SEEING MORE CLEARLY: COMMUNITIES TRANSFORMING TOWARDS JUSTICE IN POST-HURRICANE PUERTO RICO

Isabel Unanue*, Sita G. Patel*, Teceta Thomas Tormala*, Carlie D. Trott**, Angely A. Piazza Rodríguez*, Kyara Méndez Serrano* and Lisa M. Brown*

This study explored how a process of community transformation emerged in post-hurricane Puerto Rico. Most post-disaster research focuses on community and personal losses while little is known about strengths and positive outcomes. In the aftermath of Hurricanes Irma and María in 2017, vast structural injustices in Puerto Rico were made visible. Government aid for recovery was insufficient. Further, small, socioeconomically challenged communities received aid months after the main metropolitan area. In the midst of this collective trauma, accounts arose of transformative initiatives promoting climate justice and participatory democracy emerging across Puerto Rico. In this grounded theory study, residents from different communities in Puerto Rico (N=69) shared their post-disaster experiences. Results revealed a phase-based theoretical model of post-disaster community transformation. After experiencing collective trauma(s) — including both natural disasters and unjust delivery of recovery aid — community residents unanimously reported helping one another. In communities where leaders' vision extended beyond reconstruction to pre-disaster levels, a process of transformation began. A series of psychological mechanisms facilitated or inhibited this process. Facilitators included a sense of community, posttraumatic growth, and critical consciousness. Barriers included leader burnout and interpersonal tensions. Community psychologists who are committed to climate justice issues can play a key role in strengthening post-disaster community transformation efforts through research, policy, and programming.

Keywords: transformation, posttraumatic growth, climate change, community psychology, Puerto Rico, critical consciousness, emergent disaster communities

1. Introduction

In their wake, disasters tend to unveil the injustices that in day-to-day life often remain invisible. This was the case in Puerto Rico when in September 2017, two hurricanes struck the island within a two-week period. Hurricane Irma, a category-5 storm, skirted the north side of the island while Hurricane María, a category-4 storm cut directly across. These two storms caused devastating and wide-spread destruction, and worsened an already difficult political and socioeconomic situation, including socioeconomic contraction (20% over 10 years), and significant income inequality, such that half the country's wealth is held by 20% of its citizenry (Cortés, 2019; Instituto de Estadísticas de Puerto Rico, 2018). When Hurricane María made landfall, Puerto Rico was over 70 billion dollars in debt and the island's water, road, and electricity infrastructure was already in a vulnerable state (Martínez-Otero & Seda-Irizarry, 2015). In the tumultuous months following the

^{*} Palo Alto University, California, USA

^{**} University of Cincinnati, Ohio, USA

hurricanes, the injustices undergirding Puerto Rico's precarious economic situation were fully unveiled. For example, lower-income rural towns received electricity months after affluent urban ones, and Puerto Rico's colonial relationship with the United States led to significantly less federal aid than hurricane affected states such as Texas (García-López, 2018). Nine days after category-4 Hurricane Harvey made landfall in Texas in August 2017, FEMA granted \$141.8 million in aid to the state. In contrast, Puerto Rico only received \$6.2 million in federal aid after María (Viniki, 2018). The unjust distribution of financial aid inspired the saying, "Hurricanes are natural, disasters are political."

Bereft of amenities and adequate aid, some local communities took power into their own hands. Journalists began to report that community-led initiatives were developing across the island (Klein, 2018). Residents distributed supplies, created communal meals, cleared debris, and rebuilt structures (Tormos, 2018). Small-scale, local initiatives began to form in the hurricane aftermath (Serrano-García, 2020). Over a dozen Mutual Aid Centers ("Centros de Apoyo Mutuo; CAMs") came into existence (Vélez-Vélez & Villarrubia-Mendoza, 2018). Several of these CAMs transformed abandoned schools into supply and meal distribution centers. After the immediate critical phase, they developed long-term, strategic initiatives in education, wellness, solar energy and sustainable agriculture (Klein, 2018; Vélez-Vélez & Villarrubia-Mendoza, 2018) with the goals of promoting equality and citizen empowerment. Given that the shared values of these initiatives align with community psychology competencies (i.e., empowerment, capacity building, advocacy), understanding the emergence and maintenance of these social justice initiatives can serve as a powerful tool to hone community psychology practice to enhance short- and long-term functioning of affected communities following catastrophic weather events (Prilleltensky, 2014; Riemer & Reich, 2011).

Most post-disaster research emphasizes the destabilizing and devastating outcomes of disasters for communities, especially those most vulnerable and least likely to fully recover. Less is known about how communities come together to provide support and mutual aid under these circumstances. Still rarer are studies that document the transformative potential of these emergent disaster communities over time. The present study addresses this gap by: (1) examining the process by which communities transform; and (2) defining the role community psychologists can play as allies following catastrophic weather events.

2. Literature review

2.1 Transformation and climate change

The "islands of 'self-sufficiency" that emerged in post-María Puerto Rico are captured by community psychological theory and research on the process of *transformation*, which explores how to create equitable systems that promote distributive and procedural justice (Prilleltensky, 2014). Proponents of transformation claim that the majority of mental health interventions promote ameliorative rather than transformative change (Evans et al., 2007). Ameliorative interventions treat downstream consequences of problems, but not the underlying unjust values, assumptions, structures, and power relationships that contribute to and sustain problems. In contrast, transformation addresses root causes to dismantle oppressive systems that create and reify injustices (Prilleltensky, 2014). The four foundational goals of social transformation are capacity-building, group empowerment, relational community-building, and culture-challenge (Maton,

2000). Community initiatives in Puerto Rico showcased elements of this by challenging inequitable, unsustainable practices, and building community (Klein, 2018).

Very little psychological research provides theories or mechanisms to explain the intra- and inter-group processes leading to transformation post-disaster (Ntontis et al., 2018, 2019). Sociologist Charles Fritz (1961) explored the emergence of post-disaster communities, which he described as a "community of sufferers." He posited that in the absence of regular day-to-day amenities during a shared calamity, group members aid one another materially, and emotionally develop "mechanisms of social therapy" (Fritz, 1961). Building on this research, social psychologists Ntontis and colleagues (2019) recently explored "emergent disaster communities." Drawing from principles of social identity theory, they proposed that emergent disaster community members come together because of their unique shared identity as disaster survivors. After collectively experiencing a hurricane, individuals go from a "me" to a "we" mentality at a cognitive, relational, and affective level. In both studies (Fritz, 1961; Ntontis et al., 2018, 2019), communities' union eventually fades as amenities return and other identities take precedence. From a community psychology lens, post-disaster heightened unity is best understood by the concept of "sense of community." "Sense of community" refers to a shared feeling of connection and bondedness, including mutual concerns and values, between group members (Norris et al., 2008). Although research on sense of community in disaster contexts is limited, researchers have found that it can be a positive predictor of disaster preparedness and at times increase after a natural disaster (Cox & Perry, 2011; DeYoung & Peters, 2016). To date, little research has explored how sense of community can serve as a foundation for sustained transformation post-disaster.

Pelling and colleagues (2015) explored how extreme climatic events can propel transformative measures to address climate change. In contrast to policies that either resist changing systems or present certain incremental changes (e.g., marginal changes in infrastructure), transformative adaptation strategies promote non-linear change, challenge business-as-usual, address structural and root causes of vulnerability, and promote societal justice and sustainable development (Pelling et al., 2015; Prilleltensky, 2014). In a 2007 study in Mexico City after category-5 Hurricane Dean, Pelling & Manuel-Navarrete (2011) found that new decentralized forms of governance developed. In one rural settlement, alternative discourses promoting local community governance and sustainability emerged. However, with time, the dominant discourses promoted by the government, focused on unsustainable tourist development, overpowered the novel ideas arising from community-led efforts.

2.2 Transformation, trauma, and social justice

Informed by their post-Hurricane Dean research, Pelling and Manuel-Navarrete (2011) argued that natural disasters give rise to conscientization. Originally defined by Freire (1977), conscientization, or critical consciousness, arises when historically oppressed populations become aware of their unjust social, political, and economic realities. In parallel, Serrano-García (2020) has similarly stated that community activism in Puerto Rico after the 2017 hurricanes is illustrative of growing conscientization. It is for this reason that changes in both of these different post-hurricane settings cannot be attributed solely to resilience. After Hurricane María, many spoke about Puerto Ricans' remarkable resilience; however, this term was most often used in a decontextualized, apolitical manner (Serrano-García, 2020). Resilience is most often understood as a process of "bouncing back" to one's normal state despite considerable adversity (Luthar et al., 2000). The decontextualized use of this term can place the onus of responsibility for recovery on disaster-affected people and be used as a governmental rationale for withdrawing or withholding

financial aid. In Puerto Rico, critics stated that resilience is best seen as resistance and should be rightfully called "critical resilience", a term that integrates the presence of an unjust context that is being responded to by the people (Lamba-Nieves, 2018; Serrano-García, 2020). In contrast to resilience, transformation clearly implies a change from pre-existing conditions and a response to the root cause of suffering.

