This Doctoral Thesis, *The Impact and Social Response to COVID-19 in Chelsea, Massachusetts,* presented by Cristina Alonso, and Submitted to the Faculty of The Harvard T.H. Chan School of Public Health in Partial Fulfillment of the Requirements for the Degree of Doctor of Public Health, has been read and approved by:

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The Impact and Social Response of COVID-19 in Chelsea, Massachusetts

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A Doctoral Project Thesis Submitted to the Faculty of The Harvard T.H. Chan School of Public Health in Partial Fulfillment of the Requirements for the Degree of Doctor of Public Health

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The Impact and Social Response to COVID-19 in Chelsea, Massachusetts

Abstract

Chelsea was one of the hardest-hit communities by COVID-19 in Massachusetts. Chelsea was known for its weaknesses: high rates of over-crowded housing, a large immigrant and Latinx community, low-wage workers among larger systemic problems. Overlooked in public health research on Chelsea are its strengths and capacities that were activated during the pandemic to ensure residents had access to basic needs, psychological needs and even found a sense of purpose.

This doctoral project sought to understand the impact and social response to COVID-19 in Chelsea through a mixed-methods approach. This included 1) analysis of 3302 COVID-19 positive cases for Chelsea from March to August to understand the disease distribution and 2) a community impact survey among 365 participants to investigate the economic, social, and emotional impact of the pandemic. Qualitative in-depth interviews were conducted with 16 female heads-of-households to discern resilience within Chelsea families throughout the pandemic´s devastation.

The project finds that while Chelsea was disproportionately impacted by COVID, it simultaneously activated a grass-roots, culturally driven response built on feelings of belonging, collective wellbeing, and sense of purpose.

This thesis describes how responding to a pandemic can go beyond meeting the basic needs and build a community where other, more complex levels of needs are also integrated simultaneously. I propose that for crisis relief and public health programming to be relevant and trusted by beneficiary communities, these must attend to the range of human needs in ways that make sense to them, are easily accessible, and are grounded in their values and assets.

Recommendations identified as necessary for successful implementation include:

1. Strengthen the Public Health infrastructure of Chelsea.
2. Integrate social protection and support services within a single wrap-around model.
3. Focus on a harm reduction approach to COVID prevention.
4. Ensure that programs and funding focus on building trust and participation with the Chelsea community.

Understanding Chelsea´s vulnerabilities and strengths can give public health practitioners and policymakers insight into guiding the response to COVID-19 in similar communities. It is becoming more widely accepted that response must include a strategy for addressing health inequities. These insights are relevant to other communities in the US.

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Acknowledgements

To Chelsea.

“Trabajo bruto, pero con orgullo

Aquí se comparte, lo mío es tuyo

Este pueblo no se ahoga con marullos

Y si se derrumba, yo lo reconstruyo”

Latinoamérica, Calle

Introduction

On January 30, 2020, the World Health Organization declared COVID-19 a Public Health Emergency of International Concern (PHEIC). Few could begin to understand the impact that this pandemic would have on how we live our lives. Early on in the US, public health officials began to signal the grave impact the virus was having on marginalized groups. Researchers began to understand that the rates and outcomes of COVID-19 varied among racial, ethnic and economic groups, signaling the immediate and concrete materialization of how social determinants of health impact disease distribution (Bassett et al., 2020).

Among the groups disproportionately impacted by COVID-19, by June, 2020, the U.S. Latinx population represented 34.6% of all COVID-positive cases, while representing only 18.3% of the U.S. population (CDC, 2020). In comparison, Black non-Hispanics represented 20.8% of cases, Asians 3.6%, Native Americans 1.4%, and other race and ethnic groups 4% of cases.
In California, a state where 39% of the population is Latinx, this cohort represented 56% of all cases and 40% of deaths from March to June 2020. Researchers sounded the alarm that COVID-19 was occurring against a backdrop of social and economic inequalities in existing health conditions, including higher rates of non-communicable disease (NCDs) among certain racial and ethnic groups and unequal access to health care services (Bassett et al., 2020; Chin et al., 2020).

Latinx represent 18.3% of the U.S. population, reaching 59.9 million in 2018 (US Census Bureau, 2020) plus approximately 10-12 million undocumented people (Stenglein, 2019). Latinx are a diverse group, immigrating from the region with the highest rates of income inequality in

the world (OECD, 2020; Von Haldenwang, 2005). Latinx workers in the US represent the largest cohort of low-wage workers in the US, among which only 38.2% have access to health care coverage (Mijente Support Network and the Labor Council for Latin American Advancement, 2020).

To understand the impact of the pandemic on Latinx in the US, public health professionals must consider the combination of systemic failures that include social marginalization, economic poverty, high rates of low wage essential jobs, and low access to healthcare services (Velasco-Mondragon et al., 2016). Even before the pandemic, Latinx suffered disproportionately from low quality social and physical environments in the US that impacted their health outcomes (Velasco-Mondragon et al., 2016). Latin America has been described as the region with the worst health and economic inequities in the world(OECD, 2020; Pan American Health & Organization, 2020; Von Haldenwang, 2005). Many Latinx who immigrate to the US leave countries because of political instability, dire poverty, the profound impacts of the "War against drugs" and drug trafficking gangs that have destroyed the social fabric of many Latin American countries (Bodvarsson & Van den Berg, 2009; Dudley, 2011; Wolf, 2010). The experience of collective and personal trauma on Latinx immigrants not only impacts their decision to leave their homes, but can also impact their physical and mental health in adverse ways throughout the life course and in future generations (Shonkoff et al., 2012; van Steenwyk et al., 2018).

Latinx immigrants have been systematically targeted as unwanted immigrants into the US, and during the Trump administration a number of policies were implemented to ensure that Latinx people could not enter the US, or would have a higher likelihood of being deported. These

policies increased fear and mistrust of government and its systems and decreased use of public services (Lopez et al., 2018; Torres et al., 2018). Policies changes such as the expansion "public charge[1]" directly restricted access to social protections, and continued a federal policy of systematically marginalizing the Latinx community from achieving their health and wellbeing potential.

This complex intersection of geopolitical, social and economic realities lay the foundation for the COVID pandemic to disproportionately impact Latinx communities. By October 2020, half of all Latinx workers lost their jobs or took a pay cut due to the pandemic, exceeding the rates of any other ethnic group in the US (Shiro, 2020). Rates of hospitalization for COVID among Latinxs are 4.1 times higher and mortality among Latinx is 2.8 times higher than among whites (CDC, 2020). Chelsea, a suburb of Boston, Massachusetts, with a predominantly Latinx population (67%) (US Census Bureau, 2020) serves as a case study for the interplay of the impact of COVID, Latinx cultures, and social inequities.

The city of Chelsea occupies about two square miles just north of Boston. It has an estimated formal population of 40,000 residents, but informal estimates claim there may be up to 75,000 residents (Editorial Board, Boston Globe, 2020). A city of mostly low-wage Latinx immigrants, it is known for having overcrowded and substandard housing, high levels of poverty and food insecurity. While the underlying social and economic realities of this community might have

[1] "Public Charge" is a policy whereby anyone who is likely to become a dependent on US government assistance can be denied a visa, green card or citizenship. The policy has been in effect since 1882. During 2019 Trump administration expanded the list of benefits that USCIS can consider when determining whether a person is a public charge and placed particular emphasis on conditioning the application or receipt of public benefits. The goal of the expansion was to limit the number of low-income individuals who would receive legal residency or citizenship. https://www.uscis.gov/news/public-charge-fact-sheet

predicted a major catastrophe with the arrival of COVID, public health professionals and medical researchers were shocked when an exploratory study carried out in April found antibodies to COVID among 30% of Chelsea residents (Saltzman, 2020). By the week of June 10, 2020, Chelsea had recorded 2839 cumulative cases of COVID, at a rate of 7537 per 100,000 and a positivity rate of 38.14% which contrasted the state positivity rate of 15% (Massachusetts Department of Public Health, 2020). These data showed that Chelsea had a COVID-19 rate almost six times higher than the state average and that many of those being tested are positive, an indication of both a high rate of disease as well as low rates of testing (Barry, 2020).

While Chelsea possesses many of the vulnerabilities that characterize a community devastated by COVID, understanding the impact of the pandemic requires careful assessment of the ecosocial realities that drove such high rates of transmission and bad outcomes. At the same time, communities are much more than their vulnerabilities. Chelsea serves as a vivid example of this. While it suffers from deep disparities, the community also activated an unusual, effective and collective response that was unique in Massachusetts. Learning from Chelsea can teach public health professionals broader lessons about how vulnerabilities can activate grassroots responses that go beyond the basic needs of residents and establish systems for strength and resilience.

This doctoral project was conducted between June 17th, 2020, and January 30th, 2021. The goal was to investigate the impact and social responses to the COVID-19 epidemic among Latinx populations in Chelsea, Massachusetts. I sought to identify what ecosocial factors contributed to both the disproportionate levels of COVID-19 in Chelsea as well as the community's ability to organize for resilience and survival of the pandemic, and, finally, to understand what public

health professionals can learn from community-based responses to prepare for future waves and crises.

In order to investigate these questions, I used a Community-Based Participatory Approach (CBPR). This approach emphasizes the "importance of creating partnerships between researchers and the people for whom the research is ultimately meant to be of use" (Jull et al., 2017). CBPR was essential because I was seeking to challenge assumptions of what was defined as vulnerability and risk for the Chelsea community, and work with residents to identify what they felt were their most important strengths to get through the pandemic. This approach seemed appropriate as a way of overcoming the historic legacy of mistrust and misrepresentation between low-income Latinx communities and academic and health institutions. CBPR ensures participation and ownership by involving community stakeholders in guiding the design, methods, interpretation and dissemination of findings. My personal background, life history and experiences have taught me the importance of developing trust with local organizations and residents as key to any public health research or program.

A second methodological step was taking a mixed-methods approach. Mixed-methods combine both qualitative and quantitative methods which enables data from each method to be interpreted together. By integrating quantitative and qualitative results, findings become more meaningful and contextualized. Using a mixed methods approach allowed me to approach the impact and response to COVID in Chelsea in a multilayered way, recognizing the complexities and non-binary realities of the pandemic.

As the first step in building a trust-based relationship with Chelsea, I began the project by volunteering at La Colaborativa´s food pantry. La Colaborativa is a Chelsea-based organization, run by mostly Latinx women under the direction of Gladys Vega. The organization was built to address challenges related to Chelsea residents' wellbeing, including protecting immigrants´ rights, workers' protections and pay, access to legal documentation, job placement, and learning English, among others.[2] During the pandemic, La Colaborativa expanded to provide social protections, COVID outreach and personalized support for families. They also opened a food pantry that has distributed food, diapers, cleaning supplies, and personal protective equipment (PPE) five days a week since the first week of March.

I approached La Colaborativa with the intention of creating a doctoral project that would be useful to their work, while also helping to provide the City with the scientific and public health resources that it was severely lacking. With input from the La Colaborativa, the Local Board of Health, and City Departments running the Pandemic Response Team (Office of Planning and Development and Strategy and Innovation), I designed a project that included three main arms:

1. Analysis of COVID-19 positive cases in Chelsea,
2. A community impact survey,
3. In-depth qualitative interviews with female heads of households.

I adapted and applied a theory of change from the National Latina Network that proposes that change must come through a culturally specific community lens. This theory of change integrates individual, community, family assets, and strengths and policy context opportunities. Using this

[2] https://www.la-colaborativa.org/

theory of change as a starting point, I aimed to construct a theory of change that was empirically based – informed by the three arms of the project – that would accurately define the necessary changes and steps required to implement public health programs to improve wellbeing in Latinx communities, such as Chelsea.

