# Aggie Disaster Response Mental Health Recovery Network: Hurricane Disaster Recovery in North Carolina

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## Abstract

As the number of natural disasters and the population of the world continues to increase, it is extremely important that new models of community response and recovery are developed, particularly related to longer-term mental health recovery. To that end and given the need to address behavioral health concerns within North Carolina (NC) for those impacted by Hurricanes Florence and Michael, the Aggie Disaster Response Mental Health Recovery Network (ADRMHRN) was created to support those in post-disaster mental health distress. This network sought to connect clients to services through the creation of an extensive community resource network along with robust mental health service provider partnerships to treat those experiencing longer-term behavioral health recovery challenges. Disaster behavioral health, mental health first responder, clinical best practice  trainings for community members, current service providers, and the future behavioral health workforce were additional project components with the ultimate goal to increase quality client care in the community. Preliminary results and implications for future effective disaster response are also shared.

**Keywords:** disaster, behavioral health, recovery, disaster response

## 1. Introduction

### 1.1 Introduction of the Problem

Given that the frequency of disasters across the world is only increasing, it is important for mental health professionals to be well prepared to respond with effective shorter- and longer-term treatment strategies (Horney et al., 2021; Wood et al., 2021). It is well known that disasters, such as hurricanes, can create mental distress in one-third to one-half of those who experience them (Horney et al., 2021). Crisis response and the accompanying negative emotional impact on survivors is referred to as primary traumatization and this generally begins immediately after the disaster, although delayed reactions can also occur (Harville et al., 2018; Norris et al., 2002; Wood et al., 2021). These trauma responses occur, particularly when multiple life domains are disrupted, as disasters frequently create secondary stressors that impact social, psychological, economic, health, spiritual, career, and familial functioning (Dom ńguez & Yeh, 2020). These significant concerns for health and safety can lead to distress and other behavioral health concerns, including post-traumatic stress disorder (PTSD), anxiety, depression, substance use disorder, and suicidality (DHHS, n.d., Harville et al., 2018). Some have estimated that as many as 20% of those who survive a hurricane go on to experience PTSD (Shigemoto & Kawachi, 2020). In this particular case, immediately following Hurricane Florence, analysis of a NC based crisis text line revealed a statistically significant increase in texts related to anxiety, stress, and suicidal thoughts in the two weeks after the hurricane (Runkle et al., 2021).

While many will only experience mild distress, others may experience longer term consequences and it can be difficult to predict who might be impacted, although multiple traumatic experiences seem to increase the severity of the traumatic response (Harville et al., 2018; Wood et al., 2021). Luckily, resilience factors can help to mitigate a person's negative response, and these can include variables such as social and instrumental (resource) support (Shigemoto & Kawachi, 2020). However, even with supports in place, the psychological and behavioral impact for those recovering from a disaster can extend for years as individuals and communities rebuild and work through their grief and struggle to regain their quality of life (Gunderson et al., 2012). This recovery can take even longer when marginalized and underserved populations are impacted. Given the increasing frequency of natural disasters across the globe, it is

important to design and create innovative ways to respond to the mental health challenges that invariably follow these crises. This paper describes the design, implementation, and preliminary results from the Aggie Disaster Response Mental Health Recovery Network which sought to create a system for longer-term mental health response and recovery.

## 1.2 Significance of the Problem

The current disaster response structure in the state of North Carolina is managed overall by the North Carolina Department of Public Safety (NCDPS). This entity oversees preparedness and response activities relating to physical, financial, and safety needs, while the North Carolina Department of Health and Human Services (NCDHHS) oversees mental health service delivery structures for the state, including a system of Local Management Entities/Managed Care Organizations (LMEs/MCOs) managing service delivery for NC Medicaid, a health insurance for lower-income individuals and families (NCDHHS, 2022). An extensive private network of practitioners also exists and many of these accept insurance, private, or sliding scale payments. However, accessing this network and other mental health care access points continues to be a problem, particularly for those from underserved communities. Many individuals do not have sufficient insurance coverage for mental health treatment and others are unsure how to even access these services. This project sought to fill that gap and provide a way for potential clients impacted by disaster to get connected to the services that they need while also helping the behavioral health workforce best respond to disaster specific mental health challenges.