Studies on posttraumatic growth (PTG) more adequately inform the emergence of post-disaster community transformation than resilience research. Interestingly, when Tedeschi and Calhoun (2004) first coined the term PTG, they sometimes used the term "transformation of trauma." "Posttraumatic growth (...) has a quality of transformation, (...) unlike the apparently similar concepts of resilience, sense of coherence, optimism, and hardiness." (Tedeschi & Calhoun, 2004, p. 4). PTG refers to the positive changes that occur as a result of struggles with highly challenging life circumstances (Tedeschi, 1999). At an individual level, PTG occurs along five dimensions: enhanced appreciation for life, more meaningful interpersonal relationships, a heightened sense of personal strength, a change in priorities, and a richer spiritual and existential life. A growing body of research suggests that PTG occurs in post-disaster settings (Jin et al., 2014; Manove et al., 2019).

In contrast to critical consciousness or critical resilience, PTG studies have not centered on issues of social justice and equity. However, a burgeoning body of research on collective PTG includes the posttraumatic emergence of equitable, compassionate relations following traumatic events (Wlodarczyk et al., 2016, 2017). Recent theory posits that collective PTG may encompass communal and societal dimensions, where the communal dimension refers to one's community becoming more integrated and collaborative following trauma, while the societal dimension refers to the capacity for a society to become more motivated to move towards justness and fairness. These dimensions of collective PTG are consistent with community psychology's definition of transformative change (Prilleltensky, 2014). Natural disaster survivors in Spain, Chile and Colombia (n= 540) were recently found to exhibit PTG at individual, community, and societal levels (Wlodarczyk et al., 2016).

Theorists attribute individual and collective PTG to the challenging of previously-held assumptions and the development of new ones that align with the posttraumatic reality (Janoff-Bulman, 1992; Martin & Tesser, 1996). The process of revising assumptions is similar to rumination, in that the person is thinking about a specific event continuously and trying to make sense of it given the new set of circumstances. In PTG, however, the thought cycle reaches a resolution. Rather than a cycle of negative thoughts, the person acquires novel perspectives and a meaningful narrative for the posttraumatic reality (Martin & Tesser, 1996). Following this logic, traumatic events could present an opening to adopt novel socially-shared discourses. Of importance for this study, conscientization, like PTG, can be seen as a shattering of one's assumptive reality with a focus on developing sociopolitical awareness. Critical consciousness arises when people are granted a sociopolitical framework through which to understand their present unjust reality.

In sum, very limited psychological research has explored how transformation can arise at the community-level after the aftermath of disaster. This study meaningfully adds to our understanding of community psychological processes of transformation by exploring how it emerges in the wake of a catastrophic event. In parallel, it adds to our understanding of PTG by exploring how, after an episode of collective trauma, community residents move towards just processes. Generating knowledge on post-disaster community transformation can better equip community psychologists to meet current and future challenges presented by climate change. Using a grounded theory methodology, the present study explores these short- and long-term processes in post-María Puerto

Rico—namely how emergent post-disaster communities came into being, and what supported and challenged the sustainability of longer-term transformation processes.

3. Methods

3.1 Participants

The study included 69 Spanish-speaking, Puerto Rican residents and community leaders, over 18 years of age. Of these, 40 were female (59.7%), 28 were male (50.9%), and 1 transgender/non-binary (1.4%). Ages ranged between 20 to 75 (M=49).

3.2 Procedure

After receiving institutional review board approval from Palo Alto University, in-person interviews were conducted in Puerto Rico between July and August of 2018. Using grounded theory methodology, recruitment employed theoretical sampling (Draucker et al., 2007), a purposive method in which participants are selected based on their ability to inform the emergent theory. As data was collected, the investigator identified meaningful categories that needed to be further explored to understand how they fit within the emergent theory. A category stopped being explored when it reached theoretical saturation, meaning there were no more properties of that category that needed to explored (Draucker et al., 2007). The first author, a native Spanishspeaking Puerto Rican with experience facilitating group therapy and focus groups, led recruitment efforts and conducted all interviews. Because the study focused on post-disaster community changes, residents from a diverse array of communities were interviewed. Through word-of-mouth and news reports, the interviewer identified and visited severely damaged, socioeconomically challenged communities. In some of these communities, post-disaster community-wide efforts were underway whereas in others, largely no efforts had taken place at the time of the study. Additionally, some individuals from Puerto Rico's main metropolitan area who led efforts in diverse rural communities were interviewed.

All interviews except one were conducted in Spanish. Participants were contacted over e-mail, phone, and by directly visiting their homes. Before being interviewed, participants completed an informed consent agreement that discussed the purpose of the study, risks and benefits of participating, and confidentiality policies. Participants also completed a form asking for basic demographic data (e.g., age, gender). Interviews were conducted in individual or group format, with groups ranging from 2 to 8 people. The investigator sought to interview people who were leading as well as not leading efforts to more fully capture community dynamics. The number of residents and leaders interviewed in each community is shown in Table 1. For the most part, the investigator interviewed one or two people at a time; however, on two occasions, community leaders organized residents for larger group interviews. The interview consisted of a series of questions to explore the emergent theory, were audio-recorded, and stored in a password protected secure database. While facilitating interviews, the investigator aimed to have each respondent participate. To make participants more comfortable, participants were assigned a code to deidentify their data.

Table 1. Interview composition

Location	Individual	Group	Residents	Leaders	Total
	Interviews	Interviews			
Community					
1	2	3	7	3	10
2	6	1	9	5	14
3	3	3	8	1	9
4	0	1	0	2	2
5	1	0	0	1	1
6	5	2	7	2	9
7	2	3	9	0	9
8	4	2	8	0	8
9	1	0	0	1	1
10	1	0	0	1	1
Metropolitan Area	3	1	0	5	5
Total participants			48	21	69

3.3 Grounded theory

Grounded theory analysis methods emphasize bottom-up approaches wherein the data drives the creation of theory (Rasmussen et al., 2016). The first phase of the data analysis is called substantive coding, which begins with open coding and ends with axial coding. For open coding, three Spanish-speaking investigators independently read a selection of the transcribed interview data line-by-line and developed as many codes or categories as possible. Each read at least one transcript from each community to be exposed to themes present across communities. Transcripts remained in Spanish to keep participants' messages as authentic as possible. Once this first round of coding was complete, researchers met to discuss their list of codes. Codes that referred to the same concept but were worded differently were collapsed into one another (e.g., "compassionate leadership" and "empathic leadership"). The final list of codes became the axial codes.

Axial codes should be specific enough to capture nuance in the data while also remain broad enough to be applied to the entirety of the dataset (Rasmussen et al., 2016). The three investigators independently coded the data with a list of axial codes and their definitions. After coding 10% of the transcribed data, the investigators met to ensure interrater reliability and assure having the same definitions. The remaining 90% of the data was then coded with updated definitions.

During the axial coding process, investigators were invited to engage in memoing, or taking notes while coding (Rasmussen et al., 2016), which is a crucial step in transitioning from substantive to theoretical coding. After investigators coded a category a number of times, ideas related to that category surged. Annotating these ideas throughout lead to a smoother, richer theoretical coding process.

In the final stage of analysis, theoretical codes were developed (Rasmussen et al., 2016). Theoretical codes were derived from the overlap between substantive codes and categories emerging from memos. This form of coding is distinct from substantive coding in that it is used to develop a testable theory. To generate theory, the three investigators created slips of paper with

each substantive code and memo. They met and piled codes that are conceptually similar, in effect developing theoretical codes. Afterwards, theoretical codes were spatially arranged so as to explore the relationship between them. From this process, we completed the first step toward developing a theory.

4. Results

The results of this study informed the development of a theory to explain community transformation in post-hurricane Puerto Rico. The theory posits that after an extreme climatic event, a period of community collaboration emerges. In some cases, this emergent collaboration catalyzes longer-term transformative community efforts while in others, the community returns to its normal pre-hurricane functioning. The presence of visionary leadership was found to be crucial for transitioning to an enduring transformative process. The phase-based theoretical model of community transformation is illustrated in Figure 1. In addition, the data revealed a number of potential facilitators and barriers to community transformation. These are presented in the box to the right of Figure 1. Those that are bolded are mechanisms of a psychological nature. Each phase of the theory with its supporting qualitative evidence is described along with the potential presence of various mechanisms.