I analyzed the positive COVID-19 cases to understand who was becoming infected with the virus in Chelsea, their symptoms and outcomes. The data analysis provided the City of Chelsea with key information regarding the distribution of COVID-19, including the fact that 30% of cases were asymptomatic; that the majority of cases were Latinx in their 40´s; and that the worst outcomes (hospitalization and death) were among pregnant women, elders and those with non-communicable diseases. Results from the analysis helped to shape public health messaging around testing and prevention, and has led to regular data analysis at a City level.

The community impact survey targeted beneficiaries of La Colaborativa´s services. This cohort is among the most vulnerable within Chelsea because they rely on social protections for survival and are often marginalized because of their immigration status, their level of English fluency and the multi-layered vulnerabilities that are present in their lives. The project intended to assess how the pandemic had impacted their lives, as well as their overall perceptions of COVID-19. Through over 400 interviews with people in the food line and on the phone, survey results show that almost half of residents lost their jobs due to COVID-19 and 83 percent of participants rely on food pantries for food. A quarter of participants had had COVID-19, double the city rate, and yet 38% still had not had a COVID test, mostly due to the lack of symptoms. While the impact of COVID has been extremely stressful to families, almost 80% also found that they finally had

time to be with their family, to be present for their children, and to actively participate in the community's response.

In-depth interviews provided insight into how the community of Chelsea activated informal support systems, which was a unique and defining feature of the community's response. Women were selected to be interviewed because in Latinx culture it is often women who resolve how food gets on the table, who provide the emotional health of the family and are the pillars of strength and wellbeing for families (Liu et al., 2017; Massey et al., 2006). The interviews elicited how the basic cultural values and structures that value family and collective well being over that of the individual within Latinx societies build family strategies for survival and resilience during COVID. Women described sharing food boxes with their sisters and friends, cooking for families with a sick member, distributing child care so women who had not lost their jobs could go to work, and praying together on the phone. The interviews explored how residents relied on each other for psychological, emotional and logistical support.

This thesis describes how responding to a devastating pandemic can go beyond meeting basic needs of food and housing and build a community where other, more complex levels of needs are understood as integral to a response that is meaningful and trusted by residents. The thesis presents a vivid, multi-layered framework that challenges the assumption that crisis response should be limited to ensuring access to basic needs. I propose that instead of attending to basic, psychological needs and self-fulfillment as a hierarchy (Maslow, 1943), the success of Chelsea´s response and resilience lies in attending to all three levels simultaneously reflecting the values and strengths as well as the needs of the community. Based on the Chelsea example, I propose

that through this circular model, crisis relief and public health programming to be relevant and trusted by beneficiary communities, these must attend to the range of human needs in ways that make sense to them, are easily accessible and are grounded in their values and assets. These needs operate in ways that are simultaneous, not sequential or hierarchical. Therefore, basic, psychological and self-fulfillment needs are always present and relevant to residents' lives, they do not emerge after one has been achieved prior to another.

This project identified the unique mitigation strategies that characterized Chelsea's resilience during the pandemic. Identifying community response and resilience can be key to addressing the social determinants of health that put residents at higher risk for COVID´s impact. This data and information should be used to inform future policy and plans for building a more equitable Chelsea that puts their strengths at the center as they address their vulnerabilities.

The thesis body explores existing literature relevant to the project, how I carried out the project, the results, conclusion, and recommendations from the analysis. The literature review examines existing literature on social determinants of health, the health of Latinx in the US, immigration policies and perceptions that shape access to resources, and the immediate impact of COVID-19 in Chelsea as reported by the Massachusetts Department of Health and the City of Chelsea. The methods section describes how each project arm was designed and implemented including data analysis of COVID-19 positive cases, the community impact survey, and qualitative interviews. The results section presents findings from each of these project arms while also proposing how a combined framework of addressing needs could inform public health programming and social protection strategies. Finally, the conclusion explores how these findings may be applied to

shape public health programming in other Latinx communities through four recommendations that aim to improve the relevance and impact of public health programs among marginalized groups, while also embodying their strengths.

Literature Review

The literature review describes the social determinants of health and the socio-economic and immigration context of Latinx in the US to give context to the vulnerabilities that existed prior to the pandemic that put this population at disproportionate risk from the impact of COVID. It begins with an overview of the ecosocial model of disease distribution and explores how this model helps us to understand the initial impact of COVID on Latinx in the US. The literature review then explores the health status of Latinx prior to the pandemic and the political context of Latinx immigration into the US. Finally, the literature review presents an overview of the public health response to COVID and its initial health impact of COVID in Chelsea prior to July 2021.

Ecosocial models of Disease Distribution

This project uses the lens of the ecosocial model to explore and understand the vulnerabilities and strengths of the community of Chelsea, Massachusetts, as it responded to the COVID-19 pandemic. The ecosocial model challenges the biomedical and individualistic understanding of disease as being the result of individual genes, lifestyle choices, and events. In addition, the model extends beyond a simplistic analysis of the impact of social determinants of health on disease occurrence and distribution to focus on the complex interplay of ecological, population, social, and health factors. These factors include understanding that:

- Triads of "age, sex, race" and "time, place and person" – used commonly in demographic analyses –are often culturally determined, and that racism affects the overall health of all social groups;
- Aging cannot be separated from the social conditions in which people are born, live, work and retire;

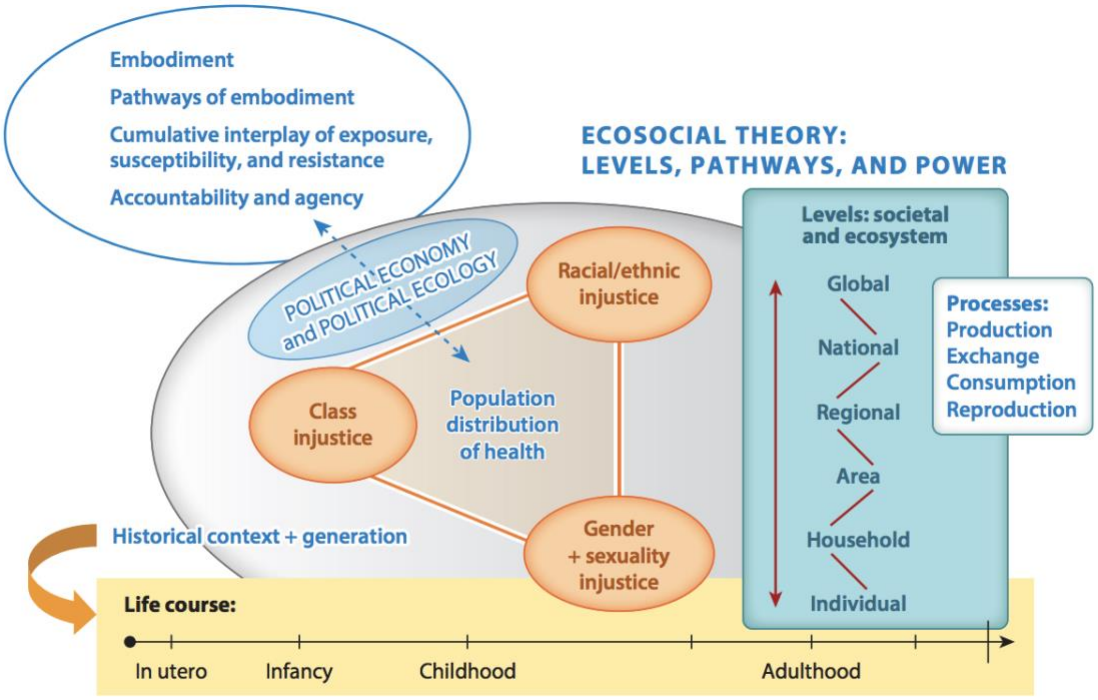
- Sex and culturally determined gender roles often promote culturally defined assumptions about the health of men and women;
- Health behaviors and choices are situated within political, economic and social realities that are often out of population group's control;
- Social conditions are not natural, but are created by humans; and
- Individual-level data cannot be used to explain group-level phenomena.

(Krieger, 1994)

Understanding the distribution and impact of COVID in Chelsea using the ecosocial lens helps to explain why residents were at higher risk, why their outcomes were more severe, and why the economic impact of the pandemic was so devastating.

The following figure illustrates how the ecosocial theory of disease distribution conceptualizes the relationship between population distributions of health, societal and ecosystem levels, pathways, and power to clarify how health inequities constitute biological expressions of injustice. This model is valuable to guide the interpretation and understanding of the COVID-19 outbreak and its impact on Chelsea.

Figure 1. Ecosocial Theory: levels, pathways, and power(Krieger, 2020)



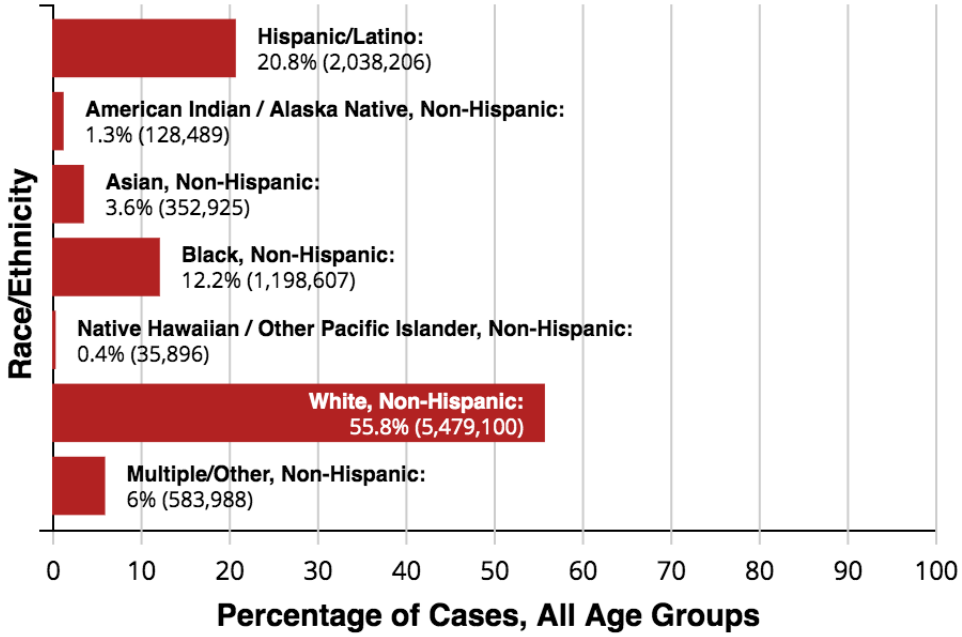
In order to apply this model to this study and to provide context for the doctoral project, background information on Latinx communities and Chelsea in particular was explored in the literature.

COVID among Latinx Communities

The epidemic has disproportionately impacted the U.S. Latinx population. Researchers have stated that COVID-19 is occurring against a backdrop of social and economic inequalities in existing health conditions, including NCDs and inequity in the social determinants of health (Bassett et al., 2020; Chin et al., 2020). The high prevalence of pre-existing conditions, including NCDs, may have exacerbated the incidence and severity of COVID-19 in Latinx communities (Bambra et al., 2020).

According to the CDC, by January 29, 2021 Latinxs represented 20.8% of all COVID positive cases (CDC, 2020). In comparison, Black non-Hispanic represent 12.2% of cases, Asians 3.6%, Native Americans 1.3%, and other race and ethnic groups 6% of cases. It is important to note that half of all cases still lack race and ethnicity data. Without accurate counts we may be vastly underestimating the impact of COVID on this highly vulnerable population.

Figure 2. Percentage of COVID-19 cases by race and ethnicity (CDC, 2020)



The disproportionate number of Latinx COVID-19 cases highlights systemic issues related to work and living conditions, access to healthcare, as well as the perception of risk, and access to COVID-19 prevention information and mitigation strategies. In Massachusetts, residents of Chelsea have six times the rate of COVID-19 compared to the rest of the state (The Boston Globe, 2020).

