

Un Grano de Arena: Infrastructural Care, Social Media Platforms, and the Venezuelan Humanitarian Crisis

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Venezuela is in the midst of a humanitarian crisis. In addition to food and medicinal shortages, violent crime has risen dramatically since 2014, spurring a mass exodus from the country. In order to cope with persistent material, informational, and digital infrastructural breakdowns that their friends and family in Venezuela are facing, members of the Venezuelan diaspora have turned to social media platforms to support people they left behind. Through semi-structured interviews and participant observation, I uncover the ways participants form a critical infrastructure for people in Venezuela. I describe participants' actions as *infrastructural care* – infrastructural action as a form of caring for others at a distance through the ongoing management of resources, relationships, and infrastructures. Infrastructural care consists of relational, negotiated, and dialectic actions that provide critical support while also generating ongoing tensions as participants are geographically separated from the crisis and, through their involvement, are forced to confront their own experiences of trauma. In addition to proposing the lens of infrastructural care, this paper contributes to our understandings of the ways people cope with an ongoing humanitarian crisis at a distance and how social media platforms fit in with wider ecologies of efforts.

CCS Concepts: • **Human-centered computing** → **Empirical studies in collaborative and social computing**.

Additional Key Words and Phrases: Venezuela, Infrastructural Care, Crisis Informatics, Social Media, Critical Infrastructure, Diaspora

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1 INTRODUCTION

In 2014 in Caracas, Venezuela, José joined thousands of people in a political protest against President Nicholas Maduro. When police were sent to disrupt the protest, violence escalated and led to the deaths of several Venezuelan citizens, including many of José's friends, who were killed in front of him. Due to this violent confrontation and increasing food and medicinal scarcity in the country, José and his spouse decided they had to leave Venezuela. Although José is physically safe now and geographically distant from the crisis, he is in constant contact via social media with friends and family who have remained in the country.

I have many friends sending me messages on WhatsApp asking me for help, in desperation, "José, help me. I want to get out now. I can't take this anymore." They're looking for me to help them out of the country. But, I can't do it. I mean, right now, I'm not in a very good situation. But I can listen, you know, a partial help in that sense... it's hard... but the idea

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is that everybody, in small ways, can contribute bit by bit despite the crisis. These acts, it's un grano de arena [a grain of sand]... this sand forms pebbles, and with little pebbles, we can build a house. —José (M, 30)

Venezuela is facing the most severe social, political, and economic crisis in its history, resulting in a mass migration from the country [11]. As conditions in Venezuela deteriorate, people are unable to rely on critical infrastructures for basic necessities like food and medicine. Like José, those who have left the country are attempting to help their family and friends at a distance. The Venezuelan diaspora and the sociotechnical infrastructures they create, adopt, and maintain are the focus of this paper. Stories like José's, captured during semi-structured interviews and participation with Venezuelans living in the United States (US), provide the data that help us understand their work.

To explain this infrastructural work, I propose the lens of *infrastructural care* (IC), defined as infrastructural action as a form of caring *for* others at a distance through the ongoing management of resources, relationships, and infrastructures. IC highlights the messiness of human infrastructural action, which is deeply relational because it is motivated by, relies on, and impacts human relationships. The case of the humanitarian crisis in Venezuela provides an opportunity to study how social media platforms¹ are used to compensate for infrastructural failure when physical infrastructures are broken. Building on studies of human [46, 61] and social infrastructure [64], as well as maintenance and breakdown [21], IC emphasizes the ongoing work individuals enact as they contend with gaps and breakdowns of traditional infrastructures. I build on Lilly Nguyen's notion of infrastructural action, which consists of "the delicate ways in which people establish," and construct "sociotechnical connections in the face of an endemic distance" ([55]:638) through ongoing maintenance. IC is intimately related to states of ongoing breakdown and crisis, acting as a form of unidirectional care as people removed from the center of a crisis continually act on behalf of those directly experiencing a crisis. IC highlights the dialectic nature of these actions, as people cope with the in-between nature of their diasporic positioning within society and towards this crisis, emphasizing the ongoing work required to negotiate between elements of (in)visibility, closeness, distance, and sustainability of support.

This work contributes to the field of crisis informatics by answering the call of researchers to pay more attention to ongoing, prolonged crises [69]. Similar to prior work advocating for a perspective of infrastructural breakdown as normal [37], I explore a case where crisis has also become normal. In the face of the uncertainty of a prolonged crisis, people use IC across social media platforms to cope with the gaps in other infrastructures. While social media facilitates resource acquisition and support, it simultaneously complicates experiences of (in)visibility and distance. As crises become more frequent and prolonged around the world, this paper advocates for a broadened perspective of crisis management and social change towards one that recognizes that this type of crisis and management is mundane for many people.

The lens of IC highlights the ambiguous and deeply relational perspective of infrastructural efforts, as people are motivated by social connections while also relying on them to make up for gaps in preexisting food, medicinal, and economic infrastructures. IC contributes to CSCW scholarship on infrastructural breakdown and human action to deepen our understanding of the role of relationally-motivated sociotechnical care practices that are mediated through social media platforms. IC draws our attention to feminist scholars' emphasis of the inherently relational nature of care [14] to reorient our perspective of infrastructural action within informal sociotechnical systems, paying attention to the adaptability and complexities of human actions to support people

¹I use the overarching term "social media" to refer to various online spaces participants use to accomplish IC. However, this is not intended to flatten the infrastructural elements of these sites. Throughout the findings, I highlight specific elements of various sites and how these interact with participants' actions.

where formal infrastructures have failed. IC serves as a means of exhibiting and reclaiming agency for members of the Venezuelan diaspora, but is also stressful and draining as people must negotiate between various forms of distance and closeness. These findings reveal stressors that develop as a result of the actions and the tactics participants use to mitigate negative emotional, security, and relational consequences. IC actions are recursive in that they serve as a means to cope but also require their own form of coping. The IC lens illuminates the human labor of the infrastructural work required to navigate various dialectics throughout an ongoing crisis and the multiplicities of care experiences.

In the following section, I review the context of the Venezuelan humanitarian crisis and resulting mass migration that participants have experienced. After reviewing related work from crisis informatics, infrastructural breakdown, and care, I present my findings detailing the IC of participants as they negotiate various strategies, platforms, and relationships in an attempt to confront the humanitarian crisis from a distance. I conclude with a discussion of how the relational nature of IC contributes to our understanding of the role of human action and connection during chronic crisis and breakdowns and the ways we approach the study and design of social media platforms.

2 THE VENEZUELAN HUMANITARIAN CRISIS

During the last decade, Venezuela has been facing the most severe social, political, and economic crisis in its history, which has resulted in a mass migration from the country and a growing, global Venezuelan diaspora [11]. As the country with the largest oil reserves in the world, Venezuela's economy has long revolved around oil as its main export [53]. When oil prices were high under the presidency of Hugo Chavez, he established a socialist government and used the influx of money to finance programs aimed at reducing inequality and poverty [53]. He introduced price controls – capping the money people pay for staples, thereby driving staple-producing companies out of business. This, combined with a lack of foreign currency to import staple products, led to shortages [66]. When Nicolas Maduro inherited the presidency in 2014, oil prices declined sharply, leading to an economic crisis [11, 67]. The economic and political climate has continued to deteriorate as critical infrastructures become increasingly unreliable. From 2014 to 2019, Venezuela's economy shrunk by half [67], the single largest economic collapse of any country not in wartime in the past 45 years [42]. This has led to mass inflation, food and medicinal shortages, and failing hospitals [67]. Food shortages led to the average person losing 24 lbs. in 2017 [66]. External impacts, such as new U.S. sanctions of Venezuela in 2019, which led to essential imports dropping by 50% [67], have also contributed to shortages.

In addition to medicinal and food shortages, Internet access and use has been increasingly constrained by a deteriorating infrastructure, including regular electrical shortages, and political censorship [67], limiting the amount and types of information Venezuelans have access to. Venezuelans rely on internet connections, however tenuous, not only for communication and information dissemination, but to be able to piece together resources such as food, medications, clothing, and personal hygiene and baby items [26]. Extreme shortages of essential goods have caused an increase in violent crime, including kidnapping, robbery, and murders. Since crime and price gouging have become increasingly common amidst shortages, Evans et al. [26] describe how Venezuelans use Facebook groups as solidarity economies as communities attempt to safely locate basic necessities. However, seeking supplies and support within the country on Facebook or other social media platforms is not sustainable. Therefore, people often seek support from their family members and friends who have left the country.

Since 2016, more than one million Venezuelans have left their country, adding to the hundreds of thousands who have left since 1999 [27, 58]. In addition to seeking refuge in the US, groups of Venezuelans have migrated to countries across South America and Europe [58]. As these diasporic

communities cope with their own transitions, they continue to grapple with the prolonged crisis in their country of origin. In research among a Venezuelan community in Finland, Salojarvi focused on the use of traditional media and online platforms to both stay informed on the situation in Venezuela, share news, and craft online identities, focusing on their creation of a community in their new homeland [60]. However, other Venezuelans feel more dispersed from their community, having immigrated at various times and/or without their family. This work focuses on Venezuelans across the US and the ways they are piecing together strategies and infrastructures in an attempt to confront the crisis, both in their own lives and in the lives of those they left behind.