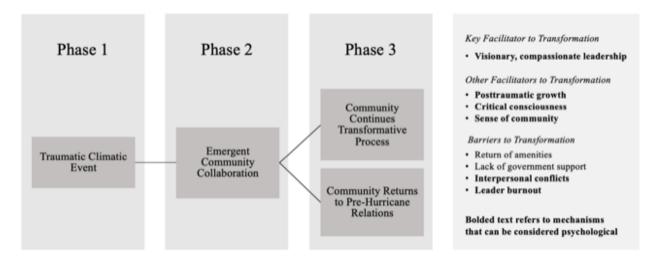


Figure 1. Phase-based theoretical model of post-disaster community transformation

4.1 Phase 1: Traumatic climatic event

Underlying post-disaster community-building and transformation were shared experiences – both physical and psychological. Participants experienced profound material and emotional losses as a result of Hurricanes Irma and María. Their homes were severely damaged, and electricity and water were nonfunctional for months. In these conditions, health issues worsened. The natural disaster sequelae led to emotional difficulties and mental health issues.

Furthermore, almost all residents reflected on their deep disillusionment with the federal and local governments' response. Study participants shared that government aid sometimes arrived

weeks late, and utilities took months to reinstall. One 54-year-old mother who spent seven months without electricity commented, "the government should have helped the neighborhoods a little more because neighborhoods are sometimes forgotten. And this neighborhood is very forgotten."

A 28-year-old activist who became active in relief efforts outside of the capital region described his arrival to a small community in the central mountainous region,

I remember that what was most present was a sense of disappointment because (...) when we arrived 17 days after María, the government hadn't really shown up (...) The people here expected that the government would respond as it had in other moments (...) that it would assume its responsibilities of taking care of the town (...) They couldn't believe that 17 days later they still hadn't (...) there were people that said that it was as if society had disappeared.

The two above quotes illustrate how people's assumptions of governmental aid were shattered. Residents dealt with the devastation of two catastrophic hurricanes that was compounded by an unresponsive government and social injustices. The nature of the trauma is important to consider to better comprehend the development of posttraumatic growth.

4.2 Phase 2: Emergent collaboration

All study participants stated that residents came together in the aftermath of the disaster. This collaboration arose almost immediately after the hurricane due to the need to survive and share material goods with each other. Community residents often reported meeting neighbors whom they had never met before. The following comment from a 23-year-old female illustrates this phenomenon,

Four hours after the hurricane, we already formed a group and we quickly cleared roads of debris, and I met people who I would tell myself, "I didn't know she lived here." Or, I would ask my parents, "Who is she?"

Needing to rely on one another, residents developed systems to rebuild, feed, and aid neighborhood residents. One 50-year-old man described this support system, "we sought and helped one another out. – 'Hey, do you have water?' 'I have water.' 'Look, I have two or three ice cubes if you need them.' Whoever didn't have anything to eat, we'd find them food."

In the process of developing mutual support systems, community residents described forgetting previous conflicts, and developing a shared group identity and heightened sense of community. The previous respondent explained, "you're my neighbor, it's not that I don't have differences from my neighbor, but we all search and help one another out." Echoing this sentiment, a 61-year-old female reflected on helping a neighbor she previously had issues with,

It might be that this neighbor, with her, we had a major clash, we didn't talk to one another, but this problem hurts, this situation with the hurricane (...) I had to go up to her because she had a problem and help bring her supplies. I had to forget about my personal problems with her, or her with me (...) and help her.

The dissolution of group identities was accompanied with a reported rise of feelings of altruism, compassion, and empathy. A 49-year-old male respondent compared Hurricane María to "a jolt for people to reflect and feel, feel more love for one another and help one another." Being a part of these novel community efforts, by delivering or receiving support, was described by many as materially and psychologically beneficial, on more than one occasion being described as "mi terapia" [my therapy]. Individuals shared that by mutually aiding one another, they witnessed others' suffering, gained perspective of their own situation, and were stirred into action. In their interviews, residents shared dimensions of individual and collective PTG: developing more meaningful interpersonal relationships, a heightened sense of personal strength, gratitude for life, shifting priorities, a richer existence, and their community becoming more unified (Tedeschi & Calhoun, 1996; Wlodarczyk et al., 2017).

Another way by which a sense of personal strength and shift in priorities could be seen was through the emergence of new leadership. Some leaders were activists involved in social justice efforts before the hurricane who took leadership roles in severely impacted neighborhoods. Others were already leaders in their respective towns and still others were community residents who rose to leadership positions to assuage people's suffering. The following quotation by a 50-year-old English-speaking US male veteran highlights this transition into community leadership, in which he describes his feelings walking through debris shortly after the hurricane,

It reminded me of being in a battle zone. When you get somewhere (...) and you look at everything and you go, "Wow, this is not even recognizable and this is where I live." And to see my next door neighbor (...) her face (...) she looked devastated. She motivated me right then and there causes she said, "What do we do now?" (*Interviewee begins to sob*) (...) Sorry. And, ugh, I told her, I told her, "We're going to get better. We're going to be better than before." Every time I saw a face that had that look, I got a little stronger (...) And I just, I hope that they feel that. And they do. They tell me, you know, they tell me that they're so glad that I'm there (...) that there's some motivation because they need it.

The widespread rise in leadership post-Hurricane María was described by participants as emblematic of compassion, love, and a genuine desire to help others. In the words of a 30-year-old female leader,

Even though I am doing this work as a volunteer, (...) working in this community voluntarily is something that satisfies me because I do it with love, not expecting that they pay me or anything like that. When one works with love, you see the satisfaction that comes when you see that people are happier (...) when you see faces of satisfaction, of happiness and (...) one becomes proud seeing people like that.

A common belief among residents was that the leadership that had arisen had a positive impact on communities, not only on a physical reconstruction level but on an emotional level as well. One female, whose neighborhood suffered significant damage, described the group of individuals assisting her community as "a ray of hope (...) [that] showed us that this was all of ours." Most residents stated that their community had never experienced the unity nor leadership that it did post-Hurricane María. According to residents, this leadership was fueled by compassion and steered by a commitment to social justice. Participants frequently contrasted this form of leadership to the government leadership to which they were accustomed. As a 73-year-old man,

who suffered from significant home damages and did not have electricity for 10 months, put it, "all for me, all for me. That's what governments are like (...) they think we're puppets, that they can manipulate us." In the following comment, a 28-year-old male compared the support he received from volunteers to the government's,

[Volunteers] did this out of heart, with no [vested] interest. What they gave, they gave with love. It affects you emotionally because you see that there are people who are making sacrifices to be able to offer help to neighborhoods that are truly in need when the government should be doing this.

The emergence of community collaboration and the creation of new shared spaces, including community centers and gatherings, led to novel insights and a sense of agency. A 23-year-old female participant highlighted this,

The awakening that the country has had, clearly, has not only been in [name of town], nor in this community, but in all of Puerto Rico. It is clear that since the government doesn't do anything, we are going to do it.

A few participants also shared new insights about environmental responsibility. They mentioned how they have learned about the importance of food sovereignty, sustainable energy, and recycling. A 34-year-old female participant stated, "Before I would go to the beach (...) , I could leave trash and I did not care, but not anymore. We have to begin to recycle so that planet earth can breathe and stop going through these events."

In this phase, residents showed heightened critical consciousness and empowerment. They expressed becoming critically aware of government limitations, the intentionality behind leaders' motives, and societal inequities. Importantly, even though community residents expressed criticism of the local and federal government response, they barely mentioned Puerto Rico's colonial relationship with the United States.

Despite not directly speaking to this relationship, people embodied conscientization through mastery over their own community's reconstruction process. From this space of collaboration and empowerment, the ground for community transformation became fertile. A 32-year-old male from the metropolitan area who began leading initiatives in a severely impacted community explained this,

And that there was this community movement of people helping one another, creating spaces, taking over an abandoned space (...) seeing that they could demonstrate to one another that they had the capacity to help one another (...) that played a lot, a lot in our ability to make these projects, of transitioning from relief supply distribution to a project of educational, cultural, and recreational development.

