety and without control, and I was not at home to say, "Eat this or that." ... My thirteen-year-old boy was used to going out a lot, after he left school. He could not go out. It was very difficult, because we have to be locked up. For him, it was the most difficult, and he was the one who gained the most weight. ... When I took him to the doctor, ... he had gained fifty pounds. He came out pre-diabetic in the lab work.

Lydia and her family came to Florida because they lost their belongings, their home was damaged, and they lost their jobs after the hurricane. She told us, "He [her partner] wasn't working, and neither was I. ... We were living like homeless people who get into houses that are like this, all abandoned, all broken." After migrating to Florida, her first job was in a cookie factory, which hurt her hands and where she earned \$9 per hour. She currently works for \$10.99 an hour as a home health aide (for which she took a course in Florida) but has no benefits. Trying to keep this job was the reason her children were unattended. She bemoaned the absence of family to help take care of them, and the effects of the transition to remote learning affected the whole family's physical and mental health, not to mention its effects on her



children's education itself. Despite these challenges, Lydia expressed not wanting to return to Puerto Rico, which she describes as an abandoned site, a neglected place with deep social consequences such as high crime: "Puerto Rico has become a no man's land. ... Crime is very high. ... I don't want my children to stay in that environment. Here they may have problems with bullying, discrimination, and things like that, but those are manageable problems." Lydia's narrative about enduring discrimination in the context of running from violence speaks to the survival strategies that people affected by compounding crisis are forced to develop.

For many Puerto Rican migrants, language is a barrier to integration, and some participants felt that they could not assist their children with their schoolwork for this reason. This is the case for Yulayda, a 27-year-old housewife who has an associate's degree and has four children. When asked if she speaks English, she said, "I can barely understand. I can understand what you want to say to me, if you tell me slowly and with basic words":

At school they are already in a program called ESL, which helps them with the transition, and it has affected their grammar and reading, because there they had their teacher, who took them aside for a certain time as if it were a "Title 1" [school program for disadvantaged children], as one says. They would take them aside and deal with what they need. Well, at home they don't have that.

Similarly, Misty, a 31-year-old mother of two and a high school graduate, described her experience during Covid: "It is affecting me with my girls here because of home schooling. It's like going backwards again. Not having the language, you get lost a lot." Misty shared that she knew several Puerto Ricans who had moved to Florida after the hurricane; they were acquaintances, including a childhood friend, whom she could rely on for help and companionship. They occasionally got together, but Covid interrupted that. She said, "We haven't seen each other in ages, because all this happened. ... But at least there is the phone." Misty referred to a time when one of the acquaintances in this network helped her with one of her children's homework assignments, illustrating the strength of relying on coethnic ties, albeit loose ties, as a strategy to navigate adaptation.

Other participants felt that they could not continue with their own educational plans. Manuel, a 38-year-old father of two who earned an associate's degree and works for a moving company, saw his studies interrupted in Puerto Rico due to the hurricane and the process of migration as well, since he could not continue in Tampa what he had started studying in Puerto Rico:

I've thought about it. I've always thought about finishing it. ... I don't have long before finishing my bachelor's. I only have a few credits left. ... I was in the middle of studying to finish my bachelor's, and then the hurricane happened. I had to leave. There were no classes. There was no way to get to Bayamón. ... I couldn't continue. ... Right now, with Covid-19, it's so difficult to make money that I prefer to be working as much as I can than studying. I have the studies. I have half. I would like to finish one day.



Under normal circumstances, continuing his education would have involved navigating the system of transferring credits and deciphering what coursework completed in Puerto Rico would count for a degree stateside. But when considered alongside Covid-19, Manuel determined that it was best to earn as much money as he could. In this regard, though he wishes to someday continue his studies, his strategy to maintain a sense of well-being for the present time is to work and make the money he needs to subsist. This desire to support oneself and one's family is seen across the board with our participants. As we see in the next section, however, Covid-19 interrupted financial stability and labor-market integration for some of our participants.