## 1.3 Relevant Scholarship

Given the quick succession of hurricanes in North Carolina in 2018 with Hurricanes Florence (September, 2018) and Michael (October, 2018), over half of the state was subsequently declared a Federal Disaster Area by The Federal Emergency Management Agency (FEMA, 2021). Hurricane Florence brought historic levels of rainfall and flooding to the southeastern and south-central parts of the state with these areas receiving between 15 and 35 inches of rain over a seven-day period (NOAA, 2020). This was quickly followed by Hurricane Michael which, although downgraded to a tropical storm by the time of impact in NC, still brought devastating winds and structural damages to the central parts of the state (NOAA, 2020. Many families were impacted by both disasters in a matter of weeks creating acute crisis and trauma, as well as longer term behavioral health implications.

As most of the 100 counties of North Carolina are classified as either fully or partially rural, many of the areas served by this project consisted of underserved populations. Although North Carolina has populated areas such as Charlotte and Raleigh/Durham; the state is ultimately characterized by rural living. It is known that individuals in rural areas use less mental health resources as opposed to individuals in more urban areas (Petterson et al., 2009) as behavioral health services are not as available or accessed due to location, cost, or stigma. In North Carolina, 10% of residents lack health insurance and many NC counties are considered mental health professional shortage areas (Rural Health Information Hub, 2022). Due to the fact that individuals living in rural areas have higher rates of poverty as opposed to other areas, the ability to access and afford mental health services is of great importance (Rural Health Information Hub, 2022).

Additionally, as certain populations within each community tend to seek and receive services at disproportionate rates, it is important to note that many marginalized groups are heavily impacted by natural disasters but are much less likely to receive mental health services. This is at least partially due "macrosystem oppression and historical trauma" creating distrust and systemic barriers to both seeking and accessing culturally responsive treatment (Goodman & West-Olatunji, 2009, p.458). Some disaster response paradigms have also been criticized for "helper" and "victim" dichotomies instead of more equity-based approaches that may have further alienated many from seeking needed services (Domínguez & Yeh, 2020). It should be noted that of the overall North Carolina population, approximately 22% is African-American, 10% is Hispanic or Latino, and 2% is Native American meaning approximately 1/3 of the state's population is from a historically marginalized group (Rural Health Information Hub, 2022).

## 1.4 Project Goals and Targeted Objectives

The goal of this SAMHSA-funded project was to establish an extensive community network with a single access point to connect adults in need of behavioral health care to competent and well-trained mental health professionals and other supportive services. This was to be accomplished through a three-pronged approach targeting community members, current service providers, and the future behavioral health workforce. More specifically, an extensive resource listing for services was to be developed in each of the impacted counties so that ADRMHRN callers/participants could be connected with food, shelter, legal, vocational, behavioral health, substance use, and other resources, and, if needed, funding could be provided for behavioral health and substance use care. Selected community members could also to be trained on Mental Health First Aid (2022) in order to recognize the signs of psychological distress and make appropriate referrals either within their own communities or to the ADRMHRN help line. Finally, treatment best practices were to be disseminated to those currently practicing in the field and a Disaster Behavioral Health course was planned to educate the future workforce. Given that ADRMHRN was to be physically housed at a Historically Black College and

University, it was anticipated that some marginalized groups might have greater comfort with accessing the network and subsequent services. Each of the components of this project is described in more detail below.