4.3 Phase 3: Community transformation or a return to pre-hurricane conditions

The study sample included communities where initiatives that began post-María transformed into larger social justice-informed education, agriculture, and wellness efforts. It also included communities where there were no additional initiatives and community relations had mostly returned to their pre-hurricane state. In each community where initiatives remained, there were leaders who held a vision that went beyond reconstruction. However, even with new leadership,

most residents described the return of electricity and amenities as an obstacle to maintaining collaborative post-hurricane unity. The following comment by a 41-year-old female illustrates this, "after the hurricane passed, cellphones had no signal, so everyone was calm. They spent time with one another (...) they sought one another out. Eh, afterwards (...) it changed again, because by having signal again (...) they returned to the same thing again."

Participants also believed that with the return of pre-hurricane relations, former intergroup and interpersonal tensions arose. In the words of one 26-year-old female community resident, "yes, while the hurricane [aftermath] passed, they were all united, there were no quarrels (. ...) Now, they are more separated, you're in your house, and you do whatever you want, and others do whatever they want."

As interpersonal issues resurfaced, some leaders described needing to work in mediation and conflict resolution. Numerous leaders indicated that before becoming active in communities organizing post-hurricane, barely no sense of community existed among residents and many interpersonal issues were present. As explained by a male who led efforts in a small socioeconomically challenged community, "one very important point to touch upon is the psychological element of the community and that there were many internal family conflicts. Various internal conflicts between family members in which they did not get together with one another." Leaders described how these issues began to resurface after the initial integrative phase. The same leader described having to mediate,

Like three or four weeks ago, there was a situation in the community that [a female neighbor] said, "I am not going to deal with this anymore, they are ungrateful down there, they are talking about me and my daughter behind our backs." (. ...) And we turned out being the people who had to go balance out the situation and provide emotional support.

Leaders described dealing with interpersonal issues as stressful and as a threat to the maintenance of collaboration. A female leader expanded on the negative impact emotional interpersonal conflicts can have on maintaining community-wide movements,

These small things, which really aren't so small because they are our emotions, hinder and prevent greater and more meaningful steps towards those processes because we need to stop to see how we're going to deal (...) If we had emotional intelligence or tools that we'd know how to use at the moment, we wouldn't reach these [critical] levels that when they add up one by one, break the project.

In addition to interpersonal conflicts, residents mentioned that conflicts with local government often threatened community projects. In one community with significant hurricane damage including no electricity for over 5 months, leaders transformed an abandoned school into a supply and community cultural center. After it had been established, a 49-year-old male shared how the government attempted to thwart these efforts,

Fifteen years this has been here, how do you say, abandoned, you know? And after 15 years, they [the local government] becomes interested and say that they need to evict us or that we need to leave because they want to do (...) something with this. That is not fair, for me, I believe that is not fair.

Similar objections were raised throughout communities. In the worst cases people expressed not wanting to collaborate out of fear that the government would withdraw aid.

The combination of interpersonal tensions, issues with the government, and almost total lack of funding gave rise to stress and burnout among some activists and leaders. They shared that as a result, they were having difficulties addressing challenging internal work dynamics and maintaining community efforts. As described by one male activist, "Now we're at an impasse, where we're trying to have spaces survive what is the worst part of the crisis, that we are all fucked up, not only economically, but also psychologically because we have had no rest." Activists and leaders experiencing burnout shared feeling worried because their optimism and commitment is key to the maintenance of community efforts. As expressed by one 36-year-old female activist who led brigades across the island,

I am an extremely optimistic and positive person, yet I do not feel the same optimism that I felt the first months after María (...) and that worries me a lot, because I get really worried about whether we will be able to put everything we learned after María into practice, and if we will have time to heal the wounds that come generations before us, (...) opportunities to develop solidarity and to create community, (...) because sometimes one has to have their whole house blown away to see more clearly, but I also feel that there is a time pressure, and at the same time, there are many other [vested] interests that are not concerned with Puerto Ricans' well-being.

For leaders, Hurricane María presented a unique opportunity to address socioeconomic disparities and issues that preceded the natural disaster. However, as obstacles mounted and life returned to its pre-hurricane conditions, they reported feeling that the window was closing. To address burnout, the same male activist mentioned above suggested, "The key is developing a psychology and perspective of self-care that is Puerto Rican, that is not imported from outside, because our social reality is not the same".

5. Discussion

To the best of our knowledge, the present study is the first psychological study on post-disaster community transformation. The study's qualitative results inform the development of a phasebased theoretical model (See Figure 1) and underscore the practical role that community psychologists could play in the wake of natural disasters. The theoretical model aligns with previous research on post-disaster community changes from sociology (Fritz, 1961), geography (Pelling & Manuel-Navarrete, 2011), and social psychology (Ntontis et al., 2019) in that an integrative phase characterized by mutual solidarity was present in the immediate post-disaster aftermath. In keeping with prior research (Fritz, 1961; Ntontis et al., 2019; Pelling & Manuel-Navarrete, 2011), communities were pulled back to pre-hurricane functioning as time passed and as amenities became operational. One important difference, however, is that many interviewed communities in Puerto Rico described how they transformed their emergent collaboration into longer-term initiatives (Serrano-García, 2020). Key to this transition to transformation was visionary compassionate leadership. Because community efforts promoted new just relations at the community level rather than simply returning to their pre-hurricane status quo, they represent the beginning of transformation. These results suggest a reasonable entry-point for community psychologists to amplify and ally with these processes through employing professional competencies in empowerment, capacity building, resource development, coalition development, and advocacy.

5.1 A theory on post-disaster community transformation

The present study's results add to the burgeoning community psychology literature on transformation by documenting how transformation can begin post-disaster at a community level (Prilleltensky, 2014). The term transformation is often used loosely and in inconsistent ways. Community psychologists Manuel Riemer and colleagues (2020) noted that transformation is only enacted when the way power is exercised in social, political, and economic systems changes. Since Puerto Rico's systems remained largely unchanged after the 2017 hurricanes, transformation can only be said to have begun or be in the process of occurring. At the same time, this study documented a shift in power from centralized governance structures to community residents, whereby immediately following the hurricane, the power to offer aid was unavoidably diffuse and immanently local. Even if only at the community level, it is important to highlight these initiatives given that what we enact at a small-scale often sets a pattern for larger scale endeavors (maree brown, 2017). Indeed, in a qualitative study on social transformation, Kivell (2018) found that activists and organizers often burn out because their vision of transformation is too large. Kivell (2018) advocates that changemakers reframe the size of transformation to sustain social justice movements.

Based on our data, the critical requisite for the maintenance of community-level transformative initiatives is visionary, compassionate leadership. The majority of interviewed leaders were activists and organizers before the hurricane while others naturally gravitated to leadership positions post-hurricane. In line with our findings, former research has found that leadership is essential for building and maintaining social movements (Ganz, 2010; Morris & Staggenborg, 2004). Importantly, some of this study's interviewees problematized the term "leadership" not wanting to take on leadership's usual connotation of "power over". Leaders stated that they did their work out of love, not for recognition. As documented by Rebecca Solnit, two kinds of "power failures" occur during disasters: one brings literal darkness, while the other—the breakdown of the current social order—brings "a reversion to improvised, collaborative, cooperative and local society" (Solnit, 2009, p. 10). Indeed, Ganz (2004) argues that leadership does not have to be associated with power over others, but with relationship. Organizing for social movements inherently entails relationship building (Trott, 2016). Leaders in this study took a "power with" stance and their leadership naturally arose from repeated exchanges with residents (Ganz, 2004; Halifax, 2018). Leaders can be viewed as facilitators or strategic decision-makers willing to assume responsibilities that benefit others (Morris & Staggenborg, 2002).

5.2 Facilitators and barriers to community transformation

This study additionally identified a series of mechanisms leading to the emergence and dissolution of post-disaster community transformation (See Figure 1). Although the predictive power of these facilitators cannot be measured due to this study's qualitative methodology, our findings suggest that sense of community, posttraumatic growth, and critical consciousness created fertile ground for transformative initiatives to take hold. Echoing previous studies, sense of community increased post-hurricane (Cox & Perry, 2011; Norris et al., 2008) in part because residents needed to rely on one another for survival. With greater awareness of their interdependence, residents reported appreciating neighbors they previously avoided or did not

know. Drawing from Ntontis et al.'s (2019) recent article on emergent disaster communities, heightened sense of community can be explained through social identity theory. According to this theory, in the immediate post-disaster aftermath, sharing a social identity, in this case that of a natural disaster survivor, facilitates collaborative behavior and community integration.

