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Review

# Compound Crises: A Review of the Impact of Emergencies and Disasters on Mental Health Services in Puerto Rico

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**Abstract:** Mental health in Puerto Rico is a complex and multifaceted issue that has been shaped by the island's unique history, culture, and political status. Recent challenges, including disasters, economic hardships, and political turmoil, have significantly affected the mental well-being of the population coupled with the limitations in the accessibility of mental health services. Puerto Rico has fewer mental health professionals per capita than any other state or territory in the United States. This comprehensive review examines the impact of disasters on mental health and mental health services in Puerto Rico. Given the exodus of Puerto Ricans from the island, the review also provides an overview of mental health resources available on the island as well as the continental United States. The review identifies efforts to address mental health issues, with the intent of gaining a proper understanding of the available mental health services, key trends, as well as observable challenges and achievements within the mental health landscape of the Puerto Rican population.

**Keywords:** disasters; Emergencies; mental health care; mental health services; Puerto Rico; Puerto Ricans

## 1. Introduction

The existing body of literature concerning the health profile of Puerto Ricans has consistently identified the lack of availability and accessibility of health services for both physical and mental health (Rivera and Burgos, 2010). The landscape of mental health within Puerto Rico can best be illustrated by a 2016 report from the Administration of Mental Health and Anti-Addiction Services (ASSMCA) that found that 7.3% (165,497) of Puerto Ricans between the age of 18-64 suffering from a serious mental illness. The most prevalent mental illnesses were anxiety and mood disorders: Women were more likely to suffer from generalized anxiety disorder, major depressive disorder, and dysthymia compared to men (ASSMCA, 2016). The elderly population was also at a greater risk for having a mental health illness since approximately 19.7% of this population suffered from depression (Serra-Taylor and Irizarry Robles, 2015).

The mental health profile and lack of services were exacerbated after the impact of Hurricanes Maria and Irma in September of 2017. Past literature suggests that direct physical impact and the loss of resources in the recovery environment characterize the disasters' impacts on mental health (Hobfoll et al., 2007). After a disaster, many people experience post-traumatic stress disorder (PTSD), with gradually dissipating symptoms (Hobfoll, et. al., 2007). A small percentage of the affected population developed psychopathologies and often suffered from long lasting symptoms that impaired every sector of their livelihoods, greatly diminishing their work, love, and individual quality of life. In the case of Puerto Rico, mental health services were unable to keep up with the demands of those dealing with the mental health consequences of the disaster (Canino et al., 2019).

Articles for this paper were found using the UCF Library database and selected by using the key terms “mental health care”, “mental health services”, “disasters”, “Puerto Rico”, “Puerto Ricans”, and “trauma”. Ideas were also drawn from the study *Mental Health of Puerto Ricans Who Stayed in Puerto Rico Compared to Those Who Migrated to Florida after Hurricane Maria* (Chapdelaine, 2022).

This paper first reviews the literature on mental health care and services before and after Hurricanes Maria and Irma. Those trends are then contrasted with mental health services offered both in Puerto Rico and the continental United States. We then observe these patterns within the context of the consequences inflicted by the COVID-19 pandemic. Lastly, we identify knowledge gaps in the literature and summarize the status of mental health care and services in Puerto Rico.

## 2. Mental Health Care and Services Before Hurricane Maria in Puerto Rico

Even before Hurricane Maria hit Puerto Rico in 2017, Puerto Ricans were at a greater disposition for poor mental health outcomes. In a study, Chapdelaine (2022) examines mental health trends in Puerto Rico via a mixed method analysis employing content analysis of newspapers articles and interviews. The investigation finds that Puerto Ricans are more likely to develop inadequate mental health compared to other groups. Furthermore, the 2016 report by ASSMCA found that anxiety and mood disorders were the most frequent disorders seen in Puerto Ricans even prior to Hurricane Maria (Chapdelaine, 2022).