## 2. Method

### 2.1 Community Members

One of the project's main goals was to establish relationships with local businesses, non-profits, and community groups to broaden and link all community resources available to adults and their families impacted by the disasters in each one of the 51 impacted counties. It was planned that these resources would then be disseminated to callers of the ADRMHRN helpline. These agencies could also serve as recruitment partners to disseminate ADRMHRN helpline information with their current customers. The agencies targeted for inclusion in this referral listing were mental health service providers, substance use facilities, support groups, health care services, veteran's services, transportation services, legal aid, housing services, domestic violence agencies, literacy services, educational services, Latino-serving agencies, tribal agencies, social services, career centers, crisis hotlines, emergency living assistance, food banks, disability services, youth/childcare services, and others. The plan was to utilize research assistants to locate, contact, and compile this listing so appropriate referrals could be disseminated.

In addition to the extensive community outreach, community education and training were also planned. Mental Health First Aid (2022) training for adults was to be scheduled for interested community members at no cost. This training is designed to create a network of community first responders equipped to recognize mental health or substance use distress. Designed for the layperson, this standardized, 8-hour training helps trainees to become certified to recognize the signs of mental health crisis, distress, and challenge and to guide those in need to the treatment area best designed to serve them. This training equips local community members to serve as peer support agents who can be an important first step towards guiding individuals to treatment.

### 2.2 Service Providers

While the service area for this grant included 51 counties within the state of North Carolina, the central region of North Carolina was a primary focus. The plan was to locate several key community mental health service provider partners who could serve clients in their respective areas of the state. These services, if the financial need existed, could be funded through grant dollars which would support any insurance co-payments or even the full cost of the treatment sessions. These partnerships would involve ADRMHRN serving as the prescreening and assessment portal for potential clients who were then referred and, ultimately, established as clients in one of partnering agencies.

The assessment and referral process would begin after clients make initial contact with the network either by helpline phone or email. HIPPA-compliant software (Theranest) would be used for scheduling, counseling, record-keeping, and communicating with clients. The helpline would be staffed by licensed clinicians who were also doctoral counseling graduate students. These clinicians would not only answer all phone and email inquiries, but would also be trained in disaster behavioral health best practices, including crisis management and referral, assessment, and cultural sensitivity. All potential clients who call would be eligible to receive referrals to partnering agencies and providers, but only adults who were negatively impacted by Hurricanes Michael and Florence, in an eligible county, would be able to move to the next stage of the process, including informed consent and a disaster-focused intake. These focused intake questions would include demographic information, trauma history, mental health symptoms, education and work history, as well as additional service needs assessment. The questions were to be completed by clients independently, within Theranest, and these would then be followed by brief intake interviews to be conducted by ADRMHRN clinicians. It should be noted that required SAMHSA designated questions would also be included in these assessments.

With this information, clinicians could make appropriate referrals, on behalf of the client, to community agencies providing mental health and substance use services. These clinicians in the community would then begin counseling with the referred individuals and many could then bill ADRMHRN for these services, if the client is unable to pay fully. Those clients who were determined to be in need, could also be given career resources and referrals for vocational evaluations in order to obtain or change employment. All participating clients would receive a gift card when they participated in the initial intake and at each subsequent 6-month follow-up to assess progress.

### 2.3 Workforce Development

To ensure best practice implementation within the community, SAMHSA Disaster Response resources for clinicians will be widely disseminated. This electronic toolkit will consist of materials that not only describe the project but also will contain information on treatment best practices. The information will focus on evidenced- based practices that practitioners can use to support the positive successful outcomes of clients. One of these treatment strategies is Trauma Focused Cognitive Behavioral Therapy (CBT). This is a short-term, goal-oriented therapy that is focused on changing patterns of thinking and behavior. It is appropriate for use in treating a wide range of personal life issues. Crisis