Health and Risk Factors among Latinx Communities

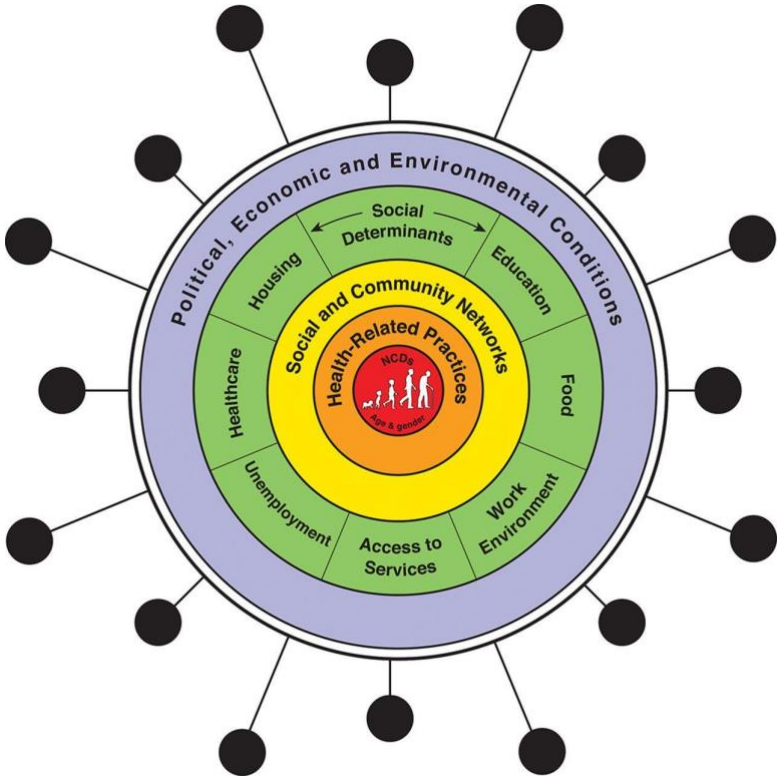
Latinxs represent 18.3% of the U.S. population, reaching 59.9 million in 2018 (US Census Bureau, 2020). This number often does not include undocumented Latinx whom are estimated to be approximately 10-12 million more (Stenglein, 2019). Latinx workers are much more likely to work in low-wage jobs, and in 2017 one in five Latinx workers were paid poverty wages (Stenglein, 2019).

While all demographic groups have experienced significant increases in unemployment because of COVID, Latinx unemployment rates have been triple that of whites. Before the COVID pandemic, Latinx populations represented the majority of low-wage workers in the U.S., of which only 38.2% have health insurance. Undocumented workers are not counted in unemployment statistics, do not qualify for benefits under the CARES act, and cannot file for unemployment ((Mijente Support Network and the Labor Council for Latin American Advancement, 2020)). Latino unemployment reached its peak at 19% in April and then steadied at just over 10%. Half of all Latino workers lost their job or took a pay cut when COVID began, compared to a third of white workers (Shiro, 2020).

Merrill Singer developed the concept of "syndemic" in the 1990s in explaining that the HIV/AIDS epidemic in the U.S. was related to the intertwining of risk factors and comorbidities that are interactive and cumulative. "A syndemic is a set of closely intertwined and mutual enhancing health problems that significantly affect the overall health status of a population within the context of a perpetuating configuration of noxious social conditions." COVID-19 can

be understood as a syndemic, a series of co-occurring, synergistic events that interact and exacerbate existing social and health conditions (Bambra et al., 2020).

Figure 3: The syndemic of COVID-19, non-communicable diseases (NCDs) and the social determinants of health (Bambra et al., 2020)



Latinx populations are disproportionately affected by NCDs with Mexican American groups having rates as high as those seen in low- and middle-income countries (Reininger et al., 2015). Existing comorbidities including hypertension, diabetes, asthma, chronic obstructive pulmonary disease, heart disease, liver disease, cancer, cardiovascular disease, obesity, and smoking are known to increase the rate and severity of COVID-19 (Bambra et al., 2020).

Latinx communities have significantly less access to healthcare services, which is affected by their acculturation, language, and immigration status. Those who are undocumented tend to delay access to healthcare services, out of fear of being reported to ICE. Those who recently arrived in the U.S. or have limited English skills may be unaware of how to access services (Escarce & Kapur, 2006). According to the Office of Minority Health, Latinxs have the highest uninsured rates in the country at 17.8%, as compared to 5.9% of the non-Hispanic White population (The Office of Minority Health, HHS, 2019).

Decades of research on social determinants of health have concluded that marginalized communities are at higher risk of infections, even without underlying health conditions. Chronic stress and psychological determinants of health lead to immunosuppression (Bambra et al., 2020). Constant feelings of exclusion, powerlessness, and collective threat affect the immune system and impact the risk of NCDs, and may also impact individual and collective responses to disease and epidemics (Shonkoff et al., 2012). In the case of Latinx, it is well documented that immigration policies and fear of deportation among those who lack permanent residency or citizenship, deter access to healthcare services, increase stress and exacerbate prior trauma lived in the home country or during migration (Torres et al., 2018).

High rates in NCDs reflect inequalities in social determinants of health. Latinx populations chronically suffer from stressful living and working conditions, insecure housing and food, and potential harassment from employers, landlords, and authorities, including ICE (Bodvarsson & Van den Berg, 2009; Lopez et al., 2018; Silva-Peñaherrera et al., 2020). It cannot be ignored that Latinx groups migrate from countries where these conditions are rampant and endemic. The

transgenerational effect of food and economic insecurity, political conflict, low-intensity conflicts, revolution and war, and the recent Narco and gang realities in Mexico and Central America must be included in any understanding of the health and wellbeing of Latinx populations (Campbell, 2010; Paris-Pombo, 2016; Wolf, 2010).

The political context of Latinx Migration

We cannot ignore that the pandemic emerged in a political context of explicit messaging that "immigrants are invading our country" on the part of the federal government (Varela, 2019). According to the FBI, hate crimes against Latinx rose 21% during 2018 as a result of President Trump's anti-immigrant and anti-Latinx rhetoric (Brooks, 2019). In addition, the expansion of "Public Charge" during the Trump administration and other punitive immigration policies have decreased access and use of healthcare services and instilled fear, confusion and anxiety among Latinx communities (Vernice et al., 2020). Growing partisan polarization has stalled immigration reform, while local law enforcement routinely hands Latinx over to ICE for detention (FitzGerald et al., 2019).

The influential and negative paper "The Hispanic Challenge" (Huntington, 2009) written by political advisor and Harvard Kennedy School professor, S. Huntington, explained that in his view, Latinx refuse to assimilate into mainstream culture, which he defines as Anglo-Protestant. Contrary to other migrant groups, who, according to Huntington, assimilate rapidly into speaking English and taking on Anglo-Protestant values Latinx insist on holding on to their culture and language. Latinx immigrants only have to cross the long border "marked simply by a line in the ground and a shallow river" (Huntington, 2009). Huntington´s description of Latinx immigration

parallels discourse by the Trump administration that “they are invading our country”. The border is not a line in the ground, it is a complex system of walls, barriers and desert that results in hundreds of deaths every year (UNICEF, 2020). In 2019 Border Security cost above 3 billion dollars, a far cry from a “line in the ground” (Schwartz & Trevizo, 2020).

The author emphasizes the threat posed by half of the migrants to the US coming from Latin America stating that “for the first time in U.S. history, half of those entering the United States speak a single non-English language” (Huntington, 2009). Huntington insists that Latinx threatens to turn the US into a country of two languages and two cultures, and closes his article by saying:

> *There is only the American dream created by an Anglo-Protestant society. Mexican Americans will share in that dream and in that society only if they dream in English.*
>
> (Huntington, 2009)

Huntington´s article summarizes a political camp that believes that the US was founded only by English speaking individuals who had access to equal freedoms and privileges. It ignores the history of the South-Western US, the US’s persistent involvement in Latin American politics and economics, programs to attract Latinx workers to the US such as the “Bracero” program as well as a basic reality that the Anglo-Protestant culture is only one version of the US. However, his writing highlights the view that Latinx only come to the US to take from the system, give nothing in return, and still insist on speaking Spanish and eating tamales. The political foundation of specific discrimination of Latinx immigrants as particularly threatening over the course of US history cannot be ignored in understanding how a national and local public health system has been created to often overlook Latinx cultures and realities. Secondly, it helps to explain how social protection systems are largely designed for and by the Anglo-Protestant

dominant culture, that adhere to a very narrow definition of family structure, values, and purpose.

Public Health Response to COVID in Massachusetts

Massachusetts imposed a state stay-at-home order on March 24, 2020, ordering all non-essential businesses to close. The goal of stay-at-home orders is to increase social and physical distancing and thereby reduce the effective reproduction number of the virus to below 1 (Rt[3]). From March onwards, Massachusetts has gone through different stages of lockdowns and restrictions, which have ultimately caused the economy to plummet, among other social impacts.

Lockdowns and stay-at-home orders have unequal health impacts, including job and income loss, which lead to food and housing insecurity. The closing of schools poses severe problems for essential workers who have to seek affordable or free childcare. Schools moved to online education, which assumed access to the internet and a laptop or tablet for every child as well as adult supervision, literacy, and language skills. Social services may have been scaled back or eliminated, putting families at risk, including limiting access to non-emergency health care.

The economic impact of COVID-19 is not yet unmeasurable. As mentioned above, unemployment rates have increased significantly, while informal employment such as house cleaning, child care, gardening, and other informal services have also been affected The dire impact of the economic recession on low-income families is yet to be understood. Still, we are

[3] The Rt or effective reproduction number is the number of people that an infected person will pass a virus on to.

beginning to learn that other aspects of health have been impacted through increased morbidity, mental ill-health, increases in substance and alcohol abuse, an increase in domestic violence, and an increase in stress (Cutler & Summers, 2020; Polyakova et al., 2020; Zylke & Bauchner, 2020). Not only has COVID-19 disproportionately affected Latinx, their health and wellbeing have also been disproportionately affected.

However, public health recommendations, both from the WHO, CDC, and the Massachusetts Department of Public Health, reflect a middle-class perception of access to prevention. Recommendations assume access to a constant source of water[4], access to personal protective equipment, windows and fresh air for ventilation, access to testing and healthcare, access to jobs that can be carried out online, access to childcare, safe homes with food, utilities, and no violence, and homes where only one or two individuals of the same family sleep in a bedroom[5]. Sadly, these assumptions are not only untrue for most of the population in low- and middle-income countries. They are also inaccurate for many neighborhoods in the U.S., specifically Chelsea, in Massachusetts, where many families rent rooms in homes and sleep 4 or 5 (or more) to a room and therefore isolating one family member is physically impossible.