3 RELATED WORK

This paper explores how people living in diaspora cope with and care for others through an ongoing crisis from which they are geographically separated. The term “diaspora” refers to a scattered population whose origin lies in a separate geographic location. Key to this work is the “in-between” experience of individuals in diaspora. Diaspora studies have focused on the ways that individuals manage the push-pull of identity work as they attempt to adapt to a new country while also maintaining their connection to their country of origin [7, 32]. This identity work occurs in-situ and is never complete [32], as people cope with a continued attachment to a distant homeland and the dispersion of meaningful relationships [7]. Being geographically separated from loved ones and from one’s home country involves feelings of loss as well as responsibility to those whom one has left behind. As a result, migrants have long sought to maintain emotional and economic ties to their country of origin [62]. Increasingly, social media platforms have become vital in maintaining connections to friends and family members back home [48, 49, 82].

Although some prior work has focused on the positive impacts of social media use among diasporic communities [18], the use of these platforms is complicated and is accompanied by potential risks. For example, in the case of undocumented migrants at the U.S./Mexico border, Newell et al. found that mobile phone use provided much-needed connection but also opened up migrants to potential risks such as robbery [54]. In the case of a prolonged crisis, maintaining these ties, the effort it involves, and navigating risks becomes even more complicated. With the increasing adoption of social media platforms, researchers have explored the ways that people collectively confront and manage crisis [81], work that is critical as both natural and man-made disasters become more prevalent and widespread [69]. As these crises contribute to growing numbers of forced migrations worldwide [1, 76], we must understand how diasporic communities cope with crisis. In the following sections, I first review relevant work on social media and crisis informatics. Then, I incorporate concepts from infrastructure and feminist studies to explore how communities confront crisis, concluding with an introduction of the concept of infrastructural care.

3.1 Crisis Informatics and Social Media

The field of crisis informatics (CI) has examined the adoption and use of social media tools by organizations and citizens to address crisis and disaster relief efforts. The majority of CI work has traditionally focused on immediate or acute crisis such as natural disasters and the ways that governments, relief workers, and people who are impacted cope with and recover from crisis [13, 69]. While traditional crisis recovery models focus on specific socio-temporal stages for recovery [23], people experiencing prolonged crisis must cope with constant uncertainty and daily disruptions [65]. Considering wartime to be a “persistent disruption,” Bryan Semaan and colleagues focused on the interplay between technology, community, and resilience, or the ways that people work around and through ongoing disruption in an attempt to “get back on track” ([64]:321). Semaan and Hemsley propose that the ability to access heterogeneous sources of aid is one measure of community resilience during times of crisis, which may be better accomplished through access to

social media sites like Facebook [64]. Therefore, the ability to piece together multiple resources both online and off contributes to a community's ability for resilience.

Researchers have begun to call for work that attends to ongoing crises [69], protracted events which may have indeterminate endpoints. Soden and Palen [69] advocate for attention to “the various ways in which social life produce the very vulnerabilities that produce crisis and disaster and give shape to their impacts” ([69]:13). Some studies have explored how diasporic groups use social media to undertake and manage crisis in their country of origin [2, 28]. This work often focuses on civic engagement and political participation, such as in the case of the Iranian [28] and Syrian diaspora[2], both of which use social media to rally support and amplify political opinions. Through this paper, I delve more deeply into the ways diasporic communities use social media to confront prolonged crisis. I view prolonged crisis through the lens of infrastructural breakdowns and the subsequent actions that participants enact to care for others at a distance.

3.2 Breakdowns and Infrastructural Action

Similar to the ways that CI tends to focus on acute crises rather than protracted ones, infrastructures have traditionally been conceived as invisible until they break [44, 73], with moments of breakdown being considered atypical instead of quotidian. However, scholars in the fields of CSCW, HCI, and beyond increasingly advocate for a broadened perspective of infrastructures, as well as an acknowledgement that breakdowns are more commonplace than previously conceived, particularly for disadvantaged peoples [21, 29, 37–39, 59].

Broadly, I consider infrastructure to be an assemblage of artifacts, actions, and users that provide support to a social system [47]. In this work, I focus more specifically on the human, relational side of infrastructure. In addition to physical and tangible infrastructures, scholars have drawn our attention to the human infrastructure, which Lee et al. define as “the arrangements of organizations and actors that must be brought into alignment in order for work to be accomplished” ([46]:484). Incorporating both social and technological aspects of information infrastructures, researchers have advocated for a deeper consideration of the human infrastructure, particularly in contexts where technical and physical infrastructures regularly breakdown [22, 61]. In environments of constraint, Dye and colleagues highlight how human infrastructures are essential to maintaining informal digital infrastructures, especially when traditional infrastructures are unavailable or prohibited [22]. In environments of crisis or constraint, “alternative” or informal infrastructures are often more visible. For example, in the global South, infrastructures do not sink into the ambience of everyday life but are acute sites of ongoing attention and care [43], whereby “one has to infrastructure as a condition of living” ([55]:642).

The modern assumption of invisible infrastructures facilitates “the feeling that things work and will go on working without the need for thought or action” ([24] quoted in [56]:641). This perspective, as Nguyen argues, reflects a vision of infrastructural modernity, which, “rests on the technological aesthetic of continuous connection, the erasure of social complexity, and the automation of human form” ([56]:641). Unlike traditional perspectives of infrastructural modernity, maintenance scholarship considers the ongoing processes of labor and the range of interactions between people, technology, and actions resulting from environments where breakdowns are the norm [29, 35, 59]. During ongoing crises, critical infrastructures are disrupted, including roadways, electrical grids, and communication services. Addressing infrastructural breakdown, therefore, is a key component when focusing on crisis recovery particularly when services that are traditionally regulated by the government are no longer reliable, as is the case in Venezuela.

With the growth of social media, the fields of platform studies and infrastructure studies have emerged as ways to conceptualize the “modern” media landscape [57]. Blending these fields, Plantin et al. argue that infrastructure is a valuable lens for examining how social media platforms are

providing services traditionally regulated by the government [57]. Similarly, crisis informatics researchers have advocated that the use of social media to address crisis warrants a consideration of social media platforms as critical infrastructure [10, 13, 64, 68]. Building on social-media-as-social-infrastructure and human infrastructure, Semaan and Hemsley describe social infrastructures as a way to consider how humans and technologies are involved in fostering resilience during ongoing disruptions [64]. Infrastructural breakdowns provide an opportunity to understand the inner workings of infrastructures [8] as well as an opportunity to understand the actions of people that step in to manage infrastructural breakdowns [21, 50]. Semaan describes the process of “building everyday resilience with technology” during ongoing disruptions as routine infrastructuring [63], demonstrating how groups are able to use technology to craft infrastructures throughout disruptive life events. This paper also considers social media platforms as sociotechnical information infrastructures, held together by the infrastructural actions of a human infrastructure as they cope with prolonged crisis.

Nguyen introduced infrastructural action as a lens to analyze practices of smuggling and jail-breaking iPhones in Vietnam, describing hacking as a “mundane way of coping with life removed from the centers of global modernity” ([56]:638). More broadly, infrastructural action “consists of the delicate ways in which people establish sociotechnical connections in the face of an endemic distance” and is “characterized by ongoing attention, care, and hence must be performatively constituted on a regular basis” ([55]:638). Building on this work, Jack and Jackson focus on the complex, online buying networks in Cambodia [36]. The authors use the term “creative infrastructural action” to describe the resourceful and imaginative activities of integrating new digital tools into preexisting infrastructures and cultural practices [36]. Similarly, prior CI studies have focused on how communities piece together technology when infrastructures fail in order to step in for the failures of the pre-existing infrastructure [13, 64, 81].

Considering the Venezuelan humanitarian crisis as manifested by various infrastructural breakdowns, this paper illuminates the continual actions that people undertake as they attempt to confront and cope with prolonged crisis at a distance and the motivations and consequences entangled in those actions. I join with scholars that begin their point of analysis from a place of breakdown and endemic distance to explore the ways participants continually enact infrastructures, both physical and social, during times of prolonged uncertainty. Against the backdrop of an ongoing crisis, this paper demonstrates how, when physical infrastructures are broken, various social media sites are used in an attempt to make up for infrastructural failure. However, social media sites do not map seamlessly or smoothly onto the needs of individuals or communities, especially those in crisis. Therefore, people use IC to make up for gaps themselves, which becomes a way of coping with the uncertainty and ambiguity of a prolonged crisis.

3.3 Infrastructural Care

In this paper, I introduce the lens of *infrastructural care* (IC), or infrastructural action as a form of caring for others through the continual management of resources, relationships, and infrastructures. IC highlights the messiness of human infrastructural action, which requires continual tending, and how such actions are deeply relational in that they are motivated by, rely on, and impact human relationships. I complicate the work of infrastructural maintenance and infrastructuring as a form of resilience, instead focusing on the work of caring for others at a distance, where transitioning or overcoming disruption is never complete. Instead, IC is adaptive, continual, and filled with seeming contractions that people must regularly manage. Infrastructure as a lens illuminates the ways that nested layers of technology, human relations, and culture contribute to the landscape of potential action and human intention [45, 70]. Acknowledging that participants’ actions are part of multiple infrastructural and hierarchical layers, I incorporate IC as a way to focus more deeply on

the multiplicity of care actions. IC consists of the mundane, recursive, ad-hoc actions required to create and maintain informal, critical infrastructures in order to care for others over time, revealing both the successes and tensions entangled in these actions. IC emphasizes the dialectic nature of infrastructural action as people must also cope with the in-between nature of seemingly conflicting or opposing forces (elements that I unpack in more detail below). Building on Nguyen's notion of infrastructural action [55], my conception of infrastructural care incorporates infrastructure scholarship on breakdowns [37, 38] feminist scholarship on care [14, 15, 33, 51, 79], and relational dialectics [5, 6] to delve more deeply into the concept of care and relational connection, which is central to the actions of participants in this study.