Employment and financial stability

Finding employment upon migration was challenging enough; however, the pandemic presented new challenges to those who had found jobs. These challenges led to greater feelings of economic insecurity. Berta, a 45-year-old certified nurse who earned a bachelor's degree, came to the continental U.S. because she could not continue her cancer treatment in Puerto Rico after the hurricane, during which she lost her home as well:

When Maria happened, I had to come here. ... My doctors there lost their offices, and back in Puerto Rico, everything was chaos. Everybody lost everything. I lost the house. My brother lost his house, ... even the doctors, God bless. So, the American Cancer Society was the one that brought me here to Florida.

After the American Cancer Society helped her move to Florida to continue her treatment, she stayed on disability only until she found a job at a call center. Berta described a form of endurance and resilience that Bonilla (2020) would refer to as “neoliberal resilience,” in which individuals take on roles that should be adopted by governing authorities. She could not work because of the effect of the chemotherapy, so she told us,

You know what I had to do? I had to go to the news ... to see if someone saw my story because I was desperate. ... And so a Mexican man came. He called me when he saw the news, and he lent me a mobile home. ... He thought I was going to die, ... but he didn't know that Puerto Rican women are very strong.

If these challenges were not enough, Berta felt a very strong sense of vulnerability during the pandemic. She described her experience during this time as very difficult because for some time she had no work or income beyond her disability payment, which was not enough to live on:

Well, it has been difficult as ... I couldn't work because of the situation. When the pandemic started, I was working in a call center for medical plans stuff. ... In the place where I worked ... we were more than 120 people in a single room. Then they had to start sending us all home, because, obviously, people started to get sick. ... I spent more than six weeks without work, without payment, and without working because I was new. I had started in January and still had no benefits.

Adding to the hardship of unemployment was the fact that Berta's sister and mother and her sister's boyfriend contracted Covid-19, and her sister's boyfriend died.



The pandemic also affected Nando's employment. His hours were cut, and the new schedule that his employer proposed was unfeasible. He persevered by transitioning to another job in a factory:

I was working, but in that job that I had, they cut my hours because of the pandemic, and then I had to stay home. I was working as ... cleaning with pressure washer machines at the mall. They ended up cutting my hours, and ... well, for a long time I was without ... like four months passed. Then they called, but the schedule they wanted to give me wasn't possible for me, so we couldn't – I couldn't go back there. Some months after I lost the job I had, I ended up working in another job, where things aren't going so great. I work in a lid-packaging factory. Someone has to do it.

Both Berta and Nando had to change course in terms of their employment due to Covid-19. These changes represent secondary stressors that they contended with after migration. These disruptions that affected their trajectories to societal incorporation were dealt with as challenges to adaptation that they took in stride. However, for some, the challenges surrounding each of these standalone disasters combine so that the pain presented by any of them spills over onto the others. Lily's case illustrates this process.

Lily, who is 52 years old and has a bachelor's degree and whose husband has cancer, is very worried for their lives. She is even scared of going out for a walk. Her nephew's wife died in Puerto Rico from Covid-19, and her nephew and children had the virus too. After explaining this, she mentioned that thinking about the hurricanes, especially on anniversaries, was like reliving them again, and she compared it to September 11. She mentioned how everything changed after Hurricane Maria and described the compounding effect of both the pandemic and hurricanes on lack of job security and uncertainty about moving forward in life. She was especially worried about her son, who was still living under a blue tarp as a roof in Puerto Rico, three years after the hurricane:

In Puerto Rico, my nephew's wife died from Covid, and my nephew has Covid, his daughter, her children too. ... And they are locked up there. ... They are locked up. [After a pause, she says, crying, that it is hard to talk about the hurricane.] You relive those moments, and it feels like it was happening right now. ... It's like a movie, seeing it all over again. ... I say that it's like 9/11, when that tragedy happened. It is very difficult. And it's been three years now, and to think that my son still has that roof, that he hasn't been able to do much. Now with this pandemic, the jobs are very limited. It is not easy. One begins to think, after Hurricane Maria, everything has been a total change.