The impact of COVID in Chelsea

The city of Chelsea occupies about two square miles north of Boston. It has an estimated formal population of 40,000 residents, but informal estimates claim there may be up to 75,000 residents

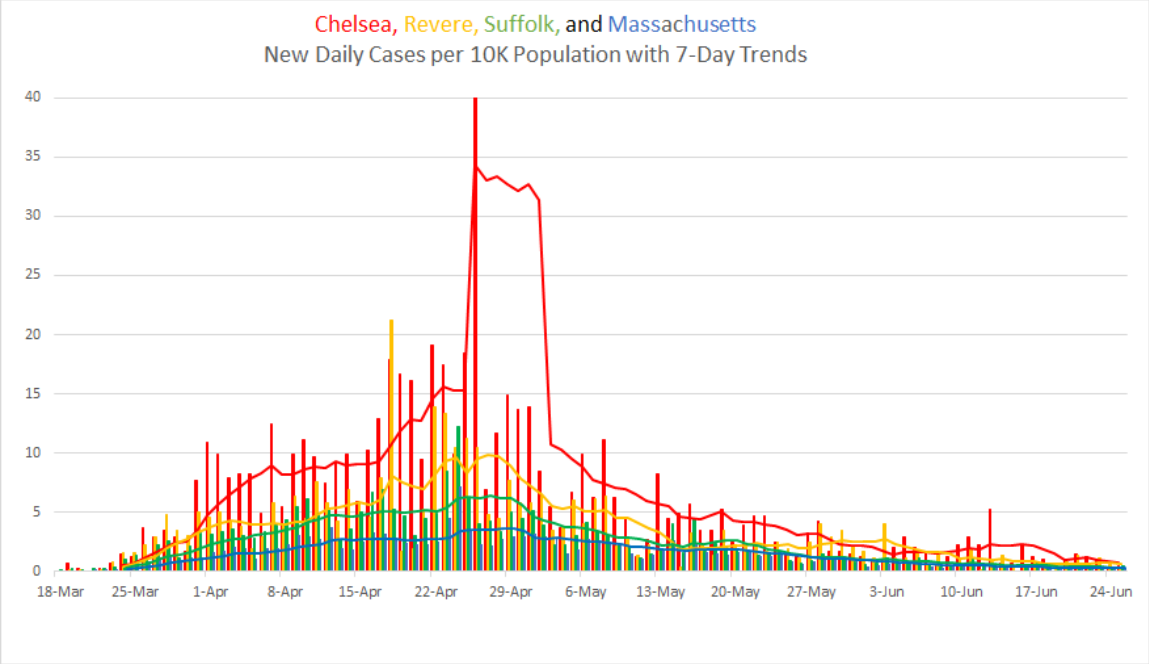
[4] Although running water is not often a challenge in most communities in the US, in Chelsea, families and individuals who rent rooms in homes often have scheduled hours during which they can use the bathroom and kitchen. Therefore, residents may not be able to wash their hands whenever they want to or need to.

[5]

(Editorial Board, Boston Globe, 2020). The majority (67%) of Chelsea's residents identify as Latinx, and 26% are under 18 years of age, indicating a high number of children per family. Almost half (45.5%) of residents were born outside of the US and 69.8% state they speak a language other than English at home. Eight percent of residents under 65 claim to have no health insurance and 18% were living in poverty in 2019 (US Census Bureau, 2020). These data are often considered underestimates given that almost half (44%) of Chelsea residents don't participate in the Census (Boston Indicators, 2020)

As of January 29, 2020, Chelsea had recorded 7,531 cumulative cases of COVID and 208 deaths (City of Chelsea, 2021). The state has reported a total of 488,861 cases statewide, and 14,046 deaths (Massachusetts Department of Public Health, 2021). During the first wave of COVID (March-June 2020), Chelsea had a COVID-19 rate almost six times higher than the state average and many of those being tested are positive, which may signal high rates of infection or low access to testing (Barry, 2020). In short, the community of Chelsea was the hardest hit in Massachusetts.

Figure 4: Comparison of COVID-19 cases across Massachusetts (March-June 2020) (Department of Planning and Development Chelsea, 2020)



The community of Chelsea possesses many of the attributes mentioned above that explain why the COVID epidemic spread so rapidly and had such a severe impact. Many Chelsea residents are immigrants from Central America, are undocumented, and are low-wage or essential workers. Chelsea residents live in overcrowded housing and lack access to health care and social services (The Boston Globe, 2020). The Governor's Command Center established a hotel for isolation and quarantine of positive patients, yet it was closed down in early June due to lack of use as community members were unwilling to isolate there (Chelsea Record, 2020).

Despite the community's vulnerabilities, the COVID response in Chelsea has also involved agile and grassroots organizing by key social organizations that have come together in various ways.

The Pandemic Response Team was established by the Office of Economic Development for the City of Chelsea and included participation from many local organizations as well as the Chelsea HUB (Chelsea Police), the Office of Strategy and Innovation. This team met on a daily basis to coordinate distribution and access to social protections. Organizations such as La Colaborativa, Green Roots, and the Neighborhood Developers participated in the Pandemic Response Team as well as expanding their scope of work to include food and diaper distribution and rental assistance. Media coverage of the impact of these organizations on Chelsea attracted national attention and frequently focused on how La Colaborativa stepped up to ensure that social protections were guaranteed for all residents (Barry, 2020; Garcia, 2020; Raff, 2020; Walker, 2020). Given the ecosocial conditions described in this chapter, this project sought to understand how these interacted to shape the impact and social response to COVID in Chelsea.

Approach

The principal framework that shapes this project is the ecosocial model of disease distribution (Krieger, 1994) described above. The strength of this model is that it explains how social determinants of health impact the health outcomes of population groups. However, the ecosocial model does not propose solutions or models of resilience necessary to understand prevention and modes of community healing.

To understand resilience and survival, I will use the desire-based framework defined by Tuck in "Suspending Damage" (Tuck, 2009). Tuck suggests an asset-based approach that "re-vision[s] research in our communities to recognize the need to document the effects of oppression on our communities and consider the long-term repercussions of thinking of ourselves as broken." Tuck argues that post-colonial communities are often defined as broken and damaged, where research

activities focus on documenting the loss and pain of individuals, families, and communities. Tuck explains that a damage-based approach pathologizes communities; in this model communities are defined by oppression: "in a damage-centered framework, pain, and loss, are documented to obtain particular political or material gains."

The alternatives are desire-based frameworks concerned with "understanding complexity, contradiction, and the self-determination of lived-lives." This approach is vital to understand that communities are more than broken and damaged. Desire-based frameworks account for the hope, vision, and wisdom of lived experience and operate to account for multiplicity, complexity, and contradiction.

Tuck argues that social science has presented an inevitable dichotomy, where communities are either bound to reproduce social inequities or to resist unequal social conditions. In reality, communities and individuals operate within both of these options in malleable and dynamic ways. Tuck points out that in a single day, communities "reproduce, resist, are complicit in, rage against, celebrate, throw up hands/fists/towels and withdraw and participate in uneven social structures." A desire-based framework is necessary because it accounts for sovereignty, as well as for the survival and resilience strategies that are inherent and ever-evolving in a community.

A desire-based framework is essential for understanding community response to COVID in Chelsea. It will shed light on what can be improved using what is important, relevant, and desired by the community itself, and thus shape advocacy efforts.

I will interpret the desire-based framework through the lens of intersectionality[6]. Latin American feminists have argued intersectionality must be interpreted with historical understanding and a geopolitical lens (Viveros Vigoya, 2016). Therefore, an intersectional approach to Latinx communities would consider race, ethnicity, and gender and social class, time since immigration, legal standing, country of origin, and other important historical and social variables. These multiple identities and lived experiences will form part of an intersectional model to understand power dynamics, voice, and agency within residents of Chelsea.

A proposed theory of change would be adapted from the National Latin@ Network that believes that change must come through a culturally specific community lens. This theory of change must integrate individual, community, family assets, and strengths and policy windows. Using this framework, I aim to construct a similar theory of change with input from community members to accurately define the necessary changes and steps required to implement long-term change in Latinx communities.

[6] Intersectionality is defined as "the interconnected nature of social categorizations such as race, class, and gender as they apply to a given individual or group, regarded as creating overlapping and interdependent systems of discrimination or disadvantage" (Oxford English Language Dictionary).

Figure 5: National Latin@ Network Framework for change

Methods

The value of a Mixed Methods Approach

I used a mixed-methods approach in this doctoral project in order to fully explore and understand the impact and social response to COVID in Chelsea. Three different methodological approaches were utilized to address various aspects of data collection and analysis of results:

- A descriptive study based on an analysis of an existing data set of Chelsea's COVID positive cases to understand who was getting the virus and what the outcomes were;
- A community impact survey targeting beneficiaries of services from La Colaborativa to understand the impact of COVID on Chelsea residents;
- Qualitative semi-structured, in-depth interviews with women heads of households to provide a deeper understanding of resilience and adaptation of the COVID-19 pandemic among Latinx families in Chelsea.

The quantitative analyses provided objective, parsimonious, and data-driven information on the pandemic's population-level impact. The qualitative components of the research—the survey and interviews—were designed to explore how marginalized families in Chelsea organized according to their values to resist, challenge, and adapt to the economic and social difficulties of COVID-19.

The approach I used to guide the qualitative analyses was based on transformative theory (Mertens, 2010), which facilitated continuous listening to those impacted by COVID-19 in Chelsea. The transformative approach understands that marginalized communities' lived experience emerges from political and social frameworks that impact access to social justice,

human rights and respect for cultural norms. Using this lens, I was able to identify and develop policy proposals and action recommendations for both La Colaborativa and the Chelsea Government.

By combining qualitative and quantitative data collection tools and analysis in a timely sequence, preliminary research results can impact the next level of research design and collection. Mixed methods research emerged at the end of the 1980s from concepts such as "triangulation," "combining methods," and "multiple methods" (Timans, R, et al., 2019). Mixed methods emerged from researchers' attempts in social psychology and sociology to combine both quantitative and qualitative methods and, in recent decades, have become recognized as a third distinct methodology. Mixed methods are recognized to incorporate qualitative and quantitative approaches to broaden and deepen corroboration and understanding (Timans, R, et al., 2019).

Mixed methods seek to combine separate research approaches to better understand the messy reality of the social world. Analysis occurs through and across the data, leading to "greater analytic density" (Uprichard & Dawney, 2019). Uprichard and Dawney argue that a successful mixed methods approach occurs only to "the extent to which data from different methods can be interpreted together in a meaningful way" (Uprichard & Dawney, 2019). Scholars have noted that data from different approaches may not integrate smoothly. Therefore a mixed-methods analysis will often present both integrated and independent findings. Mixed methods hold several advantages as they compare different perspectives, inform each other in the design and implementation and enable the explanation of quantitative data through qualitative analysis. A

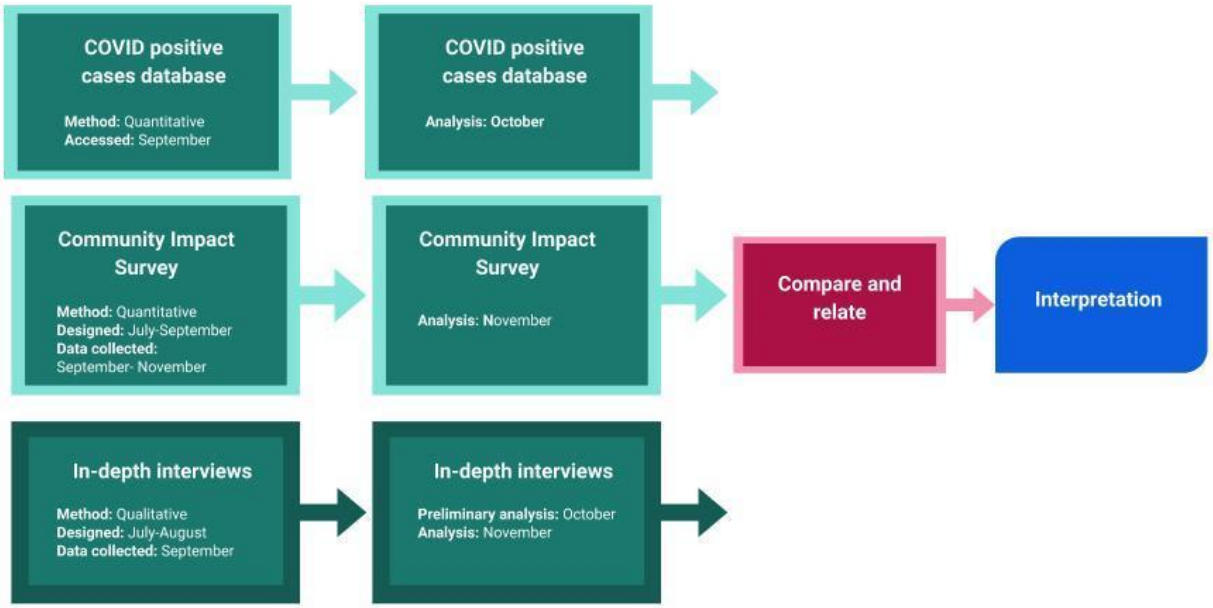
mixed-methods approach's potential results are a more nuanced understanding of current challenges and solutions to a problem (Creswell, J., 2009).