IC draws our attention *back* to the relational elements that comprise infrastructural care actions. As Maria de la Bellacasa reminds us: "not only do relations involve care, care is itself relational" ([15]:198). Considering crisis through the lens of infrastructural breakdowns serves to reveal the relational dynamics of infrastructure, which demand new perspectives for thinking through infrastructures [72, 75]. In other words, infrastructures exist only in action and are tenuously held together by socially enacted gestures [56]. To better understand these socially enacted gestures, I focus on these actions as care, which Joan Tronto and Berenic Fisher define as, "everything that we do to maintain, continue, and repair 'our world' so that we can live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web" ([79]:103). De la Bellacasa emphasizes, "most feminist arguments on the ethics of care entail that to value care we have to recognize the inevitable interdependency essential to the reliant and vulnerable beings that we are" ([15]:198). It is the very precarity of this world and our reliance on others that make an attention to care vital. However, the ethics of care can be at odds with other cultural identities. For example, Toombs et al. describe how the mundane practices of care in makerspaces, which encourage and recognize interdependence, contradict "hacker" identities, which encourage independence [78]. HCI and CSCW work has also focused on issues of care in health settings, illuminating how interdependence is central to care practices [30, 41]. In states of constant breakdown and uncertainty, the importance of interdependence becomes abundantly clear. Drawing on feminist scholarship, infrastructure studies have explored how the work to create and sustain sociotechnical systems is embedded within an ethics of care, which becomes increasingly visible during infrastructural breakdowns [16, 17, 37].

Ethnographies of infrastructures, particularly among communities in the global South, have highlighted the relational and performative nature of infrastructures and infrastructural action [56]. For example, Nguyen describes how participants invoked ties of kinship through specific grammatical terms in order to acquire smuggled iPhones [56]. Due to the inherent vulnerabilities of life, however, these relationships also require constant tending and upkeep, which Dye et al. argue is an essential part of the work required to maintain informal infrastructures [21]. In their research on a community network in Cuba, Dye et al. reveal how maintaining a sociotechnical network where the physical objects are regularly breaking down requires a lot of work and continued reliance on social relations [21]. The authors posit the term *relational repair* to describe the perpetual work of care required to maintain the social, digital, and physical infrastructure of the network in the face of regular technical breakdowns, whereby people mutually rely on each other to maintain the network [21]. Although IC also focuses on the relational nature of care, it differs from relational repair in that it is unidirectional, intended to care for others without an expectation of mutual care, and it occurs in an "in-between" space.

Similar to the in-between nature of diaspora, IC focuses on the management of distance, visibility, and closeness, all of which occur across platforms, infrastructures, and relationships. To focus on the relational element of IC, I incorporate relational dialectics, an interpersonal communication theory about close personal ties and relationships that highlights the tensions, struggles and interplay

between contrary tendencies [3–5]. Similarly, in her study of the relationship management of musicians and their fans, Nancy Baym describes the relational labor musicians undertake in order to support their continued work and connection focusing on the “the ongoing, interactive, affective, material, and cognitive work of communicating with people over time” ([6]:19). Baym describes how much of this relational labor plays out on social media [6], highlighting how relational dialectics may be even more complicated online as social media platforms push closeness, visibility, and constant connection. Social media platforms have long served relational purposes as ways of maintaining relationships and seeking support through social contacts [10, 25, 31, 40]. Connecting to the thread of continuity (of action, of crisis, etc.), relational dialectics also emphasizes the notion of change, contradiction, and maintenance of relationships over time [5]. Through the lens of IC, I incorporate the complexities of relational maintenance with infrastructural work as people care for others across time and distance. The lens of IC facilitates an exploration of the kinds of care made possible through infrastructure and the limits and risks of conducting care at a distance, particularly when mediated by social media platforms.

4 METHODS

4.1 Participants

I initially planned to recruit participants in the Boston area, particularly due to the visibility the Venezuelan community in Boston had garnered during a symbolic Venezuelan presidential election in the summer of 2017 [20]. However, in initial interviews with members of the local Venezuelan diaspora, I discovered the ways in which people were confronting the humanitarian crisis occurred both online and offline, as participants pieced together multiple platforms, resources, and contacts spread across the United States, Latin America, and Europe. Therefore, I decided to expand recruitment beyond the Boston area.

Initial participants were primarily recruited through Venezuelan Facebook Groups organized by Venezuelans living in the US. Prior to recruiting through these groups, I received permission from each group’s administrators. Via private messages on Facebook, Instagram, and Twitter, I reached out to people that were members of public Facebook groups related to Venezuelans living in the US, who posted with hashtags related to Venezuela, and/or who had Venezuelan flags in their profiles. Through snowball sampling, some participants recommended I interview their family members, as well, to gather a more holistic perspective of the relational nature of their actions. However, for anonymity purposes, I do not identify which participants are related to one another.

I recruited 13 participants, all of whom had been born in Venezuela and later immigrated to the US. Participants had been living in the US between 1-10 years. Five identified as female and eight as male. They ranged in age from 23 to 65 years-old and the median age was 32. Participants held various occupations including professors, artists, students, restaurant servers, realtors, and Lyft drivers, among others. All participants had relatives and friends still living in Venezuela. Participants received a \$25 USD Amazon gift card at the end of the first interview. Two participants, Mario and José, refused to accept the gift cards because, according to Mario, “*I do not want to be paid for being a part of something that might help the crisis*” and José said, “*I cannot accept money when others are suffering.*” Mario and José’s actions of not accepting cards reflects the other-centered focus participants brought to their IC work, which I explore in more detail in the findings.

4.2 Data Collection and Analysis

I collected data using a combination of qualitative methods. Prior to recruiting participants, between January-May 2018, I observed and took fieldnotes on public social media posts regarding grassroots efforts among Venezuelans across Twitter, Facebook, and Instagram. I took note of the general

content of the posts and various strategies that people were using to try to solicit support and discuss the current situation in Venezuela. Between May-August 2018, I conducted in-depth, semi-structured interviews with each participant. Interviews occurred in person, over Skype, and over the phone, depending on each participant's preference. Interviews were conducted in Spanish, English, and a combination of the two, again depending on each participants' preference. I stayed in contact with participants over the course of three months and conducted brief, follow-up interviews over WhatsApp and Facebook Messenger with 7 out of the 13 participants.

I also interacted with participants on Twitter, Facebook, WhatsApp, and Instagram to get a better understanding of the ways participants were using social media platforms to confront the crisis. Participants who chose to do so added me as a friend or follower on their social media accounts (a combination of Twitter, Facebook, WhatsApp, and Instagram). Although I did not request it of participants, seven of them also sent me posts throughout the project that they felt were relevant to my research, totaling more than 40 messages. In accordance with the ethics board of my institution, I did not store participants' social media data and, instead, took notes of the type of information shared. In total, 12 participants added me on at least one social media site. In addition to following participants who invited me to do so, I also re-posted, liked, and re-tweeted posts that were directly involved in raising awareness, signing petitions, and gathering support for people in Venezuela.

Interviews were transcribed in their original language (either English or Spanish) and were then translated by a professional translator into English prior to data analysis. I also returned to the original Spanish transcriptions throughout data analysis in order to better understand key statements and words. I began conducting iterative, thematic analysis [9, 12] on interview transcripts, field notes, and social media posts in June 2018 and this process continued during and after data collection. I initially focused on the themes of social support on social media and the motivations driving participants to undertake this work. As I continued data collection and analysis, the importance of the tensions and emotions surrounding the type and amount of work, relationship management, and consequences of engagements began to emerge and subsequent data collection confirmed this. Therefore, in keeping with the iterative nature of thematic analysis, I focused more deeply on the motivations and impacts of infrastructural work. In the following section, I explore the elements of IC illuminated through the experiences of my participants.

4.3 Author Reflexivity

I am a white, American ethnographer with a Hispanic heritage who grew up in a combination of Spanish and English speaking countries. I am fluent in both English and Spanish, having learned both languages simultaneously as a child. I have been conducting research in and among Latin American communities in both the U.S. and Latin America for more than ten years. Although I have conducted research with communities in and from Venezuela, I am not of Venezuelan origin nor have I had the opportunity to spend time in the country. When speaking with participants, I disclosed my personal background and Hispanic heritage.