Lily's case is a prime example of the accumulation of cascading disasters. As she discusses the effects of Covid-19, she transitions to the emotional response she has when thinking about the hurricane, comparing it to 9/11. Disaster upon disaster has left her conflating the pain she feels from both, exacerbated by the job insecurity that persists and worries about her family's well-being. It's important to note that there were things in Lily's life that brought her joy. Above all, her greatest accomplishment was her family and the family unity they enjoyed in Puerto Rico. She recently had a month-long visit from two of her grandchildren, and she lit up telling us about that



time. She also was grateful for technology: “I’m grateful for technology because I can see my grandchildren every day. They love me, and I love them.” Moreover, she and her husband were intentional about finding ways to connect with others. For example, prior to the pandemic, they attended English classes twice a week—one at the Catholic Church they belonged to and the other at a local Center for Hispanics. Though Covid-19 brought that to a halt, they still received calls from a few acquaintances they made who checked in on them, including the head of a local Puerto Rican nonprofit organization that assisted them. Lily indicated that these calls helped ease the isolation. In lieu of these activities, Lily and her husband would go to a local track and walk when there were not many people there, and they would do things like wash the car outdoors to get outside. Lily also had a sewing machine that kept her occupied. Speaking about looking for things that would entertain her mind, she said, “With my sewing machine, I’m always inventing stuff, the seams of pants for people I know. I keep myself busy. Even my dentist, ... I made all the medical caps for the employees, and they are all happy.” In addition to that, she shared that she likes to cook and bake, which she was gearing up for in anticipation of Christmas. Despite the hardships, she believed that going through the hurricane was much more harrowing than the pandemic, as with the latter, she felt she could take precautions, whereas during the hurricane, she indicated that at one point she gave up trying to get the water out of their house and just sat down to pray until it ended. Thus, through everyday coping strategies, including her religion, hobbies, and connecting with her family, Lily continued with life.

In sum, our participants have undergone various traumatic experiences since Hurricanes Irma and Maria that have affected how they have adapted to U.S. society and their pathways to societal incorporation. For some, the latest experience with the pandemic has interrupted their abilities to adapt and integrate and, at a broader level, has affected their overall well-being. However, as we also see, Puerto Ricans adapt to the challenges presented by either changing jobs if they can or, as in Berta’s case, appealing to the news or, as in Lily’s case, connecting with their family and trying to stay occupied. Moreover, the increase in the Puerto Rican population in the Tampa area also has helped, because migrants often turn to coethnics for help and social support. Thus, as Puerto Ricans adapt to their new communities, their influx in those same communities is helping newcomers as well.

Though the coping strategies we have illustrated throughout speak to Puerto Ricans’ resiliency in overcoming hardship, we draw on Bonilla’s (2020) analysis of individual resilience to argue that these individual strategies should not be leveraged by other entities (e.g., governments) to abandon the needs of a population or to engage in further racialized neglect. Just because Puerto Ricans can show they are resilient does not mean they should be left to suffer on their own, when in fact, many of the sources of these challenges are structural in nature.

Conclusion

The Covid-19 pandemic has not only represented widespread illness, deaths, and hospitalizations; for Puerto Rican post-disaster migrants, it also has interrupted social and labor-market integration through the loss of work, educational challenges,



and obstacles to their ability to nurture social ties. For some, these effects have piled onto accumulated social challenges that reach back prior to Hurricane Maria.

The climate refugees who participated in our study left Puerto Rico because they were living under dire circumstances. Our analysis demonstrates that the emotional fallout from experiencing these hurricane-related conditions continued to affect them as the pandemic evoked those memories again. As Puerto Ricans attempted to rebuild their lives post-migration, our findings show that the accumulation of stressors that prolong trauma (Gil 2007, p. 615), which exacerbate the vulnerability of this population, may compromise their ability to recover. At the root of these disasters lies the preexisting inequalities experienced by the Puerto Rican people as a result of a “racialized neglect” on the part of the U.S. federal government (Bonilla 2020). Moreover, the systemic, geopolitical, and racialized governance that caused the cascading disasters after the 2017 hurricanes in Puerto Rico continue to affect our participants after migration. When the new hazard of Covid took place, our participants were not yet recovered from the multiple losses that led to relocation.