Purtle et. al. (2023) conducted a study in Puerto Rico to assess the availability of mental health crisis services offered in Puerto Rico before Hurricane Maria. They looked at psychiatric emergency walk-in clinics, suicide prevention services, and crisis intervention teams' availability as of 2016. The number of facilities providing services for psychiatric emergency walk-ins was 34 and the percentage was 38.6%. As for the number of facilities providing services for suicide prevention, this came to 66 and the percentage was 75%. In addition, the number of facilities providing services for crisis intervention teams was 60 and the percentage was 68.2%. They also assessed the availability of mental health crisis services offered to adults who do not have health care insurance. The provision of psychiatric emergency walk-in services for uninsured patients was observed in 22 facilities, representing 25.6% of the total. 38 facilities were identified as providing suicide prevention services to uninsured patients, encompassing 44.2% of the total. Finally, services related to crisis intervention teams for uninsured individuals were available in 30 facilities, constituting 34.9% of the overall total. (Jervis, 2018; Purtle et al., 2023).

Based on the data, it is evident that access to mental health crisis services was deficient prior to Hurricane Maria, particularly for individuals lacking health care insurance. Medicare/Medicaid coverage, the island's public healthcare system, and Puerto Rico's economic profile were additional factors, besides lack of accessible services, that further impacted the access to mental health care for Puerto Ricans. A change in the health care system occurred with, “La Reforma.” The system reform was put in place in 1993 under the direction of then-Governor Pedro Juan Rosselló González. This shift resulted in public hospitals and clinics being taken over by private organizations. Furthermore, doctors were told to collaborate part-time with Medicare and Medicaid healthcare organizations and prioritize treating individuals with insurance (Perreira, et. al., 2017). Another public healthcare system that Puerto Ricans utilize is “Mi Salud”, which is mainly reimbursed through Medicare and Medicaid. Studies indicate that 94% of Puerto Ricans are insured and “of this proportion, only 30% receive health insurance privately via an employer, and the rest are completely reliant on the underfunded Mi Salud system”. Although the healthcare coverage was adequate before Hurricane Maria, poor health was evident. Many individuals had disabilities, diabetes, and HIV and were not properly treated, which resulted in high death rates (Perreira, et. al., 2017).

A significant determinant in accessing mental health services in Puerto Rico was the financial insufficiency granted by health insurance companies, specifically Medicare/Medicaid. Unlike the continental United States, the Medicare/Medicaid fund available to patients in Puerto Rico has a debt ceiling. Once that ceiling is reached, coverage for healthcare services can no longer be guaranteed. As a result, providers aren't getting paid for services, and patients are left with a financial burden (Rivera-Hernandez, et. al., 2016). Moreover, funding for mental health care can be subject to changes

and adjustments through legislative actions and budget allocations by the U.S. Congress, where Puerto Rico has limited representation and no voting rights (Belligoni, 2024).

### 3. Mental Health Care and Services After Hurricane Maria in Puerto Rico

Hurricane Maria shed light on the pre-existing mental health crisis in Puerto Rico. The aftermath of the hurricane greatly impacted the mental health of those who suffered direct impacts, with children, students, and first responders being at greatest risk. Addressing the immediate distress after a disaster can prevent mental health illness from developing. Unfortunately, modes of prevention were not implemented and were not readily available in the aftermath of Maria. The severity of distress present in Puerto Rico resulted in an increase in the suicide rate, where the suicide rate post-Maria increased by 55% between September and December 2017 (Halpern & Vermeulen, 2017; Aponte, 2018). The Puerto Rican suicide hotline, Linea PAS, received double the number of calls in the 6 months following Hurricane Maria (Department of Health, 2019).

The trauma of the hurricane and its aftermath also had long-term effects on the mental health of children and youth in Puerto Rico. Out of the entire population, children were at most risk of developing mental health psychopathologies (Palinkas and Wong, 2020.) Many children and youth experienced symptoms of PTSD, depression, and anxiety in the months following the hurricane, and these symptoms persisted over time (Vázquez, et. al. 2024). In the aftermath of Hurricane Maria children attending public schools were given a survey that explored the stressors due to hurricane-related PTSD and depression. Results indicate that 6.6% experienced the death of a loved one, 29.9% had suicidal thoughts, 45.7% experienced damage to their home, 31% experienced damage to their belongings, 25.5% were required to relocate, 83.9% witnessed house damages, 5.7% switched schools, and 57.8% had friends or family relocate. In addition, 7.2% of youths would have met the criteria for a PTSD diagnosis after Hurricane Maria. Overall, girls were at a greater risk to stressors than boys. (Orengo-Aguayo et al., 2019).