5 FINDINGS

My findings center around participants' attempts to support friends and family in Venezuela throughout a prolonged crisis. Much of the work undertaken by participants is in an effort to make up for the infrastructural failings of multiple systems that people in Venezuela once relied on. In the following sections, I describe the IC of participants, the mundane, recursive, ad-hoc actions required to create and maintain informal, critical infrastructures to care for others during a prolonged crisis, revealing both the successes and tensions entangled in these actions. Throughout my findings, I document participants' experiences confronting their relationship to a prolonged crisis as they attempt to care for others at a distance. While I highlight some of the specific, technical elements of

various social media sites used by participants, my main focus is on the relational, human elements of IC. To that end, my findings reveal how participants' actions are motivated, supported, and complicated by the relationships between individuals. I discuss how, to enact various forms of support, participants move between multiple social media platforms, piecing together relevant information, acquiring material necessities, and providing emotional support for loved ones. My findings reveal the energy, risks, and discomforts that participants face to undertake IC work that is motivated by personal connections. Based on the delineations that participants described, I have grouped IC actions into three categories: informational, material, and emotional. However, these categories are not mutually exclusive, as I found multiple instances of overlap. I conclude with findings regarding the emotional toll that IC efforts have taken on individuals.

5.1 Infrastructural Care and Information Infrastructures

Venezuela's prolonged crisis has created a breakdown of information infrastructures in the country, which is both material and political in origin. While social media mitigates the effects of information breakdown upon individual connectedness, information accuracy and delivery was impacted, motivating participants themselves to act as missing components of this broken infrastructure. The manifold contexts and audiences that permeate these platforms mean that context collapse in the form of sharing unwanted information with a certain audience became a daily reality for participants. Balancing the desire to protect friends and family while educating international audiences about the crisis was perceived as a difficult and draining task. In addition to their infrastructural action replacing broken information infrastructures, participants developed strategies of infrastructural care for themselves, their friends and family in Venezuela, and their US-based contacts.

5.1.1 Social Media as an Operations Center. Participants described the infrastructural actions they undertook to piece together various information infrastructures, acting as a part of the infrastructure themselves, largely because the information infrastructures they used to rely on had become unavailable or untrustworthy. Piecing together information and news was an essential part of the way that people used social media to stay informed, inform people in Venezuela, and raise awareness among non-Venezuelans about the situation in the country. Daniela left Venezuela in 2014, close to the time that the Venezuelan government began closing independent news stations and, soon after, radio stations. Daniela said, *"we sensed that everything was going to be controlled by the government. Now, we get all news through WhatsApp, Facebook, Instagram, and Twitter. I hop around gathering bits and pieces of information."*

Participants were particularly concerned about misinformation, especially after *"the government started using the same channels that we do to spread their messages,"* as Julian described. Similar to findings from prior work on combating misinformation online during crisis [34, 52], participants turned to social media to try to discern what news is accurate. The lens of IC illuminates how seeking information was motivated (and also complicated) by the desire to care for others. Part of the reason that participants, especially initially, sought out information was to inform people within Venezuela about potentially dangerous confrontations between citizens and armed military personnel. Julian described how in 2014 independent news media was blocked during the riots and confrontations between citizens and the government, which resulted in people in Venezuela seeking information regarding protests and violence so that they could protect themselves.

"Social media played two fundamental roles. First, people started to communicate through social media within Venezuela due to the lack of communication that they had through conventional media. Second, information started coming in from abroad ... someone from Caracas would communicate with a relative in Boston, and this relative would have

contacts in Barinas or in Táchira. The outside world worked like an operations center so people could fight what was happening.”—Julian (M, 23)

Julian called his family members several times per day to make sure that they were safe and to share information with his family about rumors he had heard regarding where the soldiers were going to attack. Pointing to the relational impacts of IC, Julian said that sharing this type of information became a burden to his family because it “*created a panic both among the people in Venezuela and abroad because everyone was in fear. So, that was the moment where you didn’t know if [your family] did or didn’t want to know, because it would create more fear in Venezuela.*”

To navigate the relational consequences of piecing together and sharing this information, Julian decided he would only tell his family information if he thought their lives might be in danger. Julian described how he often had to weigh the benefits and the potential drawbacks of sharing information with his family saying, “*I’m like a shield for them. I would rather take on the stress of knowing this information then having them decide what is helpful and what is not. They are going through enough already.*” Since this news led to increased stress for people in Venezuela, participants began to limit the amount of information they shared with family members and friends, illuminating how IC involves making difficult decisions regarding how best to care for others.

Participants also have to contend with is the increasing inflation in the country due to the collapse of the economy. As people turned to the Internet to find resources, Julian said that the government shut down local websites that were tracking inflation prices and acting as local classifieds. Instead, people use social media sites to bypass government suppression of pricing and inflation data.

“People turn to WhatsApp or Instagram to post the price of cars, the price of houses because the government prevented people from doing that on formal websites. Instagram is difficult for the government to control, because you can post a picture. In the picture you write the price. What I do is basically monitor social media to find pricing data and share it with others. Social media has become the new central bank of Venezuela.”—Julian (M,23)

Julian said he is trying to build something more sustainable that will help his family members, as well as others, find fair prices without having to rely on the extensive infrastructural care that is currently taking place for people to piece together multiple types of information and resources to try to acquire the things they need. With the increasing hostility in the country and the decreasing amount of resources, participants described how they began to undertake a different type of informational support: the education of audiences outside of Venezuela as to the worsening situation. Valentina said, “*If it wasn’t for social media and the help of people living outside, nobody would have known what is happening in Venezuela.*”

5.1.2 Navigating Consequences of Information Sharing. As the situation in Venezuela continued to worsen, participants increasingly felt the need to raise awareness among non-Venezuelan people in the countries where participants were now residing. However, participants soon encountered tensions of visibility as multiple audiences converged within and across social media platforms. Feeling the effects of context collapse occurring across popular social media sites, participants grappled with actions that were intended to care for certain groups, but which were also perceived as forms of harm by others. Once Mario realized that his American friends did not believe that the situation in Venezuela was as dire as he said, he began posting images and videos on Facebook that he had gathered from Venezuelan WhatsApp groups, tweets from Venezuelans on Twitter, and posts from Instagram. Mario described sharing this information as a cathartic way for him to earn legitimacy among Americans in regards to the gravity of the situation in Venezuela and, in this way, coping with his feelings towards the crisis. He also hoped that this awareness would lead

non-Venezuelans to find ways to help people in the country. However, sharing these posts also had negative relational consequences.

“One of my uncles said, ‘your little cousin is on Facebook, can you not share these violent images?’ But I had [American] friends sharing my posts saying, ‘Wow, dude, thanks for sharing.’ I think it did some good. But some Venezuelan people are like, ‘You don’t live it. Why are you sharing that? You’re living in comfort.’ That’s ignorance. I don’t understand it, because I’m trying to help and some people take it the wrong way. I mean, they’re right, I don’t live there.”—Mario (M, 30)

While speaking with Mario over video chat, he shared some links with me that he had posted to Facebook, many of which he has since deleted because they offended his relatives, especially in Venezuela. Mario said that he felt as though he had to share some of the violent images and videos because, otherwise, people would not believe that the situation in Venezuela was as serious as it actually was. To manage the delicate balance between raising awareness and offending relatives in Venezuela, Mario began posting news about Venezuela for only one or two days and then removing it. Mario explained that he felt someone had to educate others as to what is going on, but he also did not want to cause more pain to people in Venezuela (or to generate tensions between himself and other family members). Further, Mario removed his professional information from all social media sites except for LinkedIn because he did not want people in Venezuela knowing that he works in finance, since *“it makes it worse because they think I have money and that I’m complaining about something while I myself am living in luxury, even though that’s not true.”* At times, actions that were intended to care for certain groups were also perceived as forms of harm.

In addition to offending others, participants spoke about the potential security risks from openly sharing information online that was directly critical of the situation in Venezuela. Julian said that he became involved in raising awareness about the situation in Venezuela by posting on Facebook. As an undergraduate student at a university in the northeastern United States, he worked with other Venezuelan students and attempted to speak out about the situation in Venezuela to educate others. Exemplifying the dialectic nature of IC, Julian described how he feared his family might suffer as a result of his outspokenness, which created what Julian describes as an internal *“division.”*

“There is like a division in what you can do. On one hand, you don’t want the situation to personally affect your family, but you also want to be part of that information network so the world will find out what is happening in Venezuela. There was a division because the more you participated, the higher the chance that the government can see what you’re saying and... they might attack your family.”—Julian (M,23)

Due to Julian’s continued posts on Facebook and Twitter and his involvement in student-led protests, the Venezuelan consulate in the American city that he was living denied him services (including renewing his passport so he could return to Venezuela to visit his mother). At this point, his mother began to negotiate with him, asking him to stop all of his activity spreading news and speaking out against the situation in Venezuela, because she feared for his safety and hers. Julian began to limit his involvement with activist groups and the type of information he shared on his Facebook wall. He began using the Notes feature on Facebook as a way for him to share his thoughts about the situation in Venezuela in a more *“academic or reflective”* way. He said this allows him to engage and cope with the crisis but in a less risky way because his notes are not as visible or as incendiary. Julian has shifted his involvement in the *“information network”* to focus on other activities, such as the lack of resources in the country. In addition to shifting needs, Julian said that negotiating the information and risks, along with the relational stress that was generated between himself and his mother, were unsustainable activities and that there were more pressing needs. Participants said they grappled with the shifting nature of the crisis and the types of actions

they choose to undertake. Some have shifted their actions to cope with the crisis, particularly due to feelings that the spread of information is not as valuable as it once was, nor is it sustainable, because of the emotional toll and security risks. For example, Valentina said she avoids posting about Venezuela on Facebook because “*it is a matter of security*” for her family in Venezuela.