Our findings reveal themes connected to integration theories, and these themes show that specific patterns of unattended vulnerabilities are affecting the adaptation and resilience of this community in the face of hazards. The coping strategies that they deploy to ease the burden of cascading disasters and promote resilience are also significant findings. Together our findings suggest that more research is needed on actions that can be taken to enhance mitigation and prevention of crises in the specific areas of education, housing, job security, language acquisition, and social ties. However, we believe it is imperative that disaster risk research seriously consider the colonial status and geopolitical relations between vulnerable places and the racialized systems of governance that control them so that proposed disaster mitigation strategies address past and current vulnerabilities in the context of colonial conditions.

Finally, future research should also consider the experiences not just of those who have come to the continental U.S. but also of those who remained in Puerto Rico after the hurricanes and those who migrated stateside yet returned to Puerto Rico due to the challenges they encountered. Migration scholarship in particular should attend to the emotional impact of migration in a post-disaster context and prioritize the stories of climate refugees and their accompanying emotions, as this can enhance our understanding of the contexts that promote integration and what factors compel some to return to Puerto Rico. This could lead to community-level interventions in both societies that can be developed to assist in climate refugees’ adaptation. Understanding these factors, which surface through an analysis of emotions, can help identify the sociocultural conditions and systemic roots of migration and formulate policy recommendations to help Puerto Ricans upon resettlement.

Appendix

See Tables 1, 2 and 3.



Table 1 Number and percent of Puerto Ricans, by select Florida Counties

County	No. of Puerto Ricans	% of County pop
Broward County	88,416	4.6
Hillsborough County	118,467	8.3
Miami-Dade County	97,755	3.6
Orange County	199,936	14.8
Osceola County	113,258	32.2
Polk County	63,890	9.3

Source: SocialExplorer.com ACS 2019 (5-Year Estimates)

Table 2 Main demographic characteristics (N = 103)

Variable	Description	Mean	SD
Gender	Female	0.82	0.39
	Male	0.18	0.39
Respondent's age	In years	46.74	14.75
Respondent's skin color	White/light-skinned	0.88	0.32
	Black/dark-skinned	0.12	0.32
Marital status	Married	0.35	0.48
	Widowed	0.06	0.24
	Separated/divorced	0.15	0.35
	Single	0.43	0.50
Children	Has children	0.85	0.36
	Does not have children	0.15	0.36
Education ^a	Less than HS diploma	0.07	0.25
	HS diploma	0.14	0.34
	Technical/Vocational school	0.15	0.35
	Some college	0.14	0.34
	AA degree	0.16	0.36
	BA/BS degree	0.23	0.42
	Graduate/professional	0.13	0.33
Social class	Middle class	0.26	0.44
	Working class	0.53	0.50
	Lower class	0.21	0.41
English fluency ^a	Very well	0.16	0.36
	Well	0.25	0.44
	Not very well	0.47	0.50
	Not at all	0.13	0.33
Time in US	In months	28.24	5.77

Source: Puerto Rican Post-Disaster Migration Project

^aDue to rounding the total percentage exceeds 100%

Table 3 Financial insecurity, social ties, and changes in employment

	Pre-Hurricanes		Pre-COVID		During COVID	
	f	%	f	%	f	%
Financial insecurity						
Very difficult	21	20.39	16	15.53	28	27.18
Somewhat difficult	22	21.36	26	25.24	34	33.01
Not difficult	60	58.25	61	59.22	41	39.81
	M	SD	M	SD		
Social ties						
Loose ties	7	10.48	1.80	2.42		
Close ties	5.73	7.68	2.04	2.31		
					F	%
Change in employment						
Got a job					3	10.71
Temporarily fired					9	32.14
Permanently dismissed					2	7.14
Reduction in hours					4	14.29
Other ^a					10	35.71

^aSource Puerto Rican Post-Disaster Migration Project, Survey Data; 1 company closed, unpaid leave, resigned

Acknowledgements We would like to thank Maritza Novoa and Nancy Hernández for their collaboration on this project. We would also like to acknowledge Andrew Katz for his copyediting assistance and Elizabeth Vaquera for assistance with data analysis. Funding for this work has been supported by the National Science Foundation, Grant Number 1918241.