As of September 30<sup>th</sup>, 2018, approximately one year after Hurricane Maria, the Health Resources and Service Administration (HRSA), recorded that 72 out of 78 municipalities in Puerto Rico were 'medically underserved areas.' Despite these challenges, there have been efforts to address mental health issues for Puerto Ricans. Acknowledging the lack of available resources, several community outreach groups as well as institutional partnerships were formed. Three key resources are the HRSA, Better Help App, and Centros de Apoyo Mutuo (CAM). HRSA in Puerto Rico provides health care services to individuals who are the most at risk and unable to afford quality services. These individuals include people with HIV/AIDS, new mothers, and low-income families. HRSA also assists with health care services in rural settings and other areas where help is lacking (HRSA, n.d.). Alternatively, the Better Help app is available globally and matches users to an online counselor based on their needs, such as stress and anxiety. This app is convenient because it takes away the stigma from in-person therapy, it is easily accessible through desktop or smartphones, and it is more affordable than traditional therapy (Eftychiou & El Morr, 2017). Centros de Apoyo Mutuo (CAMs) are cultivated, and self-managed organizations that have sprouted throughout Puerto Rico, after FEMA's insufficient and lackluster response to Hurricane Maria (Norris, et. al., 2002). These centers are focused solely on helping the communities they are working in, straying away from hierarchy and competition. The first CAM was created in Caguas where it provided breakfast and lunch three times a week to volunteers who came to help with other activities. Among the latter, CAMs throughout the island engaged in debris-cleaning operations, distribution of food and water, installation of blue tarps, and more (Vélez-Vélez & Villarubia-Mendoza, 2018).

According to Negroni et al. (2020), "People sought consultation for a mental health problem from a general medical provider (31.5%), family member and friends (23.6%), followed by a mental health specialist (17.5%) or clergy." Many individuals with mental health issues in Puerto Rico turn to primary care services and non-psychiatric hospitals for treatment. Most people also went to the emergency room for mental health issues because general hospitals could also provide extensive healthcare services which several people needed. Due to the lack of mental health services available, the Clinical Psychology Services Program (CPSP) was created. Their key mission was to provide



inclusive services for all individuals, focusing on their specific physical and mental health needs. Their services include medical and outpatient referrals for mental health care services, screenings, and follow-up visits for those who require it (Jiménez et al., 2013).

Other support systems for Puerto Ricans include schools and families. Several universities in Puerto Rico have supported the resilience of their students including the Inter American University of Puerto Rico-Arecibo, Universidad Ana G. Mendez-Gurabo, University of Puerto Rico-Mayaguez, University of Puerto Rico-Rio Piedras, and University of Puerto Rico-Utuado. These universities provided access to meals through local food pantries and financial assistance during the COVID-19 pandemic. They also provided students with in-person and virtual counseling services. Also, they provided resources for post-graduation including internship and research opportunities and job fairs (Santiago et al., 2023). As for family support, many Puerto Rican families supported each other through similar spiritual beliefs and practices. These practices allowed families to create stronger bonds with each other and an increase in faith. The key factor was that families came together to create a positive outlook by remaining hopeful about the future. (Nelson et. al, 2022).

#### 4. Mental Health Care and Services in the Continental United States

The devastation caused by Hurricane Maria led many to move out of the island to the continental United States. In many cases there were higher rates of reported PTSD among Puerto Ricans who moved to Florida because they lost almost everything on the island, and they had to adapt to a new life in the 50 states and District of Columbia. However, both Puerto Ricans who moved and those who stayed on the island experienced trauma and anxiety, with the rates of PTSD being 65.7% in Florida and 43.6% in Puerto Rico (Scaramutti, et. al., 2019).