counseling, as well as substance use prevention and treatment have both been associated with positive outcomes using CBT (Galvan et al., 2021; Kovshoff & Hadwin, 2017; Morgenstern et al., 2001). Additionally, it has been shown to be affective with rural and medically underserved populations (Dwight-Johnson et al., 2011; Weaver et al, 2001). Primary care doctors have also seen improved treatment outcomes for prescription opioid users when their patients receive CBT (Moore et al., 2016). Another treatment to be shared within the clinician resources was Eye Movement Desensitization and Reprocessing (EMDR). This therapeutic technique helps clients overcome traumatic events and situations more quickly. It has been shown to be effective with medically underserved and rural communities (Jolstedt et al., 2018; Rhoads et al., 2006). EMDR is also effective with individuals dealing with substance use disorders (Brown et al., 2016; Taylor et al., 2015). This form of therapeutic treatment is specialized and not only has had success when administered by counselors, but also by advanced practice nurses (Doherty, 2013). Additionally, given the likelihood of limited access to services for many of the clients being served, it is important to also provide information on techniques that also support client physical health. As such, biofeedback will be included in the resources. The use of biofeedback techniques has been shown to be affective for treating trauma. Biofeedback is used in the treatment of medical and mental disorders, such as anxiety, high blood pressure, and headaches in persons of all ages. In addition, biofeedback is also sometimes used as an adjunct in drug and alcohol treatment (Gilbert & Moss, 2003; Sherman, 2004).

In addition, the clinicians' resources highlighted SAMHSA's guidance for trauma-informed approaches. These included specific information on building resilient and trauma informed communities. This, in particular, is critical as communities recovering from natural disasters are in a vulnerable position and those effected may be more susceptible to mental health conditions (Afifi, Felix, & Afifi, 2012). Lastly, the clinician toolkit included information on protection from vicarious trauma and compassion fatigue. As support is provided to disaster victims, counselors are susceptible to experiencing disturbances in mood, unsettling or traumatic dreams, sleep deprivation, or other personal disturbances (Rauvola et al., 2019). The toolkit directs clinicians to meditation resources, mindfulness activities, and guides them through the creation of a self-care plan that should be implemented as regularly.

## 3. Results

At this time, the project has been implemented for two years and one month (25 months). Although originally scheduled for 18 months, a one-year extension was granted due to the difficulties the Covid-19 pandemic caused. Results from each of the three focus areas are shown below.

### 3.1 Community Results

Through extensive outreach and coordination by the network's research assistants, a resource listing of over 17,000 providers was established across the 51 impacted counties within North Carolina. As linking underserved clients impacted by these disasters to mental health agencies and other services was a central aim of ADRMHRN, active participant recruitment occurred. Thousands of emails and phone calls were made to community partners with the request to disseminate program materials and the ADRMHRN helpline number within their agencies and communities. These materials described the scope of services provided, including funding to support these services, and shared participant incentive information. Despite this large number of requests, ultimately only 207 referral agencies responded by phone and email and agreed to share ADRMHRN program information. While most did not respond, some did not fully understand or trust that mental health services might be free of charge for clients in their communities.

Given that Mental Health First Aid (2022) had a slow conversion to online delivery necessitated by the Covid-19 pandemic, no trainings were conducted in the first year of implementation. Although still ongoing, approximately 35 individuals have been trained and certified across various communities from within the impacted counties on MHFA.

### 3.2 Practitioners and Service Providers

At the beginning of the project, two mental health agencies had partnered with ADRMHRN to provide counseling services to clients across the state. As the grant progressed, eight additional mental health and substance abuse service providers were added, all of whom pivoted to provide tele-mental health services. This was an unexpected change to service delivery but also increased the ability of local practitioners to serve those in each of the 51 counties. To date, approximately 1,040 client sessions have occurred and been fully or partially reimbursed through the project.

Demographic information of clients served is shown below, as is frequency of presenting symptoms.