References

- AAPOR (American Association for Public Opinion Research). 2016. *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys*, 9th ed. Alexandria: AAPOR.
- Acosta-Belen, E., and C. Santiago. 2018. *Puerto Ricans in the United States: A Contemporary Portrait*. Boulder: Lynne Rienner.
- Alba, R.D., and V. Nee. 2009. *Remaking the American Mainstream: Assimilation and Contemporary Immigration*. Cambridge, MA: Harvard University Press.
- Aranda, E. 2007. *Emotional Bridges to Puerto Rico: Migration, Return Migration, and the Struggles of Incorporation*. Lanham, MD: Rowman and Littlefield.
- Aranda, E., and F.I. Rivera. 2016. Puerto Rican Families in Central Florida: Prejudice, discrimination, and their implications for successful integration. *Women, Gender, and Families of Color* 4 (1): 57–85.
- Bonilla, Y. 2020. The Coloniality of Disaster: Race, Empire, and the Temporal Logics of Emergency in Puerto Rico, USA. *Political Geography* 78: 102181.
- Bonilla, Y., and M. LeBrón, eds. 2019. *Aftershocks of Disaster: Puerto Rico Before and After the Storm*. Chicago: Haymarket Books.
- Charmaz, K. 2014. *Constructing Grounded Theory*. Thousand Oaks, CA: Sage.



- Delorme, S. 2013. The Latinization of Orlando: Language, Whiteness, and the Politics of Place. *Centro: Journal of the Center for Puerto Rican Studies* 25 (2): 60–95.
- Duany, J. 2002. Mobile Livelihoods: The Sociocultural Practices of Circular Migrants between Puerto Rico and the United States. *International Migration Review* 36 (2): 355–388.
- Duany, J. 2011. *Blurred Borders: Transnational Migration between the Hispanic Caribbean and the United States*. Chapel Hill: University of North Carolina Press.
- Duany, J. 2015. Florirricans en Crecimiento. *El Nuevo Día*, 14 October.
- Duany, J. 2021. Rethinking Puerto Rican Migrants as Climate Refugees. Paper presented at the Bregando with Disasters: Post Hurricane Maria Realities and Resiliencies Symposium, Contemporary Art Museum, University of South Florida. Tampa: 2 October.
- Duany, J., and F. Matos-Rodríguez. 2006. Puerto Ricans in Orlando and Central Florida. *Center for Puerto Rican Studies Policy Report* 1 (1): 1–39.
- Erikson, K.T. 1976. Loss of Communitality at Buffalo Creek. *American Journal of Psychiatry* 133 (3): 302–305.
- Gamarra, E. 2018. Nuestro Futuro Is in Your Hands: Puerto Ricans in Florida. Paper presented at Florida International University, Miami: 2 July.
- George Washington University. 2020. *Ascertainment of the Estimated Excess Mortality from Hurricane María in Puerto Rico*. Washington, DC: Milken Institute School of Public Health.
- Gil, D.A. 2007. Secondary Trauma or Secondary Disaster? Insights from Hurricane Katrina. *Sociological Spectrum* 27 (6): 613–632.
- Gordon, M.M. 1964. *Assimilation in American life: The Role of Race, Religion, and National origins*. New York: Oxford University Press.
- Grosfoguel, R. 2003. *Colonial Subjects: Puerto Ricans in a Global Perspective*. Berkeley: University of California Press.
- Hinojosa, J., and E. Meléndez. 2018. Puerto Rican Exodus: One Year since Hurricane Maria. *Center for Puerto Rican Studies Research Brief* 5: 1–8.
- Hinojosa, J., N. Román, and E. Meléndez. 2018. Puerto Rican Post-Maria Relocation by States. *Center for Puerto Rican Studies Research Brief* 1: 1–15.
- Hollifield, J.F. 2020. Is Migration a Unique Field of Study in Social Sciences? A Response to Levy, Pisarevskaya, and Scholten. *Comparative Migration Studies* 8 (1): 1–9.
- Kessler, R. C. 2010. Hurricane Katrina Community Advisory Group Study [United States]. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 10 June.
- Kessler, R.C., K.A. McLaughlin, K.C. Koenen, M. Petukhova, and E.D. Hill. 2012. The Importance of Secondary Trauma Exposure for Post-Disaster Mental Disorder. *Epidemiology and Psychiatric Sciences* 21 (1): 35–45.
- Kilic, C., I. Aydin, N. Taskintuna, G. Ozcurumez, G. Kurt, E. Eren, T. Lale, S. Ozel, and L. Zileli. 2006. Predictors of Psychological Distress in Survivors of the 1999 Earthquakes in Turkey: Effects of Relocation after the Disaster. *Acta Psychiatrica Scandinavica* 114 (3): 194–202.
- Klein, N., and N. Smith. 2008. The Shock Doctrine: A Discussion. *Environment and Planning D: Society and Space* 26 (4): 582–595.
- Kochhar, R., R. Suro, and S. Tafoya. 2005. The New Latino South: The Context and Consequences of Rapid Population Growth. *Pew Hispanic Center*, 26 July.
- Li, M. 2016. Pre-Migration Trauma and Post-Migration Stressors for Asian and Latino American Immigrants: Transnational Stress Proliferation. *Social Indicators Research* 129 (1): 47–59.
- Marrow, H. 2011. *New Destination Dreaming: Immigration, Race, and Legal Status in the Rural American South*. Stanford, CA: Stanford University Press.
- Massey, D., and C. Capoferro. 2008. The Geographic Diversification of American Immigration. In *New Faces in New Places: The Changing Geography of American Immigration*, ed. Douglas Massey, 25–50. New York: Russell Sage Foundation.
- McGhee, G., G.R. Marland, and J. Atkinson. 2007. Grounded Theory Research: Literature Reviewing and Reflexivity. *Journal of Advanced Nursing* 60 (3): 334–342.
- McGowan, P., and A. Donovan. 2021. Assemblage Theory and Disaster Risk Management. *Progress in Human Geography* 45 (6): 1601–1624.
- Melin, K., W.T. Maldonado, and A. López-Candales. 2018. Lessons Learned from Hurricane Maria: Pharmacists' Perspective. *Annals of Pharmacotherapy* 52 (5): 493–494.
- Meyers, T., and R. Hunt. 2014. The Other Global South. *The Lancet* 384 (9958): 1921–1922.
- Parsons, H. 2011. Language and Migration to the United States. *Annual Review of Anthropology* 40: 227–240.