The Puerto Rican culture can be described as hopeful, resilient, and overall altruistic. This central thread is in direct opposition to the individualistic collective that can be observed in the 50 states and District of Columbia. This cultural difference made it harder for individuals who moved after Hurricane Maria to cope with mental stressors (Santibañez, 2021). In a study, Morales et. al. (2020) found that 65% of non-metropolitan counties in the United States do not have a psychiatrist and 60% of the rural population live in areas with a shortage in mental health providers (Morales, et. al., 2020). Those who felt a sense of abandonment found themselves trapped in a constant cycle of thinking that they can take care of themselves, even though the stigma surrounding mental health has decreased.

The Hispanic health paradox states that although Hispanics are at a greater risk for poor physical and mental health, they tend to have a greater life expectancy compared to other groups (Ruiz et al., 2016). However, this phenomenon does not apply to Puerto Ricans, specifically those that reside in the 50 states and District of Columbia (Rivera and Burgos, 2010). Puerto Ricans do not benefit when moving or living in the continental United States since they no longer have the same support system they usually have while living on the island (Acevedo-Garcia and Bates, 2017). This same population also suffers from disadvantageous socio-economic status conditions (Mora et al., 2021).

A recent study led by the Urban Institute and the University of Central Florida (UCF) analyzed the receiving community capacity of Central Florida after Hurricane Maria, to further understand if the region was ready to receive such a large influx of people. Data gathered during this study involved interviewing providers from Central Florida. These interviews provided several insights, and as one of the interviewees mentioned about the experience of Puerto Ricans moving to Florida, *"You have no job, you might not have any family, you don't speak the dominant language. So, all those things I think are compound, and what we know about stressors in general is that they can increase symptoms in people who already have mental health disorders and physical disorders. Or they may create disorders in people who didn't have disorders in the first place, so we worked with several people who were depressed because they lost their home in Puerto Rico."* Another interviewee explained, *"Healthcare for people without insurance is always a tough one [...] there are great free clinics, awesome opportunities for people to get help, but obviously there's a waiting list, eligibility requirements, proof of income...hoops that are put in place, for good reason, for eligibility, mostly related to funding sources."* Another interviewee mentioned that federally qualified health centers are a good resource. *"In my experience, the only sliding care providers are federally qualified health centers, which are non-profit, and they tend to have a pretty rigorous standard but at the same token,*

*they also tend to have a long waiting list because they are federally qualified health centers and will see the uninsured with little to no money.” In addition, another interviewee stated, “One thing that I saw provided was mental health counseling because I was able to go to a couple trips and I also saw what this congressional office and what Vamos4PR was also doing and they were trying to find entities out there that can help people with mental counseling as a component of possibly all other services that people need” (Chapdelaine, 2022; Junod, et. al., 2023).*

## **5. Compound Crises: Hurricane Maria, the COVID-19 Pandemic, and Their Impact on Mental Health Care and Services in Puerto Rico**

In Puerto Rico, the impact of Hurricane Maria on mental health was exacerbated by existing challenges in the mental health care system, including a shortage of mental health professionals and limited access to care, particularly in rural and underserved areas. March 2020 is when the first case of COVID-19 appeared in Puerto Rico. This resulted in a lockdown across the whole island, individuals losing their jobs, and schools closing. Children were at an increased risk of trauma exposure due to ongoing anxiety from Hurricane Maria. Individuals exposed to traumatic events are at a greater risk for becoming depressed, developing behavioral issues and suicidal thoughts, and coping through substances. Exposure to traumatic events may also lead to students doing poorly in school and overall poor health (Orengo-Aguayo et al., 2022).

The COVID-19 pandemic put Puerto Ricans under a new set of stressors while they were still recovering from two prior disasters. The pandemic affected an already fragile mental health landscape due to Hurricane Maria and the 2019-2020 earthquakes. Studies have shown that the COVID-19 pandemic increased the population's feelings of anxiety, depression, restlessness, abandonment, isolation, suicidal ideations, and abuse. These are the same psychopathologies that were observed after Hurricane Maria and during the 2019-2020 earthquakes.