“I avoid expressing anything on Facebook because my last name is rare and my mother and brothers are still in Venezuela. I’m very careful. The people are starving and there is no enforcement against kidnapping or robbery. If I post something and it looks like I have money, they can find my family in Venezuela and kidnap them until I pay them. It happens. So I avoid exposing myself and my family on Facebook because people there are pretty much on their own.” – Valentina (F, 43)

Valentina emphasized multiple times that people in Venezuela are “pretty much on their own” because there are no reliable, formal structures to help them. Venezuelans who have been able to leave the country often felt a responsibility to mitigate risks for others, a theme that participants regularly emphasized during interviews. Echoing another element of IC, participants discussed how they had to take time to decide what work to focus on and what would have the greatest impact while also balancing their own resources. For some participants, this involved shifting the nature of their efforts. For example, Juan said that he finds it more beneficial to equip people in Venezuela to protest, rather than organizing and attending protests in the US against the Venezuelan government. Juan described how people in Venezuela have now developed their own information networks and that they do not need people outside of the country as much. Similarly, several participants said that the world outside of Venezuela (at least as they perceive it) knows about the situation but that nothing has changed. In fact, several spoke about how conditions in their home country have further deteriorated, like Julian.

“We are out of focus. When [people in Venezuela] send news, ‘we don’t have food, we don’t have medicine, people protesting, three people killed’... you don’t know what to pay attention to, so the process of creating priorities is very difficult. Sometimes you are overwhelmed with information and the best solution is to not share it.”—Julian (M, 23)

Like Julian, participants intended to care for others, but this also exposed them to overwhelming amounts of information. After a variety of informative, awareness-raising efforts, several participants said that they began moving away from these types of activities, demonstrating the ways that IC requires constant management and negotiation as people try to discern ways to care for others in sustainable ways.

5.2 Infrastructural Care for Material Support

Due to the increasingly dire situation in Venezuela and the continued failure of formal, critical infrastructures, participants said they felt the responsibility to take care of their loved ones themselves. Participants spoke about piecing together a variety of social media platforms to accomplish tasks, calling sites like WhatsApp an “*operations center*,” as Gabriel describes it. As participants moved from informational support and awareness building, many found that the network structures that they had formed across social media platforms evolved to be useful for other purposes, particularly in piecing together tangible forms of aid. I use the term *material support* to classify the actions that participants take to identify, locate, and deliver resources (including clothes, food, money, and medicinal supplies) to individuals and groups in Venezuela. The humanitarian crisis resulted from economic crisis and, as a result, participants felt that sending supplies to people in Venezuela was one of the most important ways they could support people. Participants directly addressed the ongoing material scarcity in Venezuela by coordinating deliveries of needed items via online and offline networks. In the stories that follow, I illustrate how this material support ranged from knee

braces for a friend's mother to a larger campaign to send shoes to schoolchildren. Participants were unable anticipate these needs but mobilized their online and offline resources to accommodate them, highlighting the ad-hoc nature of IC.

5.2.1 From Knee Braces to Shoes. Each morning as soon as she wakes up, Maria reaches for her iPhone on her bedside table. She first opens WhatsApp, scrolling through the multiple groups she's a part of that include a combination of her family, her classmates from back home in Venezuela, and other groups that include members of the Venezuelan diaspora around the world.

"The other day, my friends' mother [in Venezuela] had a knee operation and she was looking for a knee brace, she could not find it, so we made a chain and everybody was looking through that chain, for that knee brace in Massachusetts." —Maria (F, 57)

Maria moved to the US with her husband and two children in 2008. Through travel, phone calls, and social media, she stayed closely involved with friends, family, and organizations in the country. However, as travel became increasingly difficult and dangerous, Maria increasingly turned to social media platforms in an attempt to piece together a variety of efforts to *"do whatever I can."* In the case of the knee brace, Maria described how she and others *"made a chain,"* and began piecing together information and contacts, moving between various groups in WhatsApp, contacts she had on Facebook, and text messages with others to look for the knee brace. Within two hours, Maria had located a knee brace and began making arrangements to have it delivered to her friends' mother in Venezuela. Maria described this as just one, small success among many efforts that individuals are undertaking, many of which are unsuccessful.

In addition to using IC for isolated needs, participants also developed more robust efforts, revealing the tensions of sustainability when managing ongoing efforts. Daniela described how she originally began organizing events in the US to help Venezuelans speak out about the current situation. As economic conditions in Venezuela continued to worsen, however, she felt the need to do something different because she *"wanted to have an impact on people there that I care for."* Through WhatsApp, Daniela sent a message to one of her close friends, Norman, who is a teacher in "one of the poorest" neighborhoods in Caracas, Venezuela's capital, and asked him what was needed most. Norman told Daniela that, "the kids can't even come [to school] because they don't have shoes or sneakers to walk along the rocky paths to school." Daniela decided that this was the way she could contribute to the community in Venezuela.

Daniela started with her offline networks, piecing together infrastructures of care to acquire, store, and send the shoes to Norman's school. She spoke to members of the Zumba classes she teaches at senior centers, to her coworkers, and to her neighbors. Daniela's friends and her daughter's friends helped Daniela pack up more than eight boxes of shoes, which she shipped to Norman's school and to a friend's church in Caracas. A local junior high school student heard about Daniela's efforts and asked if she could hold a shoe drive at her school. Daniela worked with the student to receive permission from the school, promote the shoe drive, and organize supplies to collect the shoes. The drive brought in more than 500 pairs of shoes, filling 21 boxes. However, sending supplies to Venezuela has become increasingly expensive. Traditional logistics and shipping infrastructures are no longer reliable in Venezuela and participants reported that supplies are often stolen if you try to send via regular mail. Therefore, several groups have emerged that try to guarantee secure delivery to Venezuela (often advertising through posts on social media channels). However, to do so, these groups charge high rates. Most participants try to rely on their own social networks or friends of friends to send supplies to friends and family, as Carla describes:

“Due to the humanitarian crisis that we have, we spread the word if somebody needs something or someone is traveling to or from Venezuela to get supplies or send supplies, we try to make it work.”—Carla (F, 24)

Although Daniela tries to use personal contacts to send supplies to Venezuela, she had collected so many shoes that it was too expensive to send through her personal network. Daniela organized an additional fundraiser through Facebook and collected around \$1,700 for shipping fees. After Daniela ran the fundraiser on Facebook she created a video to thank the people that participated. The subsequent response was overwhelming, and required more work and negotiations of Daniela.

“I created a thank-you video for the donations and shared it on my Facebook page. In less than 48 hours, I received more than 50 messages from people in Venezuela asking for shoes and at the end of four or five days, we received more than 20,000 views and more than 720 shares of the video. It was great marketing, but I could not hold it. I started trying to track down the places, the messages responding and you know, trying to see where the shoes were going... I spent like four or five hours each day and that is too much for me. I mean, I have to work, right? I started receiving so much every day that I decided to delete the video from Facebook.”—Daniela (F,43)

In addition to the influx of messages and the added work, Daniela had to piece together resources to find a place to keep all of the shoes. She asked friends to volunteer to help her drive the shoes to a friend’s house about 50 minutes away from her so that they could store them in the friend’s garage. She’s currently trying to raise more money to send the additional shoes that have arrived at her house since sharing the video. Daniela said that she feels that the Venezuelan government is not doing its part for its people and that other services have failed them; therefore, it is up to her and others to piece together various contacts, resources, and social media platforms, improvising solutions to get the shoes to Venezuela. Facebook facilitated a form of visibility that was needed to collect the shoes and money to ship them. However, it also brought an influx of work for Daniela due to this visibility. Currently, she has had to put the shoe collection on-hold because, *“I cannot do it all by myself. It’s too much work.”* Daniela said she hopes to be able to start a non-profit so that these efforts are more organized because, over time, the work she has to do she feels as though she cannot *“hold it.”* Until then, she will have to continue to improvise and do bits of IC work herself, relying on friends who have offered to help. This case is an example of the way that IC consists of ongoing, frequently banal actions that are driven by a motivation to care for others but require work that is not always sustainable. Moreover, Daniela has scaled back her efforts to focus on people that she knows in Venezuela because those efforts are more sustainable.

5.2.2 Ongoing material support for loved ones. Gabriel immigrated to the US from Venezuela three years ago, leaving behind his parents, siblings, grandparents, and most of his aunts, uncles, and cousins. He worries about the state of Venezuela and the rest of the people there, and he also emphasized that his central concern is focused on his family. In addition to several WhatsApp groups for Venezuelan friends, Gabriel has two family groups on WhatsApp. One includes all the members of his family and is for “general” conversations to stay in touch with what is going on, special events, and how people are doing. The second “smaller, secret” group contains Gabriel and three of his cousins (one of whom is in the US and the other two who are in Venezuela). To care for his family members both tactically and emotionally, Gabriel and his cousins use their closed group to speak openly about what is needed and to coordinate their efforts.