- Pescaroli, G., and D. Alexander. 2015. A Definition of Cascading Disasters and Cascading Effects: Going beyond the 'Tpling Dominos' Metaphor. *Global Risk Forum Davos Planet Risk* 3 (1): 58–67.
- Portes, A., and R.G. Rumbaut. 1996. *Immigrant America*. Berkeley: University of California Press.
- Rand Corporation. 2020. *Hurricanes Irma and Maria: Impact and aftermath*. Homeland Security Research Division: Homeland Security Operational Analysis Center, Rand Corporation.
- Riosmena, F., B.G. Everett, R.G. Rogers, and J.A. Dennis. 2015. Negative Acculturation and Nothing More? Cumulative Disadvantage and Mortality during the Immigrant Adaptation Process among Latinos in the United States. *International Migration Review* 49 (2): 443–478.
- Rodríguez-Díaz, C.E. 2018. María in Puerto Rico: Natural Disaster in a Colonial Archipelago. *American Journal of Public Health* 108 (1): 30–32.
- Sanchez, R. 2020. For Puerto Rico's Earthquake Families, Trauma Continues Thousands of Miles from Home. CNN, 29 January.
- Schleef, D.J. 2009. *Latinos in Dixie: Class and Assimilation in Richmond, Virginia*. Albany, NY: SUNY Press.
- Schuller, M., and J. Maldonado. 2016. Disaster Capitalism. *Annals of Anthropological Practice* 40 (1): 61–72.
- Silver, P. 2020. *Sunbelt Diaspora: Race, Class, and Latino Politics in Puerto Rican Orlando*. Austin: University of Texas Press.
- Silver, P., and W. Vélez. 2017. 'Let Me Go Check Out Florida': Rethinking Puerto Rican Diaspora. *Centro: Journal of the Center for Puerto Rican Studies* 29 (3): 98–125.
- Social Explorer. n.d.-a. ACS 2019 (1-Year Estimates) Hispanic or Latino: Puerto Rican [Map]. <https://www.socialexplorer.com/data/ACS2019/documentation/>
- Social Explorer. n.d.-b. ACS 2019 (5-Year Estimates) Hispanic or Latino: Puerto Rican [Map]. <https://www.socialexplorer.com/data/ACS2019/documentation/>
- Thomas, D., S. Jang, and J. Scandlyn. 2020. The CHASMS Conceptual Model of Cascading Disasters and Social Vulnerability: The COVID-19 Case Example. *International Journal of Disaster Risk Reduction* 51: 101828.
- U.S. Department of Homeland Security. 2020. *FEMA Mismanaged the Commodity Distribution Process in Response to Hurricanes Irma and Maria*. Washington, DC: Office of the Inspector General, Homeland Security.
- Vargas-Ramos, C., and C.R. Venator-Santiago. 2019. *Displacement and Migration in the Age of Climate Change: Holyoke's Response to Hurricane Maria for Massachusetts's Municipal Vulnerability Program*. Boston, MA: Commonwealth of Massachusetts.
- Velez, W., and G. Burgos. 2010. The Impact of Housing Segregation and Structural Factors on the Socio-economic Performance of Puerto Ricans in the United States. *Centro: Journal of the Center for Puerto Rican Studies* 22 (1): 174–197.
- Venator-Santiago, C.R. 2017. Mapping the Contours of the History of the Extension of U.S. Citizenship to Puerto Rico, 1898–Present. *Centro: Journal of the Center for Puerto Rican Studies* 29 (1): 38.
- Walsh, F. 2007. Traumatic Loss and Major Disasters: Strengthening Family and Community Resilience. *Family Process* 46 (2): 207–227.
- Waters, M.C., and T.R. Jiménez. 2005. Assessing Immigrant Assimilation: New Empirical and and Theoretical Challenges. *American Review of Sociology* 31: 105–125.
- Winders, J. 2005. Changing Politics of Race and Region: Latino Migration to the US South. *Progress in Human Geography* 29 (6): 683–699.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.