Mixed methods were selected for understanding the impact and social response to COVID-19 because it minimized the limitations of quantitative and qualitative approaches. Both the impact and social response in Chelsea were not binary (good or bad); for many, the effect was economically catastrophic while at the same time it brought families and the community of Chelsea together, strengthening familial bonds and local pride. Using mixed methods enabled a sophisticated and multilayered approach to understanding COVID in Chelsea.

Due to the time constraints of this project, a convergent parallel mixed-methods approach was selected[7]. Delays in securing the Chelsea COVID-positive database required that the supplementary tools (survey and qualitative interviews) be designed before the data analysis was finalized. This convergent approach's limitation was that neither the quantitative or qualitative methods were used as exploratory foundations for the other. Instead, both the survey and the qualitative interview guide were developed simultaneously, based on the same community-based participatory brainstorming session where staff from La Colaborativa generated essential questions. The results of this brainstorming session were sorted into becoming either a quantitative question for the survey or a qualitative theme for the interviews.

[7] In convergent parallel mixed methods design researchers collect quantitative and qualitative data, analyze them separately and then compare results to see if the findings confirm or disconfirm each other. This method is driven by the assumption that both methods provide different types of information (Creswell, J., 2009).

Figure 6: A diagram of tool development and methods design, adapted from Creswell, J., 2009**.**



Data Analysis of COVID-positive Cases

Accessing the Dataset

The first step in understanding the impact of COVID-19 on Chelsea involved analyzing data collected through contact tracing of positive cases in the City. Data on positive cases had been collected since March 3, 2020, through contact tracing efforts led by the public health nurse in Chelsea, the Academic Public Health Volunteer Corps (APHVC), and the Contact Tracing Collaborative (CTC) led by Partners in Health. The data is stored securely within the MAVEN system of the Massachusetts Department of Public Health (MDPH), and is accessible only by requests from local Boards of Health or Public Health Departments.

In August 2020, I interviewed the City Manager, Director of Health and Human Services, and members of the Board of Health to present the data analysis's goal and methods and understand the political landscape to enable access to the dataset. The project was presented at the Local Board of Health (LBOH) Meeting in August 2020. The final request for Chelsea's data was placed to MDPH on August 18 to conduct a health equity analysis to understand the impact of COVID19 in Chelsea, MA. The dataset was received on August 28 (2020) through a secure server. A final dataset of 3302 cases, including cases from the first week of March to the first week of August 2020, was cleaned and analyzed.

Analyzing the Dataset

The Chelsea LBOH requested the COVID positive database from MDPH to understand trends and frequencies among COVID cases for the city for March through August. Data analysis was carried out during September and October 2020.

The dataset was cleaned to detect, correct or remove data collection errors and inconsistencies. Incomplete, inaccurate, and irrelevant data were identified, replaced, or deleted. A full description of the findings on data quality is detailed in the Data Analysis Report (Appendix A, page 8) Certain variables, below, were recoded to enable consistent analysis.

1. Lab facilities included the name and address of the lab. These were recoded for simplicity, and a codebook was created for reference. We identified 34 labs where Chelsea residents were getting tested for COVID, with Quest the most frequently used.
2. Comorbidities were registered in nine columns under the title "underlying_illness." The columns were fused, which resulted in one column with Yes/No/NA and four columns listing comorbidities, which was the maximum amount that any case listed. All types of cancers were recoded as "cancer."
3. "Other symptoms" were recoded to capture patterns. All body aches were recoded as "body ache," and symptoms were placed in individual columns to facilitate data analysis and identify trends. Notes about the course of care were deleted.
4. All variables marked as "unknown" were recoded as NA.
5. "Case_Hospitalized" included three columns and were merged into one coded either Yes/No/NA.

6. All cases that were hospitalized and coded as having UNKNOWN outcomes were recoded as LTF (Lost to Follow-up).
7. All data related to occupation were merged into one column.

Data were analyzed using R statistical programming. The database variables were analyzed for frequencies and means. Logistic regression was conducted to understand better the increased risks associated with specific symptoms, hospitalization, and mortality.

Developing the Survey

One of the first requests made by La Colaborativa was that I develop a survey to understand the impact of COVID-19 on the community they serve. The survey's goal was to measure the economic and psycho-social impacts of COVID-19 on Chelsea's Latinx community. The target population was established as beneficiaries of services from La Colaborativa. The survey results would be generalizable to Chelsea residents who use or are likely to use social services. This cohort tends to have low socioeconomic status, be predominantly Latinx, and be low-wage workers who were likely impacted by job loss and other economic and social shocks due to the pandemic. A cross-sectional design[8] was chosen to enable a quick turnaround of results, which could impact policy proposals and future work and funding priorities of La Colaborativa.

To ensure the validity of the survey, I established a variance of 0.25 for binary questions. This level of variance assumes that in a yes/no question an individual has a 50% probability of responding with error (saying yes when then the correct answer is no). Variance is calculated by half of the probability of error, and binary questions have the highest rate of error because there are only two possible options. Using this variance as the worst case scenario, the sample size was established at 400 respondents with a 95% Confidence Interval and a standard error of 2.5%.

$Standard\ Error\ = \sqrt{\frac{variance}{sample\ size}}$ 2SE = 95% Confidence Interval $Standard\ Error\ = \sqrt{\frac{0.25}{400}}$

=0.025 2SE =0.05

[8] Cross-sectional design is where a population is measured at one moment in time. It measures a cross-section of the population status at a single moment. It does not compare or follow a cohort over time.

The survey design began on August 13 and was completed on August 28, 2020. The first step included brainstorming with the Chelsea Collaborative staff all questions they were interested in exploring. This brainstorm session created 156 questions that were grouped into nine sections:

1. Demographic
2. Housing
3. Health
4. Employment
5. Perceptions and experience of COVID
6. Food security
7. Mental Health
8. Education
9. Open-ended (qualitative) questions on recommendations to the City

A preliminary survey was designed on a Google form in English and Spanish to facilitate testing of the survey during August. Testing involved sitting with members of the Chelsea Collaborative community and going through the questions for relevance, redundancy, and importance. We eliminated the education and qualitative sections through this process, eliminated questions that could be answered using public data, and questions that might generate fear or shame. The survey was tested with seven women and one man, only one of whom provided feedback in English. Testing participants were employees of La Colaborativa food pantry who were available and willing to test the survey. By mid-August, the survey had been reduced to 45 questions revised for language, relevance, and comprehension. Most questions had multiple choice answers.

The final version of the survey included the following themes and numbers of questions:

1. Eligibility and consent: 3
2. Demographic information: 6
3. Employment: 6
4. Health: 2
5. Perceptions and experience of COVID: 11
6. Food security: 4
7. Housing: 7
8. Mental Health: 5

Institutional Review Board exemption was sought and approved through Harvard´s Committee on the Use of Human Subjects (CUHS) following survey development. The survey was uploaded to Qualtrics, and a link was created for social media, texts, and email blasts. The final survey was launched on September 10.

Data Collection

The target population for the survey was beneficiaries of Chelsea Collaborative's COVID-19 assistance programs, including Collaborative membership, food pantry services, and eviction mitigation services. The survey was administered through multiple means, including social media and email blasts sent to La Colaborativa members and followers, directly targeting individuals in the food and diaper pantry lines at La Colaborativa and by phone banking. Phone banking was conducted during October and the first week of November and was the most successful survey recruitment method. Calls were made to previous Collaborative members as

well as current beneficiaries of COVID-related services from La Colaborativa. No incentive was provided for participation.

Data Analysis

The dataset of 448 responses was downloaded from Qualtrics into an Excel spreadsheet and cleaned. Incomplete surveys and surveys where consent was not affirmed or where the respondent was a minor were deleted. A final data set of 365 responses were initially analyzed to determine frequencies and means depending on the question and answer options. These were shared with staff with La Colaborativa and the Department of Urban Planning for Chelsea to generate inferential questions to guide logistic regression analysis.

The second level of analysis involved re-coding the dataset for importation into the "R" statistical package. The dataset was analyzed in "R" guided by inferential questions generated through community-led conversations held at La Colaborativa, both during the brainstorming sessions and during meetings. Data analysis was designed to understand if any demographic or employment sector had been disproportionately impacted by the pandemic. For example, I sought to understand who was more likely to believe a conspiracy theory, use the food pantry, owe rent or have mental health issues as a result of the pandemic.

Multiple regression was conducted on multiple variables to determine the relationship between several variables and a selected outcome variable. Predictor variables were considered significant at a p-value below 0.05. Odds ratios were not calculated on predictor variables due to the small sample size, as results would be unreasonably high.

Finally, and following the mixed methods approach, a qualitative analysis was conducted on two aspects of the survey: beliefs about conspiracy theories regarding COVID, and beliefs about whether anything good has come out of the pandemic. Although both of these questions were designed to be closed-ended, it was determined that the richness and variety of responses called for thematic analysis. Because many of the surveys had been carried out on the phone, both the conspiracy theories question and the question on whether something good has come of the pandemic led participants to tell stories about the development of the virus, or how their family had come together. These stories reinforced the qualitative results that highlighted the importance of social networks for information, emotional support and finding meaning to the pandemic.

Qualitative Interviews

Qualitative interviews were conducted using a narrative and transformative approach to better understand the complexity of the impact of COVID, as well as layered and non-linear responses to the pandemic. Although the syndemic (Bambra et al., 2020) and ecosocial (Krieger, 1994) models identify specific social determinants of health, individuals actually experience these aspects (health, environment, access to services) as intertwined, and their perceived impact is often messy and intangible. Therefore, to illuminate how COVID impacted families in Chelsea, it was essential to carry out qualitative interviews.

The first draft of an interview guide was designed in July, stemming from the brainstorming session conducted with La Colaborativa staff to guide quantitative and qualitative research. Based on feedback from qualitative experts and peers, the draft was refined several times to ensure the interview focused on resilience and survival. The study population was restricted to women heads of households in Latinx communities. It is mostly women who decide on financial allocation, food distribution, organize their family among chores and childcare, and are the emotional and often the spiritual center of the family. Latino and Southern European cultures can be described as “matrifocal-patriarchies,” where the social structure is patriarchal and men hold political and social power, yet homes are run by women who hold authority over domestic resources and decisions (Massey et al., 2006). Also, Latin America has seen a significant rise in female-headed households over the past four decades, regardless of relationship and marital status (Liu et al., 2017).

The interview guide was structured to focus on the perception of the impact of COVID on families, followed by questions related to resilience and survival. A third theme that emerged during the design process was the idea of "Day 2" (Brown, 2015) . Day 2 is the middle part of a process, "where you are in the dark and have no clue where you are going and what you are doing." It is also a point of no return. Day 2 is when things are raw, real, and never-ending. Following the initial outbreak and response, after August, the pandemic seemed to follow Brown's "Day 2" description. Although the initial shock of the crisis of COVID had already passed, as a community we were still overwhelmed by fear of getting the virus, heartbroken over loved ones that continued to get sick and die; we have not settled into the new normal, yet there seems no end in sight. We keep deciding on dates when this will end, almost as a strategy to believe there is an end (in June, in the Fall, after flu season, in March, etc.). Questions on Day 2 focused on understanding how people are getting through the uncertainty of not knowing when things will get better.

The second draft of a guide was developed focusing on four sections:

1. The storytelling of the tragedy: what happened to them and how did their world change because of COVID
2. Finding joy and connection amid tragedy: What kept them going, how did they connect to others, did they find new ways of connecting?
3. Living through Day 2: How do they feel now that we are in Day 2? What have they integrated as a survival strategy, and what still causes anxiety? How/when do they predict the end of this?