Posttraumatic growth (PTG) can likewise explain communities' transformation processes. Previous researchers have posited that key to PTG is the shattering of assumptions because faced with a difficult traumatic episode, individuals adopt novel perspectives that can explain the posttraumatic reality. In our results, participants spoke about five key individual-level dimensions: enhanced appreciation for life, more meaningful interpersonal relationships, renewed sense of personal strength, a shift in priorities, and a richer existential life. Additionally, participants mentioned the novel community collective-level PTG process that suggests that the community became more united and fair (Wlodarczyk et al., 2017). Previous research has not explored how collective trauma can catalyze transformation as it is defined in community psychology (Prilleltensky, 2014). Yet, our findings indicate that the post-traumatic shattering of assumptions paves the way for adopting novel socially shared discourses that are conducive to a more just society (Janoff-Bulman, 1992; Tedeschi & Calhoun, 2004).

However, participants did not endorse societal-level PTG, the belief that larger society is moving towards more just processes. On the contrary, the majority of participants shared their disappointment with the government's inequitable response. In their research on collective PTG, Wlodarczyk et al. (2017) found higher construct validity for the communal versus societal dimension of PTG. Wlodarczyk et al. (2017) explain that perhaps there is more communal growth because growth is more easily achieved in micro-networks. However, another lens through which to explain this phenomenon is that at the societal level unjust practices are often exercised in the post-disaster landscape. There has always been a debate amongst disaster theorists as to whether disasters bring out people's most selfish or altruistic qualities (Oliver-Smith, 1999). At the same time that ground-up initiatives were arising in Puerto Rico, the local government was inviting outside investors to take advantage of Puerto Rico's low tax rates, despite the immense suffering that the island was experiencing. Puerto Rico's social, economic and disaster crisis was framed as an opportunity for personal financial gain (Bonilla, 2020; Klein, 2018). In the wake of disasters, larger societal forces are often focused more on maintaining a status quo that promotes unsustainable, inequitable practices than on enacting transformative change (Pelling & Manuel-Navarrete, 2011). In line with this finding, our results show how the Puerto Rican local government often attempted to bypass efforts that sought to promote justice, wellness, and sustainability at the community level.

Our findings suggest that in Puerto Rico, collective PTG entailed developing critical consciousness. According to Tedeschi (1999, p. 334), PTG is "consciousness-raising that allows the past to become a resource and sets the stage for action against repetition of trauma." For Puerto Rican community residents, where government aid was slow to come and at times non-existent, avoiding the repetition of trauma involved shattering assumptions of fair governance and accepting the reality of societal and economic disparities. Having realized that they could not rely on their own government, community residents empowered themselves to be their own solution. Future studies can explore the relationship that exists between collective PTG, the development of critical consciousness, and the enactment of justice.

However, it is worth noting that although participants reported developing critical consciousness around the local and federal government's unjust practices, participants rarely spoke about Puerto Rico's colonial status. For Freire (1977), developing awareness of the exploitation

born out of unjust colonial relations, is essential to undoing the negative psychological impact of colonialism (Serrano-García, 2020). But even if participants did not outwardly speak against colonialism, they reported novel feelings of empowerment that are contrary to the feelings of self-doubt that are emblematic of the colonial mentality (David & Okazaki, 2006). The present study's data suggests that those active in community efforts can have an embodied sense of empowerment unaccompanied by a critique of colonialism.

5.3 Implications for community psychologists

Climate change projections estimate that natural disasters will increase in frequency, becoming 1-in-2 versus 1-in-20 year events by the end of the 21st century (USGCRP, 2019). Our results, as well as those of others, demonstrate that these events will be most impactful on vulnerable communities with low resources (García-López, 2018; Laska & Morrow, 2006). Despite the immense suffering that follows extreme climatic events, our study shows that in the midst of turmoil, a site of possibility emerges where transformative community initiatives can take hold. To avoid the potential disintegration of these efforts, community psychologists can ally, amplify, and partner with community leaders. Community psychologists' skills and competencies are ideal for strengthening and bolstering the transformative, decentralized efforts that are described in this study (Dalton & Wolfe, 2012). Their foundational principles of empowerment, inclusion, and ethical practice dovetail with communities' vision. Moreover, many residents compared community initiatives to "mi terapia" [my therapy] suggesting that post-disaster efforts were healing and therapeutic. Therefore, in the process of supporting community-led initiatives, community psychologists can exercise their professional goal of promoting mental health and community well-being (Society for Community Research and Action, 2020).

Community psychologists have made an urgent call to advance theory, practice, and research to meet the global climate crisis (Riemer & Reich, 2011). Although climate change presents immense challenges, attempts to address these challenges by community psychologists have been minimal. Having a clear vision of how to prepare and respond to extreme weather-related events is a powerful way to meet this call. This study responds to the specific call of advancing theory. Through continued dialogue and research, this theory can be honed and tested so as to make community transformation a more common reality. Additionally, our results indicate that there is a unique opportunity for community psychologists to advance climate change-relevant theory, research, and practice by allying with emergent disaster communities. Even though community initiatives were life-changing for many, our findings reveal that multiple barriers threatened their continued existence. In their roles as policy developers, educators, and researchers, community psychologists can support communities in overcoming barriers. Among the 18 practice competencies developed in 2011 (Dalton & Wolfe, 2012), this study's results point to several that can be employed in a context like post-hurricane Puerto Rico: Empowerment, Community Leadership and Mentoring, Resource Development, Collaboration and Coalition Development, Community Development, Community Organizing and Community Advocacy, and Community Participatory Research. Illustrating this, community psychologists can exercise their competency in Community Advocacy by developing policies that integrate research on how community networks emerge and strengthen post-disaster (Ntontis et al., 2019; Fritz, 1961). By taking into account group psychological processes, policies can propel governments to work with emergent transformative movements rather than against them (Drury et al., 2019). Community psychologists can also employ their skills related to Community and Social Change by helping communities

identify and carry out what cannot be accomplished alone, such as honing their vision to what leads to a healthy community.

Mental health efforts can be embedded into larger transformative community movements. According to Nelson and colleagues (2017), the most transformative mental health interventions should take a strengths-based approach and build on existing social movements. The few studies that have been conducted in Puerto Rico post-Hurricane María indicate that PTSD rates were over 50% (Ferré et al., 2018). Writing on advancing social justice through psychotherapy, Comas-Díaz (2007, p. 92) states that practitioners must "accompany the oppressed, bear witness, increase cultural consciousness, and promote change." The leaders that emerged in communities across Puerto Rico were enacting these very principles. Therefore, community psychologists, and mental health professionals more generally, can ally with said initiatives to advance healing where it is already happening. Psychoeducational tools on trauma and well-being can deepen the therapeutic components of community efforts. The most successful mental health initiatives would be those that are culturally-aligned, build on existing resources, and have community-wide impact (Comas-Días et al., 1998). Given that the amount of mental health resources have been found to never suffice in events of mass trauma (Wieling & Mittal, 2008), initiatives can draw inspiration from methods used in low resource settings such as task-sharing. Task-sharing refers to equipping nonprofessionals with skills to deliver health interventions (Singla et al., 2017). Additionally, our results suggest two other ways community psychologists could foster community transformation: by developing programs that address activist burnout and maintain the intergroup solidarity that emerged in the immediate aftermath of the hurricanes. Increasing attention is being given to activist burnout and how it threatens the sustainability of social movements (Cox, 2011). Contemplative practices such as mindfulness have already been found to lessen burnout symptoms (Gorski, 2015). Mindfulness meditation has also been found to lessen intergroup bias and increase feelings of compassion (Kang et al., 2014; Lueke & Gibson, 2015). If our intent is to address the root cause of the issue, introducing practices that reduce bias and increase compassion can extend the community solidarity that is so palpable in the aftermath of disaster.

5.4 Limitations and future directions

The current study has limitations that need to be addressed to contextualize findings. The most significant limitation is that the first author conducted all of the study's recruitment efforts and interviews. To mitigate potential bias, she sought to interview a varied sample and trained researchers independently analyzed the data. Nevertheless, there is an important experimenter bias given that the sampling was guided by the author's exploratory theoretical formulations. Future research should recruit more interviewers and recruit a larger, randomized sample. Secondly, with grounded theory, the resultant theory can only be considered substantive, meaning that it is context-specific (Glaser & Strauss, 1967). Our study found that in lower-resourced communities with visionary compassionate leadership, a process of community transformation initiated in post-hurricane Puerto Rico. A series of psychological mechanisms were also hypothesized to be present: PTG, sense of community, and critical consciousness. Future quantitative and qualitative research could test the reliability of our substantive theory and confirm whether hypothesized psychological mechanisms are present in other post-disaster communities.