Table 1. Demographic Characteristics of Clients

|  |  | N | % |
|---|---|---|---|
| Sex | Male | 31 | 29.5 |
|  | Female | 58 | 55.2 |
|  | Other | 16 | 15.2 |
| Race | Black / African American | 48 | 45.7 |
|  | White / Caucasian | 17 | 16.2 |
|  | Hispanic / Latino | 15 | 14.3 |
|  | Multiracial | 6 | 5.7 |
|  | Other | 19 | 18.1 |
| Marital Status | Married | 26 | 24.8 |
|  | Single | 56 | 53.3 |
|  | Engaged | 2 | 1.9 |
|  | Living Together | 3 | 2.9 |
|  | Divorced / Separated | 6 | 5.7 |
|  | Widowed | 2 | 1.9 |
|  | Missing Data | 10 | 9.5 |

Description: Demographic characteristics of clients served

Table 2. Self-Report Mental Health Symptoms Among Clients.

|  | N | % |
|---|---|---|
| Anxiety | 74 | 70.5 |
| Appetite Issues | 41 | 39.0 |
| Avoidance | 53 | 50.5 |
| Crying Spells | 38 | 36.2 |
| Depression | 60 | 57.1 |
| Excessive Energy | 14 | 13.3 |
| Fatigue | 52 | 49.5 |
| Guilt | 52 | 49.5 |
| Impulsivity | 34 | 32.4 |
| Irritability | 53 | 50.5 |
| Libido Changes | 26 | 24.8 |
| Loss of Interest | 46 | 43.8 |
| Panic Attacks | 32 | 30.5 |
| Racing Thoughts | 56 | 53.3 |
| Risky Activity | 9 | 8.6 |
| Sleep Changes | 52 | 49.5 |
| Suspiciousness | 28 | 26.7 |

Description: Frequency of client self-reported mental health concerns

*3.3 Workforce Development*

Disaster behavioral health best practice information was freely available upon request to any interested clinician and also distributed both in-person and electronically at two large counseling conferences. Clinical, rehabilitation, addiction, and school counselors were specifically identified as practitioners who could benefit from this information and who could also increase program participation via referral. Counselor educators who train the workforce of counselors were also targeted. It is estimated that approximately 400 toolkits were disseminated to clinicians.

To help prepare the next cohort of clinicians and ensure a larger and sustainable impact related to disaster response, a graduate level course, Disaster and Crisis Behavioral Health, was developed and launched. The main objective of this course was to apply concepts, competencies, and SAMHSA best practices related to crisis and disaster response. Topics covered included the role of the counselor, understanding the impact of disasters, communities of support, disaster preparedness, crisis assessment and treatment, advocacy and social justice, ethical and legal concerns, crisis counseling, the impact of trauma and vicarious trauma, and counselor self-care. To date, 14 counseling students across various specialty areas have completed this course with additional students scheduled to enroll in subsequent semesters.

## 4. Discussion

While this project is still ongoing, it has ultimately proven to have met its original goals. Admittedly, the numbers served were lower than expected, but this was largely due to the longstanding impact of the Covid-19 pandemic which included unprecedented disruptions within every population, industry, and sector. While individuals who might not have otherwise received behavioral health services were able to access these at reduced or no cost, the information gained from implementing this disaster response methodology is perhaps the most significant accomplishment. Even though this project was challenging to implement within the confines of existing university and community structures, it was

possible to create meaningful community engagement and impact.

Other notable accomplishments of this project include the percentage of clients served from underrepresented populations. Almost half of the clients who received counseling treatment were Black or African American and 15% were Hispanic or Latino. These numbers were surprising but also support the idea that university community partnerships with a minority-serving institution could lend credibility to the effort and also help to destigmatize help-seeking. In addition, the most commonly reported disorders were anxiety and depression, along with symptoms such as racing thoughts, avoidance, sleep disturbances, guilt, and fatigue. This is consistent with previous research that identified these as the most common responses following a disaster or trauma (DHHS, n.d., Harville et al., 2018).