Many Puerto Ricans who migrated to Florida after Hurricane Maria struggle with a language barrier. Due to schools closing after COVID-19, some parents were not able to assist their children with schoolwork because they don't understand English. Aranda et. al. (2022), worked on a study investigating this issue and interviewed people to gain insights about the challenges many faced when the pandemic hit but were also a representation of their overall socio-economic struggles. A 27-year-old stay at home mother to four children, shared her struggles. She explained that she can only understand English if you speak slowly and use basic vocabulary. In addition, her children were in a program at school called Elements of Statistical Learning (ESL), which helped them learn English. She said staying at home affected their reading and grammar because they were unable to have one-on-one time with their teacher who would take them aside if they needed extra help. Misty, who is a 31-year-old mother, described a similar relationship with her daughters. She explained that home schooling has affected her relationship with her daughters because the language barrier makes her feel lost. Furthermore, she felt as if she was going backwards and had to re-learn certain concepts. Lydia, a 36-year-old mother and health worker, described the difficulties her family faced after the pandemic. She explained that her family ended up developing feelings of depression and anxiety, especially her two children who had to stay home unsupervised while she worked. The transition to online classes was also difficult for her children and they had trouble sleeping at night due to stress. Her thirteen-year-old son struggled the most with the concept of staying at home because he was used to going out with his friends after school. Both of her children gained weight due to stress eating and not having Lydia supervise their eating habits while she was at work (Aranda et al., 2022).

In young adults, stress is found to be the greatest contributing factor to psychological distress and mental illness. In a study conducted by the American Psychological Association (APA), this observation was quantified as 46% of the surveyed population, 3,185 adults aged 18+ in the United States between the dates of August 4, 2019, and August 26, 2019, reported experiencing greater feelings of stress and depression after the pandemic, and 65% reported overall feelings of isolation. This overall feeling of stress then contributed to an increase of intimate partner violence cases, especially in young adults. In 2021, the Puerto Rican Police department reported 6,540 incidents of intimate partner violence the previous year (Howland, et. al., 2017).

Contrary to the observations made after Hurricane Maria, reports indicate that individuals living in Puerto Rico experienced greater difficulties than those living in the 50 states and District of Columbia (Ramos-Ribermus et al, 2020). Social support is a great way to help cope with mental illness; the pandemic made this difficult as it resulted in supportive services for mental health illnesses shutting down, leading to over reliance on support from family members, who were sometimes distant because of the pandemic restrictions on gatherings, except for the closest family members living in the same household. Newly appointed caregivers began experiencing physical and emotional overload. Furthermore, the individuals who suffered from mental illness reported an increase in behavioral changes due to an alteration in their daily routine. These behavioral changes were further exploited by the fear associated with the pandemic. Puerto Rico reported an increase in feeling of fear, desperation, and guilt (Libre-Guerra et al., 2020).

There was no reprieve for Puerto Ricans, specifically those residing on the island as they experienced successive disasters. Hurricane Maria in 2017, the 2019-2020 earthquakes, the COVID-19 pandemic, and Hurricane Fiona in 2022, exposed a mental health crisis that is far from being resolved. These events resulted in traumatized island residents, leading to the decimation of the infrastructure and families being torn apart. It was estimated that 46% of the 100,000 young Puerto Ricans surveyed after Hurricane Maria, declared they had some sort of damage to their homes, 32% had issues with accessing food or water, 58% that they had a loved one leaving the island because of the disaster, and 30% felt their lives were at risk. ASSMCA received nearly 3,000 calls in the five days after Hurricane Fiona made landfall as it also happened to fall on the five-year anniversary of Hurricane Maria (Orengo-Aguayo et al., 2019).