6. Conclusion

The rising threat of climate change beckons us to transform. Our study results provide further evidence that natural disasters can propel transformative, healing community initiatives. From a psychological perspective, transformation at its core entails a shift in consciousness through the adoption of new, more useful ideas and beliefs (Skalski & Hardy, 2013). Across communities in Puerto Rico after the 2017 hurricanes, individuals' assumptions and worldviews were shattered as they came to terms with the powerful life-threatening impact of natural disasters and vast structural inequities. In the midst of this calamity, transformative initiatives arose that showed another way forward was possible. From a novel center, characterized by compassion, critical awareness and self-empowerment, residents began transforming their communities towards justice.

Acknowledgement

Our sincerest gratitude to Irma Serrano-García for her thoughtful and incisive feedback.

References

- Bonilla, Y. (2020). The coloniality of disaster: Race, empire, and the temporal logics of emergency in Puerto Rico, USA. *Political Geography*. https://doi.org/10.1016/j.polgeo.2020.102181
- Comas-Díaz, L. (2007). Ethnopolitical psychology: Healing and transformation. In E. Aldarondo (Ed.), *Advancing social justice through clinical practice* (pp. 91–118). Lawrence Erlbaum Associates Publishers.
- Comas-Díaz, L., Lykes, M. B., & Alarcón, R. D. (1998). Ethnic conflict and the psychology of liberation in Guatemala, Peru, and Puerto Rico. *American Psychologist*, *53*(7), 778–792. https://doi.org/10.1037/0003-066X.53.7.778
- Comisión para la prevención de suicidio. (2018). Estadísticas preliminares de casos de suicidio de Puerto Rico. http://www.salud.gov.pr/Estadisticas-Registros-y-Publicaciones/Estadisticas%20Suicidio/Febrero%202018.pdf
- Cortés, R. (2019). Se pierden los empleos "full-time". [Full-time jobs are lost]. *El Nuevo Día*, 4–5. https://www.elnuevodia.com/noticias/locales/notas/los-empleos-full-time-se-pierden/
- Cox, L. (2011). How do we keep going? Activist burnout and personal sustainability in social movements. http://mural.maynoothuniversity.ie/2815/1/LC How do we keep going.pdf
- Cox, R. S., & Perry, K. M. E. (2011). Like a fish out of water: Reconsidering disaster recovery and the role of place and social capital in community disaster resilience. *American Journal of Community Psychology*, 48(3-4), 395-411. https://doi.org/10.1007/s10464-011-9427-0
- Dalton, J., & Wolfe, S. (2012). Competencies for community psychology practice. *The Community Psychologist*, 45(4), 8-14.
- DeYoung, S. E., & Peters, M. (2016). My community, my preparedness: The role of sense of place, community, and confidence in government in disaster readiness. *International Journal of Mass Emergencies & Disasters*, 34(2), 250-282. http://www.ijmed.org/articles/702/download/
- Draucker, C. B., Martsolf, D. S., Ross, R., & Rusk, T. B. (2007). Pearls, pith, and provocation theoretical sampling and category development in grounded theory. *Qualitative Health Research*, 17(8), 1137–1148. https://doi.org/10.1177/1049732307308450

- Drury, J., Carter, H., Cocking, C., Ntontis, E., Tekin Guven, S., & Amlôt, R. (2019). Facilitating collective psychosocial resilience in the public in emergencies: Twelve recommendations based on the social identity approach. *Frontiers in Public Health*, 7, 141. https://doi.org/10.3389/fpubh.2019.00141
- Evans, S. D., Hanlin, C. E., & Prilleltensky, I. (2007). Blending ameliorative and transformative approaches in human service organizations: A case study. *Journal of Community Psychology*, 35(3), 329-346. https://onlinelibrary.wiley.com/doi/abs/10.1002/jcop.20151
- Ferré, I. M., Negrón, S., Shultz, J. M., Schwartz, S. J., Kossin, J. P., & Pantin, H. (2018). Hurricane María's impact on Punta Santiago, Puerto Rico: Community needs and mental health assessment six months postimpact. *Disaster Medicine and Public Health Preparedness*, 1-6. https://doi.org/10.1017/dmp.2018.103
- Freire, P. (1977). Pedagogía del oprimido [Pedagogy of the oppressed]. Siglo XXI.
- Fritz, C. E. (1961). Disasters and Mental Health: Therapeutic principles drawn from disaster studies. Historical and comparative disaster series #10. Disaster Research Center.
- Ganz, M. (2010). Leading change: Leadership, organization, and social movements. In N. Nohria & R. Khurana, *Handbook of leadership theory and practice* (pp. 527-568). Harvard Business Press.
- Ganz, M. (2004). Organizing as leadership. In G. R. Goethals, G. J. Sorenson, & J. M. Burns, *Encyclopedia of Leadership* (pp. 1134-1144). Sage Publications.
- García-López, G. A. (2018). The multiple layers of environmental injustice in contexts of (un)natural disasters: The case of Puerto Rico post-hurricane María. *Environmental Justice*, 11(3), 101–108. https://doi.org/10.1089/env.2017.0045
- Gorski, P. C. (2015). Relieving burnout and the "martyr syndrome" among social justice education activists: The implications and effects of mindfulness. *The Urban Review*, 47(4), 696–716. https://doi.org/10.1007/s11256-015-0330-0
- Halifax, J. (2018). Standing at the edge: Finding freedom where fear and courage meet. Flatiron Books.
- Instituto de Estadísticas de Puerto Rico. (2018). *Informe sobre desarrollo humano Puerto Rico 2016 [Report on human development in Puerto Rico]*. San Juan, PR: Author.
- Janoff-Bulman, R. (1992). Shattered assumptions: Towards a new psychology of trauma. Free Press.
- Jin, Y., Xu, J., Liu, H., & Liu, D. (2014). Posttraumatic stress disorder and posttraumatic growth among adult survivors of Wenchuan earthquake after 1 year: Prevalence and correlates. *Archives of Psychiatric Nursing*, 28(1), 67–73. https://doi.org/10.1016/j.apnu.2013
- Kang, Y., Gray, J. R., & Dovidio, J. F. (2014). The nondiscriminating heart: Lovingkindness meditation training decreases implicit intergroup bias. *Journal of Experimental Psychology: General*, 143(3), 1306–1313. https://doi.org/10.1037/a0034150
- Klein, N. (2018). The Battle for Paradise: Puerto Rico Takes on the Disaster Capitalists. Haymarket Books.
- Lamba-Nieves, D. (2018). De resiliencia a resistencia. [From resilience to resistance]. *El Nuevo Día*, 3.
- Laska, S., & Morrow, B. H. (2006). Social vulnerabilities and Hurricane Katrina: An unnatural disaster in New Orleans. *Marine Technology Society Journal*, 40(4), 16–26. https://doi.org/10.4031/002533206787353123
- Lueke, A., & Gibson, B. (2015). Mindfulness Meditation Reduces Implicit Age and Race Bias: The Role of Reduced Automaticity of Responding. *Social Psychological and Personality*