Elizabeth Aranda is Professor of Sociology at the University of South Florida. A native of Puerto Rico, she has dedicated herself to documenting the lived experience of migration and to share (im)migrants' stories through her research, teaching, and service. Her research addresses migrants' emotional well-being



and how they adapt to challenges posed by racial and ethnic inequalities and legal status. She is author of *Emotional Bridges to Puerto Rico* and co-author of *Making a Life in Multiethnic Miami*.

Rebecca Blackwell is a Social Science Researcher at the University of South Florida. She has a multicultural personal background and a multidisciplinary education in the areas of linguistics, Latin American and Caribbean studies, and sociology. Her research in migration, human rights, and health and illness explores ways in which social communication, social psychology, and emotions intersect in the perception, contestation, and reproduction of inequalities in society.

Melanie Escue (she, her, hers) is a doctoral candidate in the Department of Sociology at The University of South Florida. Her research interests include undocumented migration, Puerto Rican studies, post-disaster migration, and emotional well-being. At the heart of her research, teaching, and service, she strives to draw attention to the diverse backgrounds, experiences, and needs of im(migrants) in the United States. Currently, her work explores the emotional well-being of undocumented young adults as they navigate transitions to adulthood in the United States.

Alessandra Rosa (she, her, ella) is a sociocultural anthropologist, professor, researcher, activist, public speaker, and consultant. Currently, she is a visiting assistant professor of instruction in the Department of Sociology at the University of South Florida (USF). Her areas of expertise include social movements, digital activism, education, Latin America & Caribbean studies with a focus on Puerto Rican studies, women & gender studies, post-disaster migration studies, emotional well-being, and media discourse analysis. As a transnational feminist scholar, she has dedicated her teaching, research, and service to fostering diversity, equity, and justice.