“In that group we discuss what is lacking and where to get it to help my cousins coordinate on the ground. And we made an agreement that we have a monthly goal of a certain amount of money, what we can at the moment, and to keep that money for whatever thing

that is needed in Venezuela, whether it's food or a situation comes up where someone needs to go to the doctor or some medication that is needed at the time."— Gabriel (M, 28)

Demonstrating how IC serves as a form of emotional protection, Gabriel said that they formed this separate group because it was too stressful for older members of his family to be involved in discussions regarding topics of scarcity and sickness. In addition to saving up money, Gabriel pieces together information from the US by contacting other people in Venezuela and monitoring WhatsApp groups and Instagram in an effort to track down supplies as needed. Gabriel also works with his cousin to collect US dollars to send to Venezuela. Julian likewise assists his family financially by spending several hours each day exchanging money:

"I conduct currency management for the family; I'm on the lookout to buy foreign currency when they have Venezuelan currency and exchange it. I help not because they don't have the tools but, with the Venezuelan internet, it could take you an hour. If I do it [in the US] it takes 10 minutes. So we use WhatsApp to communicate 'Hey, I need to exchange 10 million bolivars,' and then I find the way. My main source of help is providing them with a solution to fight inflation, and this is something that happens daily with my direct family and maybe weekly or monthly with uncles and aunts, because if they don't exchange their salary in two, three days then 50% of the value's gone, so that's a tiring process, but at this point it is necessary. I work on this more than 20 hours a week."—Julian (M, 23)

Between his full-time job, other responsibilities, and the IC work he engages in, Julian said he sleeps less than four hours per night. Julian emphasized that he has access to the tools to help his family and that is what he "*must do*," though he hopes to find less time-consuming ways to support them. Even as participants move towards finding more long-term solutions, there are continual complications, including the emotional tolls resulting from ongoing IC efforts.

5.3 Infrastructural Care for Emotional Support

Participants described emotional support as the most consistent and persistent way that they attempt to cope with and care for others during the ongoing crisis. Drawing from social support literature [77], I consider emotional support to be offering or receiving comfort and security from others during times of stress, which allows the person to feel that they are cared for by others. Although more "tangible" forms of aid described in section 5.2 are important, prior research has highlighted how geographically separated families use information communication technologies (ICTs) to provide critical mutual, emotional support [82]. Similarly, participants in this study emphasized they were most often called upon and felt an obligation to provide emotional support for loved ones, support mediated by social media.

5.3.1 Positivity as a Weapon. While meeting with Gabriel in a Latin American restaurant in the Northeastern US, he spoke animatedly about how he tries to send positive energy to his family and friends across various social media accounts. Gabriel also said, "*I try to post positive images about Venezuela so that the rest of the world knows that there is more to our story than what is happening now. I miss Caracas, I miss my city a lot.*" At this point in our conversation, Gabriel began to sob. He quickly pulled out his smartphone, opened Instagram, and showed me a photo he had posted of him with his family in Venezuela. "*Look at us together,*" he said, "*It helps to look at the happy times, if not, one cries all the time.*" Gabriel described how he uses WhatsApp as a way to regularly connect with friends and family:

"We talk a lot on WhatsApp. Despite the fact that we're far away... we work to maintain a beautiful relationship and try to help each other with what we can... I think my greatest

weapon to help my friends and my family is listening and talking with them and giving them good vibes, because I can't give them more than that. — Gabriel (M, 28)

Gabriel spoke about how he sends pictures to his family's WhatsApp group of activities he is doing to try to lift their spirits. He tries to listen to their concerns while also encouraging them to look at life with a more positive outlook. Gabriel describes the emotional support he provides as his "greatest weapon" to combat the crisis. This mentality was indicative of other participant accounts of emotional support as a way to help others, as well as themselves, feel as though they were doing something to combat this crisis. In addition to providing care through emotional support, participants also saw this as a way of coping with the crisis and the ambiguous emotions that they encounter. Valentina uses several WhatsApp groups to maintain her connection to family and old friends who are still in Venezuela. While they discuss a variety of topics, their conversations often begin on the topic of scarcity and the fear that people are experiencing.

[Conversations] usually start with all the problems of scarcity. Scarcity of food, of money, and the exchange rate is humongous... I kind of let them talk about what's worrying them... and then I try to tell them other things. Like kind of change the subject so they can talk about something else and not how bad they're doing all the time, you know? They're really stressed out; that's what I really feel most sorry about. —Valentina (F,43)

Like Gabriel, Valentina attempts to shift conversations to topics that are more lighthearted to provide positive emotional support for her family and friends. IC, therefore, also involves trying to manage the stress and emotions of others, which can itself be stressful for participants.

5.3.2 Managing Connection and Disconnection. When Alejandro moved to the US from Venezuela with his mother in 2014, their transition was incredibly difficult. Alejandro said that after his mom was unable to find work after a year in the US, he felt that he had to "steer the ship" and care for his mom emotionally and financially. To do that, he felt he needed to disconnect from Venezuela.

I decided that year that I just wouldn't care about Venezuela. Like, I'm done. There's nothing there for me, I've moved on, ... you cannot change the bad choices your parents or other people in the country made or the fact that everything went south. That's not my fault. I can't do anything so why stress over something you cannot control? You need to keep moving on. If you stay put and you don't move on, that's how you lose sight of what's important and what the future has for you. — Alejandro (M,22)

Alejandro told me that he has removed all information on his social media profiles that connects him to Venezuela in an attempt to distance himself from the country and other Venezuelans as much as possible. However, he still feels responsibility for his grandmother and his best friend, Enrique, both of whom are still in Venezuela. When speaking with them, he tries to avoid discussing the current difficulties they are facing.

I don't go into the situation [in Venezuela]. I learn sometimes about stuff occasionally because Enrique tells me stuff but I don't ask. I ask him how is he and tells me the usual and I don't ask more just because I don't want to know and I don't want to remind him that shit is going south.— Alejandro (M, 22)

Alejandro connects with Enrique over WhatsApp and through live video game streams, though he avoids speaking about Venezuela as much as possible. Alejandro said he needs Enrique, too, because moving to the US has been difficult and often lonely. With his grandmother, however, it is increasingly difficult to avoid discussing the situation in Venezuela. As a result, Alejandro has created some emotional distance between himself and his grandmother by not speaking with her as much over video calls or WhatsApp messages. Instead, he sends his well-wishes through his

mother. While Alejandro says he no longer has “*anything to do with the crisis*,” he is unable to fully escape it due to his relational ties and the ways he cares for Enrique and his grandmother.

5.4 Managing the Emotional Toll of Infrastructural Care

Participants said they have to undertake specific management tactics if they wish to sustain their IC efforts. Participants spoke about needing to be engaged in recent news, in an effort to piece together information, raise awareness, coordinate resources, and offer emotional support. However, this engagement is draining and participants also described it as traumatic. Maria says she tries to avoid news stories on Twitter and Instagram that are disturbing, but if she wants to stay connected to people in Venezuela, she is unable to disconnect completely, especially from WhatsApp.

The stories are heartbreaking. People fleeing the police. The images of children looking for food in the trash, that is disturbing, some images that I simply don't want to see. My spouse and I have a code for each other that we tag posts with to let the other know not to open them. So we comment on the posts but don't open the images.—Maria (F,57)

Maria has several groups that she follows and some of them are quite large, especially after WhatsApp stopped limiting the size of groups. If she wants to maintain her role in supporting people in Venezuela and feeling like she is involved, she has to be involved on WhatsApp, since Maria has to move within this same platform in her own efforts to confront the crisis, she and her spouse warn each other if they come across a violent image or disturbing news in these groups. Maria primarily uses this tactic on WhatsApp but, occasionally, her spouse will do this on Facebook, too. When she receives a notification from Facebook that her spouse has commented on a post using their code word, she knows not to view that post. They try to comment back to offer support while also trying to avoid seeing all of the heartbreaking stories. Maria and her spouse rely on each other to navigate emotional tolls.

Some participants said they turned to Instagram initially because they found it to be a more positive place than Facebook, Twitter, and the large Venezuelan-based WhatsApp groups. However, as time has passed, more organizations and individuals have used Instagram to share news stories of events happening in the country. After following hashtags like #VenezolanosEnBoston, I received posts that included images of starving children, protesters that had been shot in the streets, and videos of people running from the government. Even though he occasionally posts this type of news on his own social media profiles, Mario said that the contact impacts him, too, and that he is unable to fully escape it because, “*I'm involved so it comes at me on all sites: Facebook, Twitter, Instagram, WhatsApp, personal texts.*” Mario has begun to shut off his phone completely for several hours every few days so that he can create “*create some space*” for himself.

Participants described a sort of ambiguous push and pull element of undertaking IC over time and at a physical distance, particularly as mediated through social media platforms. When increasingly overwhelmed, individuals would pull back from their involvement with those still in Venezuela; however, this was more difficult to do when these people were family members and close friends. Although Gabriel said that the only weapon he can offer is listening to others, he also described how difficult it is for him on a daily basis to continue to offer this emotional support.