- Science, 6(3), 284–291. https://doi.org/10.1177/1948550614559651
- Luthar, S. S., Ciccheti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543–562. https://doi.org/10.1111/1467-8624.00164
- Manove, E. E., Lowe, S. R., Bonumwezi, J., Preston, J., Waters, M. C., & Rhodes, J. E. (2019). Posttraumatic growth in low-income Black mothers who survived Hurricane Katrina. *American Journal of Orthopsychiatry*, 89(2), 144. https://doi.org/10.1037/ort0000398
- Martin, L. L., & Tesser, A. (1996). Clarifying our thoughts. In R. S. Wyer, Jr. (Ed.), *Advances in social cognition* (Vol. 9, pp. 189–208). Lawrence Erlbaum Associates, Inc.
- Martínez-Otero, H. & Seda-Irizarry, I. J. (2015). The origins of the Puerto Rican debt crisis. *Jacobin*. https://www.jacobinmag.com/2015/08/puerto-rico-debt-crisis-imf/
- Montero, M., Sonn, C. C., & Burton, M. (2017). Community psychology and liberation psychology: A creative synergy for an ethical and transformative praxis. In M. A. Bond, I. Serrano-García, C. B. Keys, & M. Shinn (Eds.), *APA handbook of community psychology: Theoretical foundations, core concepts, and emerging challenges* (pp. 149–167). American Psychological Association. https://doi.org/10.1037/14953-007
- Morris, A. D., & Staggenborg, S. (2004). Leadership in social movements. In D. A. Snow, S. A. Soule, & H. Kriesi, *The Blackwell companion to social movements* (pp. 171-196). Blackwell Publishing Limited.
- Nelson, G., Kloos, B., & Ornelas, J. (2017). Creating transformative change in community mental health: Contributions from community psychology. In M. A. Bond, I. Serrano-García, C. B. Keys, & M. Shinn (Eds.), APA handbook of community psychology: Methods for community research and action for diverse groups and issues (pp. 377–392). American Psychological Association.
- Norris, F., Stevens, S., Pfefferbaum, B., Wyche, K., & Pfefferbaum, R. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41(1–2), 127-150. https://doi.org/10.1007/s10464-007-9156-6
- Ntontis, E., Drury, J., Amlôt, E., Rubin, B., & Williams, R. (2019). What lies beyond social capital? The role of social psychology in building community resilience to climate change. *Traumatology*. https://doi.org/10.1037/trm0000221
- Ntontis, E., Drury, J., Amlôt, R., Rubin, G. J., & Williams, R. (2018). Emergent social identities in a flood: Implications for community psychosocial resilience. *Journal of Community & Applied Social Psychology*, 28(1), 3–14. https://doi.org/10.1002/casp.2329
- Oliver-Smith, A. (1999). The brotherhood of pain: Theoretical and applied perspectives on post-disaster solidarity. In A. Oliver-Smith & S. A. Hoffman (Eds.), *The Angry Earth* (pp. 170–186). Routledge.
- Pelling, M., & Manuel-Navarrete, D. (2011). From resilience to transformation: The adaptive cycle in two Mexican urban centers. *Ecology and Society*, 16(2). https://doi.org/10.5751/ES-04038-160211
- Pelling, M., O'Brien, K., & Matyas, D. (2015). Adaptation and transformation. *Climatic Change*, 133(1), 113-127. https://link.springer.com/article/10.1007/s10584-014-1303-0
- Prilleltensky, I. (2014). Meaning-making, mattering, and thriving in community psychology: From co-optation to amelioration and transformation. *Psychosocial Intervention*, 23(2), 151–154. https://doi.org/10.1016/j.psi.2014.07.008
- Rasmussen, A., Akinsulure-Smith, A. M., & Chu, T. (2016). Grounded theory. In L. A. Jason &

- D. S. Glenwick (Eds.), *Handbook of methodological approaches to community-based research* (pp. 23–32). Oxford University Press.
- Riemer, M., Reich, S.M., Evans, S.D., Nelson, G. & Prilleltensky, I. (2020). *Community Psychology: In pursuit of liberation and well-being* (3rd edition). Red Globe Press Macmillan.
- Riemer, M., & Reich, S. M. (2011). Community Psychology and Global Climate Change: Introduction to the Special Section. *American Journal of Community Psychology*, 47(3–4), 349–353. https://doi.org/10.1007/s10464-010-9397-7
- Serrano-García, I. (2020). Resilience, Coloniality, and Sovereign Acts: The Role of Community Activism. *American Journal of Community Psychology*, 1–10. https://doi.org/10.1002/ajcp.12415
- Singla, D. R., Kohrt, B. A., Murray, L. K., Anand, A., Chorpita, B. F., & Patel, V. (2017). Psychological treatments for the world: Lessons from low- and middle-income countries. *Annual Review of Clinical Psychology*, 13(1), 149–181. https://doi.org/10.1146/annurev-clinpsy-032816-045217
- Society for Community Research and Action. (2020). What is community psychology. https://www.communitypsychology.com/what-is-community-psychology/
- Solnit, R. (2009). A Paradise Built in Hell: The Extraordinary Communities that Arise in Disaster. Penguin Books.
- Skalski, J. E., & Hardy, S. A. (2013). Disintegration, new consciousness, and discontinuous transformation: A qualitative investigation of quantum change. *The Humanistic Psychologist*, 41(2), 159–177. https://doi.org/10.1080/08873267.2012.724271
- Tedeschi, R. G. (1999). Violence transformed: Posttraumatic growth in survivors and their societies. *Aggression and Violent Behavior*, 4(3), 319–341. https://doi.org/10.1016/S1359-1789(98)00005-6
- Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry*, *15*(1), 1–18. https://doi.org/10.1207/s15327965pli1501
- Trott, C. D. (2016). Constructing alternatives: Envisioning a critical psychology of prefigurative politics. *Journal of Social and Political Psychology*, 4(1), 266-285.
- Tormos, F. (2018). The politics of survival in Puerto Rico: The balance of forces in the wake of Hurricane María. *Alternautas*, 5(1), 79–94.
- USGCRP. (2019). Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II. US Global Change Research Program. https://nca2014.globalchange.gov/report
- Vélez-Vélez, R., & Villarrubia-Mendoza, J. (2018). Cambio desde abajo y desde adentro: Notes on Centros de Apoyo Mutuo in post-María Puerto Rico. *Latino Studies*, *16*(4), 542–547. https://doi.org/10.1057/s41276-018-0149-4
- Viniki, D. (2018). How Trump favored Texas over Puerto Rico. *Politico*. https://www.politico.com/story/2018/03/27/donald-trump-fema-hurricane-maria-response-480557
- Wieling, E., & Mittal, M. (2008). JMFT Special Section on Mass Trauma. *Journal of Marital and Family Therapy*, 34(2), 127–131. https://doi.org/10.1111/j.1752-0606.2008.00059.x
- Wlodarczyk, A., Basabe, N., Páez, D., Reyes, C., Villagrán, L., Madariaga, C., Palacio, J., & Martínez, F. (2016). Communal coping and posttraumatic growth in a context of natural disasters in Spain, Chile, and Colombia, *Sage Journals*, 50(4), 325-355. https://doi.org/10.1177/1069397116663857

Wlodarczyk, A., Basabe, N., Páez, D., Villagrán, L., & Reyes, C. (2017). Individual and collective posttraumatic growth in victims of natural disasters: A multidimensional perspective. *Journal of Loss and Trauma*, 22(5), 371–384. https://doi.org/10.1080/15325024.2017.1297657

Themes	Sample Quotes				
	Spanish	English			
Natural Disasters and the Unveiling of Injustices	"El gobierno debería haber ayudado un poquito más a los barrios porque puesto que los barrios a veces son olvidados, son olvidados. Y, mayormente este barrio, es bien olvidado."	"The government should have helped the neighborhoods a little more because neighborhoods are sometimes forgotten. And, especially this neighborhood, is very forgotten."			
	"Recuerdo que lo mas que había era desilusión también porque () 17 días después que fue que llegamos aquí de María, no había pasado realmente el gobierno () La gente aquí esperaba que el gobierno respondiera como se ha respondido en otros momentos () que asumieran sus responsabilidades de salvaguardar la seguridad del pueblo () Ellos no podían creer que 17 días después todavía no () había gente que decía que era como si la sociedad se hubiera desaparecido."	"I remember that what was most present was a sense of disappointment because () when we arrived 17 days after María, the government hadn't really shown up () The people here expected that the government would respond as it had in other moments () that it would assume its responsibilities of taking care of the town They couldn't believe that 17 days later they still hadn't () there were people that said that it was as if society had disappeared."			
Emergent Collaboration	"Aquí el huracán no hizo más que pasar 4h y ya se hizo un grupo y se abrió camino rápido, y ahí yo conocí personas qué yo decía, "Yo no sabía qué ella vivía aquí", o le preguntaba a mis papás, "¿quién es ella?"	"Four hours after the hurricane, we already formed a group and we quickly cleared roads of debris, and I met people who I would tell myself, "I didn't know that she lived here." Or I would ask my parents, "who is she?"			
	"Todos buscamos y nos ayudamos. 'Mira, ¿tú no tienes agua?' 'Yo tengo agua', 'Mira yo tengo dos o tres cubitos de hielo si te hacen falta.' El que no tenía de comer se le buscaba."	"We sought and helped one another out.— 'Hey, do you have water?' 'I have water.' 'Look, I have two or three ice cubes if you need them.' Whoever didn't have anything to eat, we'd find them food."			
	"Tú eres mi vecino, no es que yo no tenga diferencias con mi vecino, pero todos buscamos y nos ayudamos."	"You're my neighbor, it's not that I don't have differences from my neighbor, but we all search and help one another out."			
	"Yo, puede ser que a esta vecina, a ella, nosotros tuvimos un encontronazo, no nos hablamos, pero en un problema que duele, la situación de un huracán () Tuve que ir a donde ella porque ella tenía un problema, ayudarla a llevarle	"It might be that this neighbor, with her, we had a major clash, we didn't talk to one another, but this problem hurts, this situation with the hurricane () I had to go up to her because she had a problem and help bring her supplies. I had to forget			

suministros. Yo tuve que olvidarme de los líos personales que yo tuve para con ella, o ella conmigo (...) y ayudarla."