As previously mentioned, the biggest challenge of this project was the Covid-19 pandemic as both the project and the pandemic began in April 2020. Almost immediately, university and state mandates related to in-person tasks and building occupancies meant that project implementation had to be accomplished virtually. The lack of in-person support and the transition of functions which were previously paper-based caused substantial delays to the project with ordering equipment, recruiting and hiring clinicians, and procuring project administrative support. Additional delays with processing, production, and shipping (computers, tele-mental health software, etc.) at the national level caused by the pandemic also contributed to a slower than expected implementation. Although originally conceived as a blended online and in-person project, the entire project was ultimately executed via tele-mental health, online learning, and other distance modalities. This was a great challenge, but also a success of the project, because even though this transition was unexpected, each planned activity was able to proceed. The online nature of all services provided meant that the barrier of distance was not encountered and the sustainability of this project was increased through the maintenance of a virtual, versus in-person, space. However, many clients, particularly those from underserved communities, were less comfortable with receiving these types of services online given additional mistrust and lack of comfort with online platforms.

Another significant limitation of this project was establishing a meaningful presence in 51 different counties, particularly during an implementation period that coincided with the Covid-19 pandemic. Local agencies that served clients struggled to provide services that were typically in-person and many support and referral agencies closed either temporarily or permanently. Connecting with these community providers was exceedingly difficult as many did not have functional websites and/or did not respond via email or phone and were therefore unable to either receive or send client referrals to the network. Therefore, the strategy of emailing or calling providers and resource partners was ultimately not effective. So, while funding was available to help these potential clients, getting them connected to ADRMHRN proved much more difficult than anticipated which resulted in a slower than expected funding dispersement schedule. While the extensive network was created, the number of callers seeking mental health services was less than expected. Many potential clients voiced disbelief that services could be accessed at low or no cost rates or struggled to complete the necessary intake steps. This skepticism, combined with the lack of in-person counseling, likely was a deterrent to potential clients. These difficulties were further highlighted even after clients called the helpline as client communication/connectivity issues frequently arose from most accessing services via cell phone making screening documentation completion more difficult.

A third significant limitation emerged with Spanish-speaking clients. While there were providers in the network who were able to provide services in Spanish, getting these clients connected to these services was exceedingly difficult. ADRMHRN clinicians were not fluent in Spanish so translators had to be utilized which added further cost and scheduling complications. In many cases, these clients required an advocate to guide them through the required intake paperwork and to overcome general mistrust of the process. These language challenges were a significant limitation and led to decreased success with continued service and subsequent follow-up for Spanish-speaking clients.

### 4.1 Summary

It is known that in the immediate aftermath of a natural disaster, there is generosity of individuals, civic and faith organizations, and governmental support. However, the long-term aftermath of a natural disaster results in an ongoing slow recovery. As such, long-term negative effects emerge in those impacted by the disaster. It is not uncommon to see complex PTSD, increased rates of cardiovascular conditions, and an increase in suicide attempts/ideation (Baum et al., 2019; Lee et al., 2020; Zuromski et al., 2019). These negative impacts were coupled with the effects of the COVID-19 pandemic which occurred just as many clients were getting stabilized after the hurricanes. "Exhaustion, depression, and hopelessness are increasing, especially as the economic crisis causes setbacks for survivors just when they have started to make gains" (Webber et al., 2005, p. 33).

When economic crises arise in the aftermath of disaster, there is an increased need for community-based services. The need for continued mental health services could not be more pressing for the community of clients being served. Counseling interventions tend to be more effective when they are community based (Bruce et al., 2002). "If counselors

assess and continually reassess the needs of a community, their interventions are more likely to be culturally appropriate, well timed, and specifically targeted to meet community needs" (Webber, Bass, & Yep, 2005, p. 34).

It is also encouraged that counselors advocate for themselves to be part of the system-wide recovery planning process within the community. Providing psychoeducation to community leaders will help to build trust within a community to help those in need feel comfortable enough to seek services (Baldwin & Poje, 2020). Collaboration with medical providers, housing, criminal justice, and other community relief organizations is key to the holistic, long-term recovery of a community after a natural disaster.

### Acknowledgements

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