They only send bad news to me from Venezuela like, 'this one died, this one died, this one died... the neighbor died... I don't have food, I don't have money.' So I stopped following people and lots of news from Venezuela. It's very, very sad to see people that you know fighting, trying to eat. ... that is why I keep away from [certain people]... because it's about my well-being, too. —Gabriel (M, 28)

Since much of this communication is happening on WhatsApp, and Gabriel still wanted to be involved, he decided he had to stop engaging with particular people from Venezuela to protect his

mental health and to preserve his emotional energy for his immediate family members. However, Gabriel then received feedback from certain friends that he had not responded to in a while on WhatsApp. Echoing prior work on the expectations of connection that communication technology generates in personal relationships [31], some of Gabriel's friends were hurt that they had not heard from him, which made Gabriel feel as if he had abandoned them. With a few of these friends, Gabriel was able to explain to them why he had not been in contact as regularly and asked them if they could try to not to focus on the negative parts of life all the time. However, Gabriel added that this type of emotional and relational management takes "constant work" and there are times he is not able to do this work and he needs to pull away for periods of time from certain contacts or certain platforms. Similarly, Patrizia tries to talk about more lighthearted topics.

We don't really talk about Venezuela. It's really depressing. We'll just talk about silly things, at least with my family. But it inevitably comes up if you talk to somebody for long enough, because it's too much to ignore, obviously. I mean, the stories are all the same and increasingly worse every time you talk. — Patrizia (F, 32)

Participants try to mitigate the amount of negative content they consume but are not able to disconnect from the crisis completely, though some have taken more extreme measures in an attempt to shield themselves from the crisis (like Alejandro). Valentina emphasized how caring for others throughout this crisis should not be done at the expense of personal well-being.

Everything that I can do, I will do it. But I avoid getting hooked with that because I need to look forward. You have people [in the US] that live 24/7 in the news, in Venezuela. You can't live outside the US constantly, having all these things in your head. It's not good for you. I can't do anything for the country more than creating awareness. I don't think it's a selfish position, it's just a reality.—Valentina (F, 43)

6 DISCUSSION

In this paper, I propose the term *infrastructural care* (IC) to describe mundane, informal, ad-hoc actions of participants to piece together elements of infrastructures to care for others at a distance through ongoing breakdowns. Through the lens of IC, I explore the case of the humanitarian crisis in Venezuela, which provides an opportunity to study how, when traditional infrastructures are broken, participants turn to social media to make up for infrastructural failure and care for others at a distance. However, social media platforms alone are inadequate for long-term support of loved ones experiencing prolonged crisis. While social media facilitates instant (albeit mediated) access to personal connections across distance that would otherwise be impossible, engagements on these platforms require that participants navigate gaps, risks, and conflicting elements. In the sections that follow, I further unpack specific elements of IC based on my findings. I begin with the relational nature of IC followed by a discussion of how IC contributes to our understanding of prolonged crisis and breakdowns and action. I conclude with a provocation for how the relational nature of IC might contribute to the ways we study and design social media platforms.

6.1 The Relational Nature of Infrastructural Care

An attention to IC throughout the uncertainty of a prolonged crisis illuminates the deeply relational nature of participants' actions and the human cost of such actions. While social media mediated and facilitated participants' actions, these actions occur because of people and their connections to one another. IC hinges on relationships, specifically the expectations, management, and negotiation that come from being involved in human relationships. De la Bellacasa reminds us that care and relation are intimately intertwined because "to care about something, or for somebody, is inevitably to create relation...although not all relations can be defined as caring, none could

subsist without care” ([15]:198). This is particularly true because we live “in worlds made of heterogeneous interdependent forms and processes of life and matter,” ([15]:198) which are often more fragile and prone to breakdowns than the majority of HCI work acknowledges [38]. All forms of infrastructures are in a prolonged state of breakdown and rely on human effort and connection for their maintenance. This work offers IC to articulate infrastructural actions that are motivated by and enacted in order to care *for* others. For participants contending with these breakdowns, IC becomes the means by which they piece together bits of life and matter motivated and supported by human relations. As Steve Jackson states, “we care because we care” [37]:232). In other words, people care for objects, people, systems, and infrastructures because of their attachment to them. A focus on infrastructural care emphasizes the connections between actions and meaning, which flow from the interpersonal relationships between people.

The relational elements become even more strained during crisis, and even more essential. IC builds on prior work that encourages us to more critically consider the human connections, care work, labor, and emotions that feed into sociotechnical systems as well as the cost of these efforts, that are borne more by some than others. This emphasizes the unidirectional element of IC, as individuals are able to provide care, without expecting it in return, because of their ability to manage various infrastructures and resources as well as distance and visibility. However, conducting IC across various physical and digital infrastructures is not without risks or tensions. The development of the lens of IC through this particular case illuminates a specific type of infrastructural dimensions and action. However, I envision the lens of IC to be applicable more widely, such as the context of health [30, 41]. Further, although this case discussed the unidirectional nature of infrastructural care, future work might also investigate those on the receiving end of infrastructural care (in this case, people in Venezuela). More broadly, I encourage scholars to reflect more deeply how IC work is entangled in people’s relationships with social media platforms specifically and multiple infrastructures more generally. In the remaining sections, I explore how the relational nature of IC unfolds throughout a prolonged crisis and across varying actions as people contend with breakdowns.

6.2 Infrastructural Care During Prolonged Crisis

Globally, ongoing crisis is the norm for large groups of people. However, these circumstances have not been sufficiently explored in HCI or CI literature, which tends to focus on acute crisis [69]. This may reflect the experiences of privileged participants from what are perceived as relatively stable contexts, where crisis is experienced as sudden, unexpected, and rare. CI research on prolonged disruption partially mitigates these gaps by highlighting how infrastructuring by participants contributes to resilience, allowing them to overcome prolonged disruptions in their everyday lives [63]. Participants in this study hoped that one day the humanitarian crisis in Venezuela would be resolved; however, this came with an acknowledgement that this resolution may not occur in their lifetime and that their actions alone would not dramatically alter the situation. Participants are connected via social media to a prolonged crisis over which they have very little direct control. IC offers the promise of a modicum of agency while simultaneously exacerbating feelings of a lack of agency. Individuals spoke about needing to “move on” with their lives, but simultaneously recognized that there was no getting back to “normal.” Instead, participants acknowledged the ongoing uncertainty they must contend with throughout a seemingly never-ending crisis. As opposed to connoting ideas that one day they will be able to return to normal, participants described IC practices as ongoing, acknowledging that “overcoming” the crisis felt largely unattainable.

Given this dynamic of persistent disruption, the modicum of control offered through IC, and the associated human cost of performing this role, what is an appropriate response from those who study sociotechnical systems? Semaan acknowledges that “as people try to mitigate the impacts of

the everyday disruptions they face, the infrastructuring practices and subsequent sociotechnical infrastructures they develop can impact people in potentially adverse ways” ([63]:20). Still, he strikes a hopeful tone as he seeks to inform “how we can build sociotechnical systems that promote resilience, and thus caring for others” ([63]:20). While more sensitivity to systems’ ability to promote resilience and caring is important, so too is the emphasis on the unfinished nature of participants’ IC work. As Annemarie Mol reminds us, care is an action that “suggests enduring work that seeks improvement but does not necessarily succeed” ([33]:141). For example, Maria described her efforts as a few small successes among many attempts that don’t often work.

While it is important to continually question how sociotechnical designs can better facilitate people’s efforts, we cannot forget that actions of and connections between people will *always* be required to work within and across the gaps of multiple sociotechnical systems. Although they rely on social media, participants form the most important link within the sociotechnical infrastructures of care they assemble and enact. The intricate, contextual knowledge of participants facilitates their ability to care for others and provide support in ways that more formal, visible organizations have been unable to (and in ways that automated systems would be unable to). At the same time that social media should be flexible and supportive of these actions, they will never seamlessly adapt to the lives and needs of these participants, nor any other group of people. Instead of trying to “smooth out” or “design away” the work and effort required by people, what would it look like for sociotechnical systems to acknowledge, embrace, and create space for these types of efforts?

As a starting point, social media platforms require more scrutiny, especially when considering that, in conducting IC across various platforms, participants are using social media platforms as critical infrastructures, as argued by crisis informatics scholars [10, 13, 64, 69], which involve uses of social media often not intended or imagined by designers and companies. In the case of participants, conducting IC via social media platforms reveals the tensions between the imagined uses of social media platforms by designers and the ways participants appropriate these platforms for essential purposes. For example, Valentina was cautious regarding the type and amount of information she posted on social media sites, particularly Facebook, because she was worried that her family might become targets for robbery or kidnapping. While the visibility and connection fostered by Facebook may be intended to bring families together, in the case of participants, it placed them at greater risk when caring for others at a distance. Social media systems require a deeper level of scrutiny from designers, researchers, policymakers, and society, more broadly, particularly when considering the risks that emerge when social media platforms act as critical infrastructure during ongoing crisis.

6.3 Infrastructural Care as Action During Breakdowns

IC illuminates human action throughout ongoing breakdowns, making clearer the ways that people must cope with (in)visibility and distance. Nguyen’s conception of infrastructural action stresses how infrastructures are only possible *in* action and only exist *as* action” [56]:642). This perspective contrasts with notions of infrastructures and technology that fade seamlessly into the background. The assumption of invisible infrastructures is itself an assumption that facilitates “the feeling that things work and will go on working without the need for thought or action” ([24] quoted in [56]:641). This perspective, as Nguyen argues, reflects a vision of infrastructural modernity, which, “rests on the technological aesthetic of continuous connection, the erasure of social complexity, and the automation of human form” ([56]:641). Instead, participants must regularly contend with gaps and *seamfulness* [80], which make such infrastructures readily visible to them.