"Un cantazo para que la gente reflexionara y se sintieran, sintieran más amor unos por el otro y se ayudaran unos al otro."

"Aunque yo estoy haciendo trabajo yo estoy voluntaria, (...) es algo como que me satisface porque lo hago con amor, no a cambio de que te paguen ni nada de eso. El trabajo hecho con amor ves la satisfacción que uno tiene al ver la respuesta que la gente está más contenta (...) vemos la cara de satisfacción, de alegría y eso (...) uno le da como orgullo al mirar las personas así."

"Un rayo de esperanza (...) [que] nos enseñó que esto era para todos."

"Todo para mí, todo para mí. Esos son los gobiernos(. ...) Se creen que nosotros somos marionetas, que nos pueden manejar."

"Ellos lo hacían de corazón, sin ningún interés, lo que daban, lo daban con amor. Afecta emocionalmente porque tú ves que viene gente haciendo un sacrifício para poder venir a darles ayuda a otros barrios que realmente necesitan cuando el gobierno lo puede hacer."

"El despertar que ha tenido el país como tal el qué, claramente, no solamente [nombre de pueblo], ni esta comunidad, todo Puerto Rico. Está claro que, como el gobierno no hace nada, pues vamos a hacerlo nosotros."

"Antes yo iba a la playa (...) podía dejar basura y no me importaba, pero ahora no. Tenemos que empezar a reciclar, para que así, el planeta tierra...tenga un respiro y no siga sufriendo estas cosas."

about my personal problems with her, or her with me (...) and help her"

"A jolt for people to reflect and feel, feel more love for one another and help one another."

"Even though I am doing this work as a volunteer, (...) working in this community voluntarily is something that satisfies me because I do it with love, not expecting that they pay me or anything like that. When one works with love, you see the satisfaction that comes when you see that people are happier (...) when you see faces of satisfaction, of happiness and (...) one becomes proud seeing people like that."

"A ray of hope (...) [that] showed us that this was for all of us."

"All for me, all for me. That's what governments are like (. ...) They think we are puppets, that they can manipulate us."

"They [volunteers] did this out of their heart, with no [vested] interest, what they gave, they gave with love. It affects you emotionally because you see that there are people who are making sacrifices to be able to offer help to neighborhoods that are truly in need when the government can do this."

"The awakening that the country has had, clearly, has not only been in [name of town], nor in this community, but in all of Puerto Rico It is clear that since the government doesn't do anything, we are going to do it."

"Before I would go to the beach (...) I could leave trash and I did not care, but not anymore. We have to begin to recycle so that planet earth can breathe and stop going through these events."

que hubiese ese movimiento comunitario de la gente ayudando, creándose espacios, apoderándose de un espacio abandonado (...) ver que podían demostrarse unos a los otros y unas a las otras que tenían la capacidad de ayudarse (. ...) Eso jugó mucho, verdad, mucho en ese papel de poder proyectos, hacer todos estos transicionar de distribución suministro a uno de desarrollo educativo, cultural y recreativo."

"And that there was this community movement of people helping one another, creating spaces, taking over an abandoned space (...) seeing that they could demonstrate to one another that they had the capacity to support one another (....) That played a lot, right, a lot in our ability to make these projects, of transitioning from relief supply distribution to a project of educational, cultural, and recreational development."

Barriers to Community Transformation

"Después que pasó el huracán los celulares como no había señal, pues todo el mundo tranquilo. Compartían unos con otros (...) se buscaban unos a los otros. Eh, después... cambió otra vez, porque al tener otra vez la señal (...) volvieron y a, a lo mismo otra vez."

"Sí, mientras pasaba el huracán, estaban todos unidos, no habían peleas (. ...) Ahora, están como más separados, tú en tu casa, y tú haces lo que te da la gana, y los otros hacen lo que les dé la gana."

"Un punto bien importante a tocar es la parte psicológica de la comunidad y es que habían muchas guerras internas entre familia. Varias guerras internas entre familia en las cuales ellos no se juntaban unos con otros."

"Hace tres semanas atrás o cuatro con una situación en la comunidad que ella dijo, 'Yo no voy a bregar más, allá abajo son unos malagradecidos, están hablando de mí y de mi hija a mi espalda.' (...) Y quien tuvo que ir a balancear esa situación y apoyar emocionalmente esa situación fue la líder, fuimos nosotros."

"After the hurricane passed, cellphones had no signal, so everyone was calm. They spent time with one another (...) they sought one another out. Eh, afterwards (...) it changed again because by having signal again (...) they returned to the same thing again."

"Yes, while the hurricane [aftermath] passed, they were all united, there were no quarrels (...) Now, they are more separated, you're in your house, and you do whatever you want, and others do whatever they want."

"One very important point to touch upon is the psychological element of the community, and that there were many internal family conflicts. Various internal family conflicts between family members in which they did not get together with one another."

"Like three or four weeks ago, there was a situation in the community that [a female neighbor] said, 'I am not going to deal with this anymore, they are ungrateful down there, they are talking about me and my daughter behind our backs.' (...) And we turned out being the people who had to go balance out the situation and provide emotional support."

"Esas cosas mínimas, realmente que no son mínimas porque son nuestras emociones, imposibilitan e impiden que los pasos hacia esos procesos sean más grandes y más significativos, porque tenemos que frenar para ver como bregamos (. ...) Si tuviésemos inteligencia emocional o herramientas que supiéramos poner al momento, no llegaríamos a estos niveles, que cuando van sumando uno a uno rompen el proyecto."

"Quince años esto aquí, como se llama, abandonado ¿entiende? Y que después de 15 años vengan [el gobierno local] a interesarse, y a decir que tienen que desalojar o que tiene que irse porque quieren hacer algo con esto. Eso no es justo, para mí, yo creo que eso no es justo."

"Ahora hay como un impase, donde estamos tratando de que los espacios sobrevivan lo que es la peor parte de la crisis, que es que estamos todo jodidos, no solamente económicamente, sino también psicológicamente porque no hemos tenido descanso."

"Yo soy una persona sumamente optimista y positiva, sin embargo, yo no siento el mismo optimismo que ni los primeros meses luego de María (...) y eso me preocupa mucho, porque me preocupa mucho si nosotros podremos a tiempo poner en práctica lo que hemos aprendido después de María, y si se nos va a dar el tiempo a sanar heridas que vienen de generaciones antes que nosotros. oportunidades solidarizarnos y de crear comunidad, (...) porque a veces uno tiene que volarle la casa completa a alguien (...) para que pueda ver más claramente, pero me siento también que hay una presión de tiempo, y a la misma vez, hav muchos otros intereses envueltos que no tienen que ver con el bienestar del puertorriqueño."

"These small things, which really are not small because they are our emotions, hinder or prevent greater and more meaningful steps towards those processes because we need to stop to see how we are going to deal with them (. ...) If we had emotional intelligence or tools that we'd know how to use in the moment, we wouldn't reach those [critical] levels, that when they add up one by one, break the project."

"Fifteen years this has been here, how do you say, abandoned, you know? And that after 15 years they [the local government] becomes interested, and say that they need to evict us or that we need to leave because they want to do something with this. That is not fair, for me, I believe that is not fair."

"Now we're at an impasse, where we're trying to have spaces survive what is the worst part of the crisis, that we are all fucked up, not only economically, but also psychologically because we have had no rest."

"I am an extremely optimistic and positive person, yet I do not feel the same optimism that I felt the first months after María (...) and that worries me a lot, because I get really worried about whether we will be able to put everything we learned after María into practice, and if we will have time to heal the wounds that come generations before us, (...) opportunities to develop solidarity and to create community, (...) because sometimes one has to have their whole house blown away (...) to see more clearly, but I also feel that there is a time pressure, and at the same time, there are many other [vested] interests that are not concerned with Puerto Ricans' wellbeing."

"La clave está en desarrollar una psicología y una perspectiva del autocuido que sea puertorriqueña, que no es importada del exterior, porque nuestra realidad social no se parece."

"The key is developing a psychology and perspective of self-care that is Puerto Rican, that is not exported from outside, because our social reality is not the same."