## 6. Discussion & Conclusions for Future Directions

The mental health landscape both in Puerto Rico and in the 50 states and District of Columbia was lacking in available and accessible resources and is still lacking today. In Puerto Rico, each disaster, starting with Hurricane Irma, has only continued to exploit an already fragile mental healthcare industry. This along with the social stigma associated with mental health diseases, makes finding and receiving treatment a task. The shortage of mental health services became worse after Hurricane Maria and magnified pre-existing struggles. Some of these concerns include a lack of accessible resources, an absence of affordable care, suicidal ideations, depression, and anxiety. COVID-19 had a significant impact on Puerto Ricans, especially young adults.

There is a clear lack of mental health providers and services in Puerto Rico, and few of those services available are covered by medical insurance. This lack of availability and accessibility has aggravated the condition of many individuals who suffer from psychopathologies and has further devastated the mental health landscape. In 2022 the Administration de Seguros de Salud in Puerto Rico reported 15 municipalities without psychologists, and 32 municipalities without psychiatrists. The most affected municipalities being concentrated in the central and northeastern regions of the island. In a recent interview with *El Nuevo Dia*, Karen Martinez, the Director of Psychiatry Program at University of Puerto Rico-Medical Sciences Campus, highlighted the patients' struggle of receiving mental health services. Many patients are waiting 6-8 months to receive an appointment, and those appointments are mostly over telehealth services. Receiving treatment is another challenge as the follow-up and maintenance plan curated for patients with mental health illnesses is inconsistent at best.

Although the situation is dire, strides have been made in the right direction. Puerto Ricans mainly access healthcare through insurance, such as Medicaid and Medicare, and nonprofit organizations. As mentioned previously, community outreach groups and institutional partnerships have been made to bridge the gap present in the mental health landscape. In May 2023, the Federal Emergency and Management Agency (FEMA) awarded Puerto Rico nearly 80 million dollars to aid in the recovery of mental health facilities, specifically those supplied by ASSMCA. About \$31 million of the budget has been used to repair about 20 facilities ranging from recovery facilities in Moca, the Drug Courts in Arecibo, to the Mental Health Center in Mayagüez (FEMA, 2023). Furthermore, problems related to lead and asbestos exposure have been solved. In addition, the Financial Oversight

and Management Board for Puerto Rico had a meeting on June 30, 2023, to discuss the consolidated budget for the 2024 fiscal year. The overall budget that Governor Pedro R. Pierluisi signed on June 29, 2023, amounts to \$12,747,000 and went into effect on July 1, 2023 with the following categories: \$307,000 towards families and children, \$876,000 towards economic development, \$980,000 towards pension reserve trust, \$1,102,000 towards debit service, \$1,379,000 towards health, \$1,381,000, towards public safety, \$2,100,000 towards retiree payments, \$2,195,000 towards education, and \$2,427,000 towards other areas. This general fund budget along with the \$5 million special revenue fund budget and the \$13.3 billion federal fund budget was approved by the Oversight Board, which means \$31 billion is the total consolidated budget for the Puerto Rico government (Financial Oversight & Management Board for Puerto Rico, 2023). Through grant funding, in 2023 the Substance Abuse and Mental Health Services Administration (SAMHSA) has allocated \$20,463,667 towards mental health services and \$12,672,025 towards substance abuse services for a total of \$33,135,692. This money is then divided amongst networks within the municipalities, such as non-profits and hospital systems to help advocate for prevention, treatment, and education. For example, Rehaciendo Comunidades con Esperanza in Rio Piedras has been allocated \$234,986 of the funds to educate 3,500 Spanish speaking Puerto Ricans over five years on detection and prevention of mental health and increase the overall awareness of the resources available (SAMHSA, n.d.).

Moving forward, it is evident that more research needs to be conducted to fully understand the extent of available and accessible mental health services both in Puerto Rico and the continental United States. There are a few overall industry recommendations. One is to strengthen the workforce, such as offering initiatives to alleviate the mass exodus of physicians. Another is to place a bigger focus on the island's overall infrastructure, starting with a better transportation system; the struggle with the island's transportation system contributes to mental health psychopathologies such as anxiety and distress. In addition, there is a lack of publicly available data, and more studies should be conducted in the future to gain more insight. As for the literature review, there is a lack of information on mental health care and services before Hurricane Maria, and it's clear that meaningful change will not take place unless action is taken.

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