The prolonged nature of the crisis revealed the shifting nature of IC actions. For example, several participants began their IC efforts with goals of support via activism by speaking out and raising the visibility of the crisis. However, for most, these actions became unsustainable due to emotional, relational, and/or security reasons. Critically, it was the human cost of this type of

activism to participants that made it unsustainable for them, and encouraged them to shift to different types acts of care. The unsustainability of activism in conditions of prolonged crisis has potential implications for the possibility of political change during crisis more broadly. This requires a shift in our approach to technologies and sociotechnical systems that incorporates a broadened perspective of engagements with social media by examining the entire sociotechnical system. This includes an attention to the human infrastructures that support such actions and networks across social media platforms, technologies, communities, and geographic borders. Historically, infrastructures and acts of care have each been devalued and hidden [71, 74]. The ‘invisibility’ of infrastructures has been widely critiqued as a consequence of privilege. Star and Ruhleder’s original formulation of infrastructure [70] acknowledges this, and Star’s subsequent work dealt with the complexities of providing visibility for marginalized populations [71]. Similarly, Suchman reminds us of the complex trade-offs involved in making work visible. On one hand, visibility may provide legitimization, but it may also open people up to increased scrutiny and surveillance [74]. This paper joins with prior work in cautioning that the answer is not necessarily to increase the visibility of infrastructural action.

For participants, using IC to manage elements of visibility involved contending with a variety of audiences and consequences. Take Daniela, who was able to increase the number of shoe donations by broadcasting her post on Facebook. This increased visibility simultaneously created a burden for her, so much so that she was unable to sustain these actions. Participants also described managing visibility for the people they were intending to care for, such as not posting certain images that portrayed their privilege out of concern for those who were suffering and carefully crafting their online identities to not make their families victims of kidnapping. Managing this visibility required relational performativity [55] as participants controlled the visibility of their posts and even their Venezuelan identity to care for their loved ones and themselves. I seek to embrace the complexities of visibility and invisibility beyond their relationship to privilege. The (in)visibility of IC goes beyond the dynamics of privilege and should be considered within the complexity of its full context, while also recognizing the inherent privilege and power that is built into these systems.

6.4 Infrastructural Care and Design

Echoing calls to move beyond the optimistic “implications for design” [19], there is no neat requirement to add to a system specification that emerges from this work. In thinking through potentials for design, I suggest emphasizing the importance of supporting disconnection as a means of sustaining long-term connection. I am inspired by the term “designing for dialectics,” a phrase Nancy Baym posits in terms of relationship management between musicians and audiences [6]. Baym argues, “developers should focus more attention on developing sophisticated approaches for letting people scope the scales of their interactions and defined and manage boundaries as they see fit, rather than pushing them always toward more connection, more engagement, and more openness” ([6]:203). The development of IC as a framework is grounded in participants’ own relationship to the crisis, their experience of diaspora, and the fact that they are in an in-between position: participants have personal roots in and continuing connections to the crisis, even as they are geographically distant from it.

Participants experience the crisis differently than those they seek to care for because they do not face the same immediate harms. Unlike Nguyen’s participants’ negotiation of distance from the peripheries of power and privilege [55], participants in my study negotiated their distance from harm and violence alongside their proximity to power and privilege. According to participants, their IC actions were only possible because they were at a distance from the crisis. This case is also different than Jack and Jackson, who found that conducting care at a distance can exacerbate issues of power imbalances because professional caregivers may be less familiar with the needs

and experiences of care recipients [35]. Because participants were conducting care on behalf of family members and friends, they had intimate knowledge of the needs of care recipients. These participants are able and feel obligated to care in this way because of their position outside of the center of the crisis as well as their relationship to those they are caring for.

I also recognize that lived experiences are much more nuanced and complicated than implied binaries of power, privilege, and distance. People feel the need to confront the prolonged crisis through their involvement but this also exposes them to emotional, physical, and security risks. Further, participants are still coping with their own trauma, which can present different forms of dangers. Although participants are able to engage in IC because of their geographic distance to a crisis, IC also requires engagement with those directly and presently experiencing the crisis. However, unlike their friends and family in Venezuela, participants have the ability to manage their level of connection and distance to the crisis. They are able to access material and informational resources and to create emotional reserves of distance and positivity that, in some cases, allow them to continue this work.

The negotiations required of participants through IC were stressful, as participants attempted to disengage from the crisis, certain individuals, and platforms to various degrees. In addition to managing (in)visibility, participants also used IC to cope with multiple dimensions of distance, which include geographic and also emotional distance. While studies of crisis response have focused on how online tools facilitate remote collaboration and support during crisis [13, 81], less attention has been paid to the obligation that comes from the possibility of connecting across geographic distance. Social media platforms bridge distance and facilitate a type of closeness, but this closeness is not always desired. In addition to managing geographic distance, participants also had to manage emotional distance. Participants spoke about having an obligation to help and needing to manage their online identities so that they did not appear to be doing “too well,” thereby increasing the perception that they should be doing more to help others. Alejandro, for example, felt the need to create distance from the crisis by limiting the people he talks to, as well as altering how he presents himself online. Beyond material support, participants spoke about how providing constant emotional support had a negative impact on their well-being. Participants undertook strategies to put distance between them and specific individuals, content, and, sometimes, the entire crisis, in order to continue IC work, albeit to different degrees.

This strategy of disengagement to manage stress itself generated stress due to negative relational consequences. Participants spoke about how they tried to manage or mitigate emotional stress for people in Venezuela. De la Bellacasa emphasizes that the term “care” holds different, sometimes conflicted, meanings and resulting practices may not always be in the best interests of others [14]. Individuals act based on their understanding of how the world “should” be and these understandings are not always aligned. The constant connection encouraged by social media platforms, while facilitating IC at a distance, also imbued a sense of obligation on the part of participants to act. In their study of relationship maintenance, Hall and Baym describe how the affordance of the mobile phone imbues people with a sense of obligation and expectation to stay connected to each other [31]. Kaziunas et al. note how technical systems designed to ease the burden of care practices may also increase stress since these technologies facilitate constant connection or monitoring [41].

Similarly, among participants, social media platforms, particularly WhatsApp, facilitated a sense of obligation, thereby increasing the labor of human action as participants negotiated between the type and amount of care work they should enact based on their expectations and the expectations of others. The widespread use of WhatsApp in Venezuela, as well as its perceived safety over other platforms like Facebook, generated an expectation among family and friends in Venezuela that, since their loved ones had the ability to be connected to them regularly, they *should* be. The lens of IC, while focused on the minutia of human action, draws on infrastructure scholarship to consider

how these actions occur in relation to a variety of other infrastructures, technologies, cultural norms, and global flows. The affordance and expectation of constant connection, combined with the cultural expectation of putting family first as well as the failure of the wider political and economic infrastructures in which participants are embedded, placed a burden on participants. The ability to exhibit agency through social media platforms is accompanied by social and societal pressure.

In other words, there is a recursive element to IC: it serves as a means to cope with crisis but also requires its own form of coping. Recent CSCW work on the lived realities of care work has emphasized how it is full of tensions [30, 41], which Kaziunas et al. describe as a multiplicity of care experiences [41]. As Jack and Jackson argue, infrastructures do not exist in binaries such as visible or invisible and broken or not broken (or critical or not critical) [35]. Instead, they fluctuate between categories or can exist in all of these states simultaneously, depending on one's vantage point [35]. Similarly, when considering the specific ways participants cope with gaps, seams, and breakdowns in various infrastructures, accounting for the variety of experiences and vantage points poses the question: for whom is this infrastructure breaking down? And who has to do the extra work to make up for breakdowns? In this regard, the lens of IC is intended to create space for the multiplicities of care experiences and the variety of consequences that emerge in relation to infrastructural action, as well as system design. Deep ethnographic studies of the sociotechnical assemblages of IC will help us better understand the human cost of infrastructural failures, the actions required to contend with gaps, and the relational connections that motivate and facilitate infrastructural work.

7 CONCLUSION

This paper documents how members of the Venezuelan diaspora confront an ongoing crisis in their country of origin through infrastructural care (IC), defined as infrastructural action as a form of caring *for* others at a distance through the ongoing management of resources, relationships, and infrastructures. IC serves as a form of unidirectional care as participants, who are removed from the center of a crisis, continually act on behalf of those directly experiencing a crisis. While IC serves as a means of exhibiting and reclaiming agency, it is also stressful and draining as people must negotiate between various forms of distance, closeness, visibility, and emotional tolls. The sociotechnical phenomena of prolonged crisis are not fully visible in either acute crises or periods of privileged normalcy. For marginalized groups within Western society and around the world, contending with ongoing breakdowns and crisis is a daily reality. While it is important to continually question how sociotechnical designs can better facilitate people's efforts, we cannot forget that the actions of people and the connections between them will *always* be required to work within and across the gaps of multiple sociotechnical systems. Rising global challenges and inequities demand our field adapt to situations of ongoing crisis more adeptly, recognizing the people at the center and peripheries of crisis and the ongoing IC work demanded of them.

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