4. Recommendations and trust: How can the City and La Colaborativa do better? What is their assessment of how the City and civic organizations handled social protections? What was missing?

For the full interview guide, see Appendix C. Institutional Review Board exemption was sought and approved through Harvard´s Committee on the Use of Human Subjects (CUHS) for the interview guide, enabling recruitment to begin. Because of the nature of COVID-19, the CUHS recommended that interviews be conducted online.

The role of the researcher

Qualitative research requires mindful self-awareness and disclosure of the researcher´s gender, history, culture, worldview experiences, and biases, all of which impact both the trust and rapport gained with participants and the interpretation of the results. My approach to this research was based largely on my past, during which I spent two decades living and working in Central America and Mexico as a midwife and public health advocate trained in the field of cultural and medical anthropology. My life experiences have given me insight into the political and economic history and realities of these countries from which many of the participants are emigrating. I have spent countless hours as a homebirth midwife, sitting in Central American and Mexican families' homes, waiting while a woman was in labor, hearing stories of what is important and stressful to families. My capacity to enter and be accepted by a Latinx community stems from my knowledge of the specific vocabulary, understanding of country-specific *dichos* (sayings), and understanding the fatalistic approach that Latinx cultures have on life[9]. Although I

[9] The fatalistic approach in many Latinx cultures is that destiny is in God´s hands. Although one may try to change the course of events over a lifetime, ultimately God has a plan, and it is almost impossible to

am not religious, I am keenly aware of God's profound importance and spiritual life in Central American families. I am also mindful of and enjoy the blended approach of Indigenous world views, cultural paradigms based on Catholic values imported during the Spanish conquest, frequently adapted to Evangelical thinking that is on the rise both among Central American and immigrant Latinx communities.

I also approach experiences from a feminist perspective. I believe that women are often marginalized and denied full citizenship and rights due to their gender, impacting their life experience, health, and worldview. I am also aware of the patriarchal-matriarchy that governs family politics in Hispanic homes. My father was the patriarch in our Spanish family, governing the external, or public decisions. Meanwhile, his six sisters who establish the rules and boundaries for the internal or private family matters, such as food, clothing, education, marriage, and child-rearing among my large extended family.

My past, cultural makeup, and sensitivity needed to be balanced with my role as a Harvard researcher. I was deeply concerned about entering Chelsea as a member of the academic elite to extract data from the "natives" to advance my career while giving nothing in return. Therefore, both the interviews and the telephone surveys served as a time to try to give back by listening while participants emptied their hearts, telling their stories in great detail. I resisted the urge to stay on track with my agenda and allowed participants to lead the conversation towards what was most important to them. I also made sure to comfort verbally when anguish was evident and

steer away from that plan. Evidence of this is heard in saying such as, when one makes plans for the future, the response is typically "God willing" (*Si Dios quiere)*.

confirm the importance of trusting God as a wiser, higher power, who is ultimately looking out for us.

Data Collection

Due to COVID restrictions, qualitative research was limited to participant interviews with little participant observation. The majority of interviews were conducted on the phone with no visual cues. The few that were conducted in person were in a highly controlled environment due to transmission risk.

Participant observation was conducted during visits to La Colaborativa, which included a bus ride on the 111 that links Chelsea to downtown Boston. Participant observation was limited as the researcher restricted visits to Chelsea to those that were deemed essential. No home visits were conducted, and even visits to Chelsea were brief to limit the risk of transmission. Despite these limitations, for the most part, participants were open to being interviewed as soon as the research was determined as coming from La Colaborativa, highlighting the trust and *confianza* that Chelsea residents have in both La Colaborativa and in its Executive Director, Gladys Vega.

Twelve of the sixteen participants were recruited by telephone using lists of current and previous members from La Colaborativa. All male names were eliminated from the membership list. With a list of only female names, every tenth member was selected and called. If there was no answer, the following person on the membership list was called. If they did not answer, the next person on the list was called until a member answered.

Initially, the phone conversation would inform the woman of the study's purpose and methodology, and we would schedule a time for a Zoom interview. However, after trying to establish five Zoom appointments, it became apparent that this methodology was too cumbersome for participants. Women would not show up for the appointment, have difficulty starting Zoom, or be very late to the appointment. Only three interviews were conducted via Zoom.

Therefore, the recruitment strategy was shifted to allow for spontaneous participation. Using the same randomization method described above, calls were made to women asking if they might have 15 minutes to chat about how COVID had impacted them and their families. After reviewing the study and obtaining verbal consent for participation and recording on the phone, a Zoom meeting would be started on my computer to record the phone interview. This recruitment method worked much better than the previous one, and I was able to record conversations. Nine interviews were conducted on the phone and recorded using Zoom as an external device.

The third method of recruitment sought to address women who had not been Collaborative members before COVID but were current beneficiaries of services. I approached women in the food and diaper lines outside the Chelsea Collaborative and requested twenty minutes of their time to discuss the impact of COVID on their lives. Four women agreed to be interviewed. For safety precautions, participants sanitized their hands and wore masks, as did the interviewer. For confidentiality reasons, the interviews were conducted inside La Colaborativa in a large meeting room with open windows. The interviewer and participant sat more than six feet apart. After the

interview, the area was sanitized and ventilated for 30 minutes. In-person interviews were recorded using the Zoom meeting function on a laptop.

All women who were recruited were Latinx Spanish speakers between the ages of 25 and 60. All were residents of Chelsea. A total of 16 interviews were conducted in Spanish, four in-person and 12 on the phone or zoom.

Of the 16 women interviewed:

- Three were interviewed via Zoom,
- Nine were interviewed on the phone,
- Four were interviewed in person at the food pantry.

The interviews averaged about 15 minutes each, with some extending as long as 25 minutes. The shortest interview lasted 10 minutes.

The interview guide served to create a structure to explore the impact of COVID and perceptions of strategies for resilience within the interviewee's family. Depending on where the woman led the conversation and what her initial story was about how COVID had impacted her life, more specific questions would be asked in certain directions. For example, some women talked more about their job and money, and others talked more about the role of their faith and God.

In addition to the in-depth interviews, qualitative responses were gathered from the survey phone calls. During these calls, participants would often tell detailed accounts of loss, suffering, and

resilience. These were not recorded, but notes were taken to capture themes and remember stories shared by participants. These accounts contributed to a deeper understanding of how the Latinx community of Chelsea is coping with the impact of COVID-19.

Data Analysis

Preliminary data analysis was carried out in September and early October to inform La Colaborativa and community impact survey implementation. This analysis involved identifying overarching domains and themes corresponding to each of those domains.

An in-depth analysis was carried out in November and involved both an inductive and a deductive approach.

Inductive Analysis:

Thematic analysis was used to analyze the qualitative interviews using both an essentialist or realist method, "which reports experiences, meanings and the reality of participants" (Braun, V., & Clarke, V., 2006). An inductive and constructivist approach to a realist method was used to identify themes from the data. There is no prior qualitative research on the impact of COVID in Chelsea. In an inductive approach, themes are identified from the data collected specifically for the research question. Inductive analysis is the process of coding data without fitting it into a pre-existing framework (Braun, V., & Clarke, V., 2006).

The themes were identified by coding transcribed interviews and grouping them into themes. These themes were then grouped into larger domains.

Deductive Analysis:

The second level of analysis was based on the constructivist method, “which examines how events, realities, meanings, experiences and so on are the effects of a range of discourses operating within society” (Braun, V., & Clarke, V., 2006). This method was put into practice through a deductive approach to discourse analysis. The deductive analysis was deemed necessary because Latinx resilience has been described as operating from individual, familial, and community levels (Bermudez & Mancini, 2012). Therefore, once the interviews were coded, themes were grouped into existing overarching themes established by Maslov´s hierarchy of needs (Maslow, 1943), which include:

1. Basic needs
2. Psychological needs
3. Self-fulfillment needs

Maslow's “Hierarchy of Needs” was utilized as a framework for the deductive approach because as the interviews were carried out, I became keenly aware that participants were directly refuting his theory that each level of needs must be achieved before individuals worry about addressing the next level. Maslow argued that when basic needs are unmet, “the organism is then dominated by the physiological needs, all other needs may become simply non-existent or be pushed into the background” (Maslow, 1943). However, the women interviewed discussed all three levels of needs as intermingled and occurring in their thought process and daily navigation of the pandemic. While women were concerned with getting enough food on the table, finding out where and at what time the food pantries were open, they were also holding on to their families and their faith for strength to get out of bed in the morning. Equally, women talked about the sadness and humiliation of no longer going to work and having a job that they were proud of.

Women also described the contradiction of knowing that the pandemic was the worst of times while at the same time describing how they had used this time to become better people, take better care of themselves, and establish deeper bonds with their families.

These intermixed, contradictory feelings and approaches signaled to the researcher that humans are complex and layered, and in times of extreme poverty and despair, people long for meaning and belonging. The methodology for grouping the codes identified in the qualitative section, therefore, called for refuting previous hierarchical models that argue that hungry individuals cannot concern themselves with belonging and more significant issues of "the meaning of life." The qualitative interviews may support the idea that in times of deep human despair, higher-level issues become more salient and more relevant to our survival as whole beings.

Integrating qualitative results

A final process in the qualitative analysis was to frame findings into the transformative approach. This lens helps to identify the social hierarchy, systemic racism, and asymmetric power relationships that shape marginalized groups' lives and experiences. These findings are then linked to political and social action and connect to the theory of change. A transformative worldview links research findings to a political change agenda to confront structural oppression (Creswell, J., 2009).

Qualitative and quantitative results were presented to La Colaborativa staff and members of the Chelsea City Government to gather feedback, additional analysis, and lay the foundation for a political and social action agenda. Through a series of Zoom meetings, the staff reflected on the implications of the research results and brainstormed action steps and higher-level policy implications of the research. The community-based analysis inspired the creation of community action items that were realistic, relevant, and important.

Results

Overall Summary

The three project arms carried out in my doctoral project revealed aspects of the impact and social response that taken together identified and highlighted the interplay between Chelsea´s vulnerabilities and its capacity for resilience. The results demonstrate that the impact and social response to COVID in Chelsea exacerbated existing vulnerabilities while activating and expanding its strengths. On one hand, Chelsea was disproportionately impacted by COVID by having a higher rate of COVID cases, higher rates of unemployment, and higher reliance on social protection systems than other cities in Massachusetts. At the same time, Chelsea organized to meet the needs of its residents and reinforced a communal sense of belonging and purpose in a way that few other cities have replicated. Latinx values of family loyalty, community obligation, and an understanding that God is ultimately benevolent were among the attributes that were so notable and contributed to the community's resilience. These inherent cultural strengths enabled the community to survive, and should be highlighted in re-building a healthier, stronger Chelsea. Since at the time of this writing the pandemic is still not over, lessons can provide insight into planning and managing the next phases of the COVID pandemic, including vaccine distribution, and re-opening. Understanding these lessons can provide insight into how to better manage pandemics and public health crises in Latinx communities.

This chapter is organized into two sections. The first section provides a summary of the results of each project arm: an analysis of positive COVID cases; the findings from the community impact survey; and the in-depth insights from the interviews. The second section integrates the results from the three arms to propose a framework for change that challenges the assumption that crisis

response should be limited to ensuring access to basic needs. I describe each level of need: basic, psychological and self-fulfillment and then finalize by exploring how they are brought together in Chelsea and how this approach can be expanded to other locations.

1. Summary of results of each project arm:

Data Analysis of Positive COVID Cases

(For the full report see Appendix A)

To understand the impact of COVID on Chelsea, I conducted a health equity analysis on data extracted from the MAVEN database. The database housed a total of 3,302 positive COVID-19 cases that were analyzed to identify trends, frequencies, and correlations between social determinants of health and outcomes. An initial finding of the analysis was the inconsistent quality of the data. Key variables were missing for a number of cases including gender, race-ethnicity, addresses, symptoms, employment, and outcomes. Options such as "refused to answer" and "lost to follow up" were unavailable as response options. Rigorous monitoring of data quality and monthly data analysis would help to improve data collection which in turn helps to understand the pandemic´s progression and impact.

Key results of the analysis revealed that in Chelsea, those who are most likely to get COVID are Latinx essential workers[10] in their 40´s and retired persons. Almost 35% of positive cases have

[10] Governor Charlie Baker of Massachusetts issued an executive order on March 23, 2020 listing essential services. These include the following categories of businesses: Health Care/ Public Health / Human Services; Law Enforcement, Public Safety, First Responders; Food and Agriculture; Energy; Water and Wastewater; Transportation and Logistics; Public Works & Infrastructure Support Services; Communications and Information Technology; Other Community-, Education-, Or Government-Based Operations And Essential Functions Critical Manufacturing. https://www.mass.gov/info-details/covid-19-essential-services#law-enforcement,-public-safety,-first-responders-

no symptoms and patients took an average of 1 week between the onset of symptoms to testing, which may lead to increased spreading, particularly among those who are asymptomatic. Retired persons are more likely to be hospitalized and die of COVID than those in other employment categories. While Hispanics are less likely to die of COVID than whites, those with cardiac or pulmonary diseases, hypertension, and diabetes are much more likely to die of COVID. Women are less likely than men to be hospitalized, yet pregnant women are highly likely to be hospitalized. In addition, those with asthma, and those unemployed are much more likely to be hospitalized. Results of the analysis reveal the need to emphasize the need for regular testing regardless of symptomatology, given that a third of positive patients in Chelsea do not present symptoms and many have regular contact with family and others.

Community Impact Survey

(For the full report see Appendix B)

Responses to the community impact survey were collected through online and in-person participation at the food pantry, as well as through phone banking that used lists of members and beneficiaries from La Colaborativa. In many cases, survey participants went beyond the survey questions to tell their stories in great detail, adding to the qualitative understanding of the impact and response to the pandemic. Responses were collected from a total of 365 individuals.

Results of the survey analysis revealed that this cohort struggles with low levels of both education and English fluency; almost half of participants did not complete a high school degree and over half of participants reported having low levels of English fluency. One of the most significant impacts of the pandemic was on employment, as 45% of participants lost their jobs

and an additional 21% lost a significant number of hours at work. The survey asked participants whether or not they believed a series of conspiracy theories regarding the emergency and development of the pandemic, and over half (53%) of participants believed some form of conspiracy theory regarding COVID-19. Women and adults between the ages of 31 and 40 were the groups most likely to believe conspiracy theories. The majority (58%) of participants had at least one COVID test. Among those who had not had a COVID test, 73% stated that they did not feel the need to because they did not have symptoms. Only 1% of participants stated they were afraid of doing a COVID test because they might lose their job and 9% stated they were afraid of going to the testing site or afraid of the pain of the test. A quarter (25%) of respondents had tested positive for COVID-19, representing double the rate for Chelsea, which at the time was 12%. This suggests that individuals who rely on services from La Colaborativa are twice as likely to have had COVID-19. Those with very basic English language skills and essential workers were much more likely to have had COVID than those with more English language skills and in other forms of employment.

The impact of unemployment has resulted in hardship in paying for essential goods and services. The vast majority (83%) of respondents access a food pantry (or free food delivery services) because of the economic impact of COVID. The mean number of visits per week is 1.4. Families that visit the pantries more than once a week described distributing food among other family members and neighbors who are incapable of visiting the pantries themselves, because they have small children or some disability. One third (35%) of participants owe rent, and those who do no, stated that it was because any income or savings go towards paying rent. Participants stated that they rely on not having to buy food to be able to pay rent and are generally unable to pay bills.

Mental health has been impacted by the profound social and economic shocks of the pandemic. The extremely high rates of job and income loss, reliance on social protection measures such as food donations, and navigating complex online application forms for rental assistance and unemployment are stressful and humiliating. Although Latinos are proud and resilient, the ongoing and interminable nature of the pandemic and its economic catastrophe have impacted everyone´s mental health in some way or another. Two thirds of respondents stated that since COVID began, they have felt more depressed and more anxious. Interestingly, the majority of respondents also stated that they had not resorted to smoking, drinking, or drugs to manage their mental health. Many stated that they were Christian, and therefore no one at home had "vices," which could be a protective factor among this cohort both against substance use and domestic violence. Only six percent of participants stated that violence at home had increased during the pandemic. Despite these challenges, only 16% of participants stated that they were in therapy. Those who access therapy are much more likely to be young adults (18-30), people who have had COVID, and those who owe rent.

The results of the survey describe a particularly vulnerable population within Chelsea. As participants were recruited through member lists from La Colaborativa, this cohort had already accessed some form of support from the organization prior or during the pandemic. While this may skew results to show an over-reliance of social protections, especially food assistance, the survey provides key data on the extent of the economic devastation of the pandemic. The long term health consequences of food and housing insecurity, added to chronic stress will not only impact Chelsea residents during 2020 and 2021, but also extend into ongoing years.

The survey results remind us ensuring access to basic needs (housing, food, utilities) is critical for public health and city planners, but it is not enough. Individuals also require a sense of belonging to a community and seek a higher purpose in their lives. Participants of this survey are proud of living in Chelsea, feel blessed by the kindness and support they have received from La Colaborativa, the City and their neighbors and friends. At the same time, they are frustrated with having lost their jobs, are scared for their children's wellbeing and development and want to continue being active, useful and participating members of society. Recovery programming therefore must address issues of self-realization including English classes, GRE classes, job skills, and parenting among others.

Qualitative Interviews

(For the full report see Appendix D)

Analysis of the 16 in-depth interviews with female heads-of-household in Chelsea revealed the deep social inequities and triple burden on women's lives during the pandemic. Women were already juggling low-paying jobs, and taking care of extended family, including sending money back to their countries of origin and mothering. However, the Latinx community of Chelsea provided a series of buffers and strategies of resilience that allowed women to navigate the losses within a broad community that provided basic needs, a sense of belonging, and an understanding of a higher purpose.

The pandemic's impact on Chelsea has been devastating, as described by the COVID-positive cases and the community impact survey. However, this devastation would have been

immeasurably worse were it not for the community bonds that enabled Chelsea to respond with resilience and collective caretaking. The pandemic arrived to a city that women described as a community that looks out for its people and takes care of them, and in which residents know that they can count on each other for the support they need. The sense of community and belonging cannot be measured in a survey but has directly impacted the amount of food and shelter residents have. Resilience in Chelsea has been carefully organized through extensive social protection systems and increased funding. Simultaneously, it has emerged spontaneously out of a community of individuals who believe deeply that individual survival rests on collective caretaking and wellbeing. These traits are rare and unique in a country that places a high value on individualism and self-reliance and must be considered a key element in rebuilding Chelsea. The contrast between a collectivist and individualist world view is probably one of the reasons why the resiliency factors in a community like Chelsea is invisible and may not be valued to outsiders, including public health professionals.

Key findings from the interviews showed that Chelsea residents are proud of where they live and recognize the social protections available to them because of their residence. Women expressed immense gratitude to the City and local organizations for organizing to ensure social protections were always available to them. Residents acknowledge the leadership and commitment of Gladys Vega and all the staff at La Colaborativa. They recognize the tremendous effort made by La Colaborativa to continuously deliver food and diapers and ensure other social protection programs are operating. Women trust that La Colaborativa will listen and respond to the community's needs. Residents have a deep sense of belonging to their social networks, a church group, and Chelsea itself, which have mitigated emotional and financial stress.

While feeling part of the larger community, residents also have a deep sense of connection and loyalty to family (both nuclear and extended) and share their resources and support with anyone who is considered family. At the same time, they seek to have a meaningful and purposeful life, and the pandemic has given them time to contemplate what this means to them. This sense of meaning and purpose is shared by the community and is defined collectively through helping others and contributing to the larger society. Hence, while struggling to meet their basic needs, Chelsea residents also reflected on and sought to improve their psychological and self-fulfillment needs.

These interviews reveal the resilient capacity of a community driven by a dedication to family and community and a profound understanding of life as meaningful and interconnected. Healing and rebuilding Chelsea would benefit significantly from recognizing the tremendous power of existing social networks and engaging family, community, and church leaders who have protected and held the community together during this dark year.

2. Reconsidering the Framework for Change

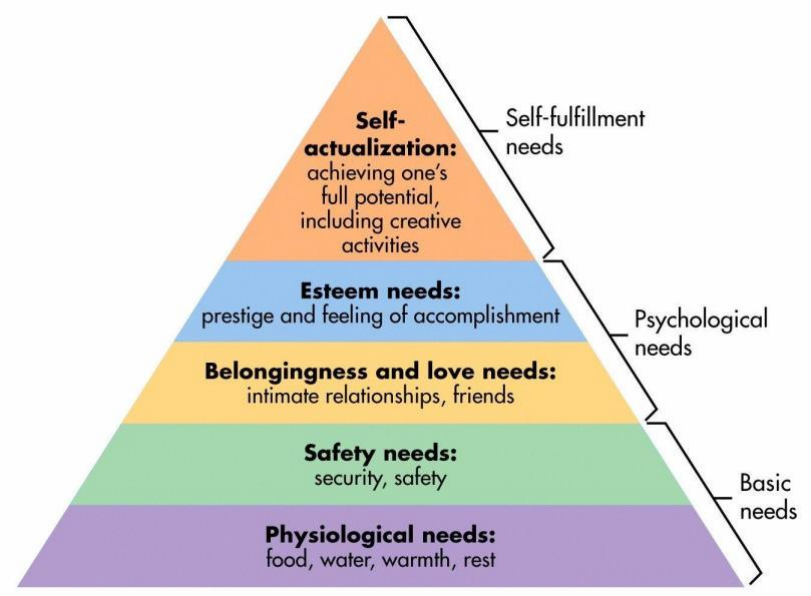
The original theory of change I applied in this study was a community-informed adaptation of the National Latina Network Theory of Change (see Figure 5 on p.27). However, based on the findings of my research, I re-examined that theory and adapted it to illustrate the social response to the pandemic in Chelsea.

While the National Latin@ Network theory of change has important elements that incorporate the ecosocial framework (Krieger, 1994), it was developed to understand how Latinx women and communities can engage resources to navigate domestic and partner violence. The impact of the

pandemic has meant that basic needs such as food, housing and job protection are key concerns. At the same time, it would be reductionist to state that Chelsea resident´s only concerns were food and shelter. While these were always on their minds, and defined the actions taken by individuals and the community, results of the survey and interviews revealed that residents are also very concerned with their psychological needs and their self-fulfillment. Identifying these three overarching themes of basic, psychological and self-fulfillment needs reminded me of Maslow's “Hierarchy of Needs”.

Maslow's “Hierarchy of Needs” (Maslow, 1943) argued that humans evolve on a linear scale. First, they are concerned with their basic needs, which include food, water, warmth, rest, security and safety. Once these are met, they move on to concern themselves with psychological needs. These include belonging, love, and prestige, or a sense of accomplishment. Finally, when these needs are met, they can finally concern themselves with self-fulfillment, which includes being creative and achieving one's full potential. Maslow argued that when basic needs are unmet, “the organism is then dominated by the physiological needs, all other needs may become simply non-existent or be pushed into the background” (Maslow, 1943).

Figure 7: Maslow's Hierarchy of Needs



Understanding the collective impact and social response to COVID in Chelsea has revealed that all three levels of needs intermingle and occur simultaneously within individuals in their daily navigation of the pandemic. While parents are concerned with getting enough food on the table, finding out where and at what time the food pantries were open, they were also relying on their families and their faith for strength to get out of bed in the morning. Residents talked about the sadness and humiliation of no longer going to work and losing a job that they were proud of. Participants also described the contradiction of knowing that the pandemic was the worst of times while at the same time explaining how they had used this time to become better people, take better care of themselves, and establish deeper bonds with their families.

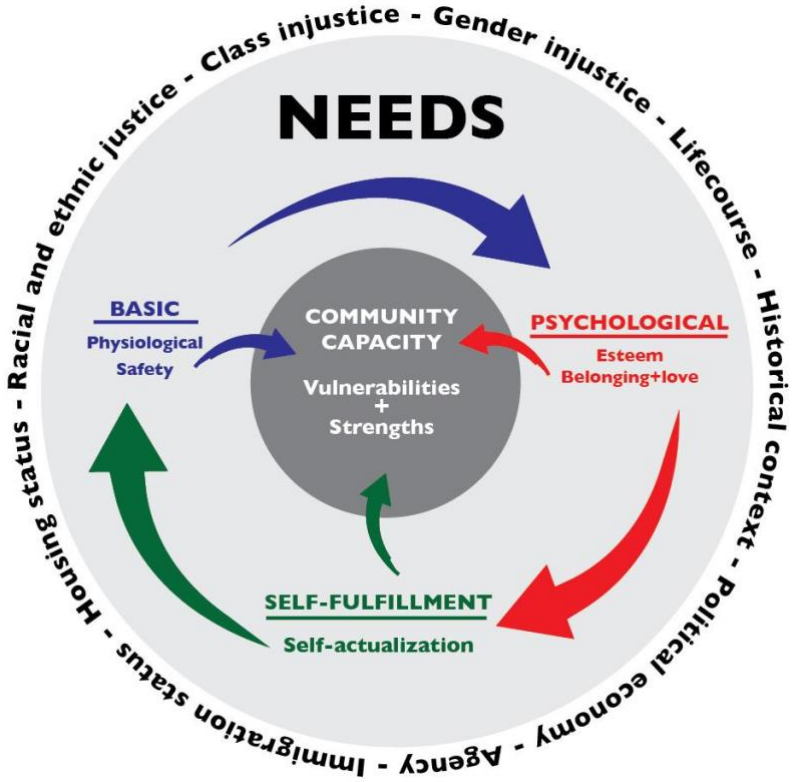
These intermixed, contradictory feelings and approaches made clear to me that humans are complex and layered, and in times of extreme poverty and despair, people long for meaning and

belonging. The findings may support the idea that higher-level issues become more salient and more relevant to our survival as whole beings in times of deep human despair, in contrast to the hierarchical structure suggested by Maslow.

Creating a Theory of Change for Chelsea

My proposal for a modified Theory of Change that integrates both the impact and self-described social response from the Chelsea community would therefore adapt Maslow's categorization of needs from a hierarchy into a circle that informs and shapes community capacity. A circular format acknowledges that needs build on each other and removes the hierarchy that one need is more important than the other. This study of Chelsea highlights the fact that humans navigate catastrophe and adapt to abrupt change by focusing on all three levels of needs at the same time.

Figure 8: Theory of Change for Chelsea



Basic Needs

Both the analysis of the COVID positive cases and the Community Impact Survey highlighted the impact of the pandemic on basic needs. The pandemic threatened residents' lives and wellbeing directly because Chelsea was one of the hardest hit cities in Massachusetts. Residents spoke of the pain and suffering of navigating personal loss and of being hospitalized themselves. While Chelsea residents had a higher than average rate of COVID than Massachusetts as a whole from March 2020 to January 2021 (Massachusetts Department of Public Health, 2021), beneficiaries of La Colaborativa´s social protection services reported an even higher rate of COVID than that reported by the City. At the time of the survey analysis the overall COVID rate for Chelsea was 12% whereas survey respondents reported a rate of 25%. When one in four is affected by an illness that is highly contagious, can be fatal and may have long-term effects, the impact on wellbeing is extreme. Added to this were the high rates of un- and underemployment caused by the economic impact of the pandemic. The result was that Chelsea residents´ found their basic needs threatened in ways that had never before been so widespread and so long lasting. The pandemic threatened Chelsea´s safety and physiological needs directly with no immediate solutions other than charity, the widespread distribution of social protections, and moratoriums on rent.

This dire economic reality exposed many of Chelsea´s vulnerabilities. Unemployment in Chelsea must be considered within its ecosocial framework, which compounds a series of current and historic vulnerabilities that restrict residents´ capacity to, for example, switch to online work, or live exclusively off savings, move to a rural area, or any of the other cultural shifts that have happened for middle-class Americans. These vulnerabilities include the fact that most residents

have a below-average education level, are far from fluent in English, and mostly worked as essential workers and in the service industry prior to the pandemic. Residents migrated to the US in search of a better life, may not have legal status in the US and to greater or lesser extent, are confused by the national and local systems to access social protections, such as health insurance, unemployment and rental assistance. Residents worked low-wage jobs that may or may not have provided any form of severance pay during mass layoffs in the early months of the pandemic, and La Colaborativa already had an active program to help beneficiaries experiencing wage-theft. Housing in Chelsea involves a lot of informal sub-letting of rooms, crowded housing and low-quality housing. The high rental costs of the Boston area, coupled with informal rental agreements, already put residents at high risk for housing insecurity.

Without underplaying the stress of the dire economic and health impact, Chelsea as a City organized quickly and with agility to meet residents' basic needs. La Colaborativa adapted from being an organization that supported community development, to establishing the largest food pantry in Chelsea that has distributed food almost every day of the week since March 2020. It has adapted by hiring local staff, mostly mothers who desperately needed income, to manage the food pantry. It organized a system to support residents to process rental assistance applications, prevent evictions and find emergency housing for evicted families, all while maintaining existing programs.

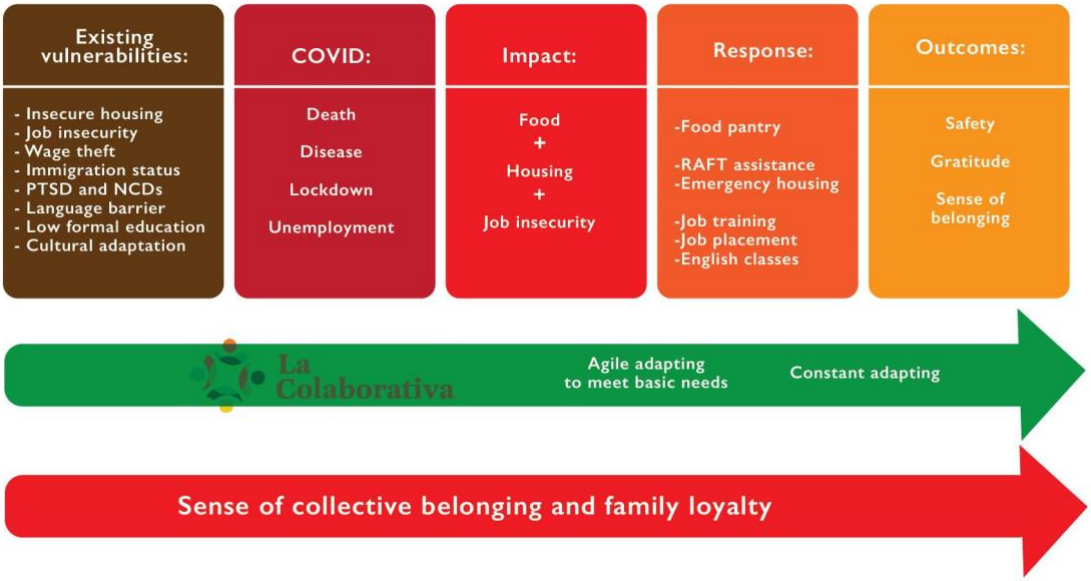
Participants in both the community impact survey and qualitative interviews expressed a deep sense of gratitude and acknowledgment for support from La Colaborativa, the City, and other organizations during the pandemic. Participants recognized that they would not have been able to

pay rent without this support and have access to the food pantries, diapers, rental assistance (RAFT[11]) programs, and information on COVID prevention. Participants identified La Colaborativa first and the City second as the main sources of social support, but also mentioned the Salvation Army, local churches, East Boston Health Center, and online RAFT application sites. None of the participants mentioned either of the hospital systems that operate in Chelsea (Beth Israel or Mass General Brigham) except to assess the quality of care they received during hospitalization due to COVID. Participants valued the support they received often in comparison to their countries of origin—for example, Honduras, El Salvador, and Guatemala—where governments have mostly failed in providing social protection systems.

Perhaps it was through the leadership of La Colaborativa and the City´s Pandemic Response Team in meeting basic needs that the community came to realize a sense of pride and belonging to their community. However, I would argue that this sense of belonging and loyalty to family and loved ones already existed before the pandemic and served as the impetus to provide quick solutions to the catastrophe that rolled into Chelsea in the shape of COVID.

[11] Residential Assistance for Families in Transition (RAFT) Program is a statewide program that provides up to $10,000 to families facing eviction, foreclosure, loss of utilities or other housing emergencies. Applications are online and require proof of income, a formal lease and a bank account to be processed. https://www.mass.gov/info-details/emergency-housing-assistance-during-covid-19

Figure 9: Meeting Chelsea´s Basic Needs



Psychological Needs

The mental health impacts of the pandemic have been and will continue to be devastating for this community. Families are deeply stressed about meeting basic needs and are emotionally exhausted by the never-ending nature of the pandemic. As a community, many Chelsea residents already were suffering from deep life-long trauma and the insecurities exacerbated by COVID only made these worse. On top of it, lockdown and social distancing broke values that are most sacred to Latinx culture. Getting together for Sunday lunch at the matriarch´s house, having coffee with friends, celebrating life transitions in community are just a few of the many cultural rituals that are non-negotiable to any member of a Latinx household. These cultural rituals are what bring families together to support each other through joy and hardship, and were largely eliminated during the pandemic.

Despite increased isolation and distancing, participants in both the community impact survey and qualitative interviews stated that the pandemic had also brought families closer together out of the need to pool resources and look out for each other's mental and physical health. In addition, despite reports of an increase in domestic violence rates and marital strain during COVID, many women within this cohort expressed that the pandemic had brought them closer to their spouses and strengthened their relationship as a couple. Women explained that they had found their husbands' strength and encouragement to be a crucial part of their resilience. During the pandemic, families came together to rely on each other for the emotional support needed to get through the long, dark months of uncertainty. Participants mentioned the joy of spending more time with their children and watching them grow in ways they had never been able to before the pandemic. Marriages were strengthened through problem-solving and emotional support, and friendships and church groups became spaces for resilience, joy, and strength.

The collective psychological wellbeing of Chelsea residents prior to the pandemic must be understood as part of the context in which it evolved. Most participants are from Central American countries that have been torn apart by decades of war, corruption, foreign intervention and internal violence. In the recent decade, violence gangs and narco groups, particularly the Mexican narco group "Zetas" who are known for their brutality, have terrorized neighborhoods and citizens of Central America (Campbell, 2010; Dudley, 2011; Wolf, 2010). The extreme terror of extortion, kidnapping and murder, added to never-ending poverty and climate change is driving thousands of people from Central America to flee to the US in search of a better life. The immigrant routes are now controlled by the Narco, adding to the stress and danger of coming to the US (Paris-Pombo, 2016). In addition, the previous administration´s border policies have only

added to the physical and emotional trauma of immigrating to the US. It is impossible to know and quantify everything that Chelsea residents have been through prior to the pandemic. However, several women in interviews talked about their post-traumatic stress disorder (PTSD) from severe acts of violence either on their path to the US or in intimate relationships in the past.

Added to these stressors are those related to living in insecure, high-cost housing, and working in low wage jobs. Prior to the pandemic, La Colaborativa had an active program addressing the high rates of wage theft experienced by residents and worked to educate workers on their rights. Immigration status is a tremendous stressor, worsened obviously by ICE raids, lack of access to drivers licenses, and the dramatic increase in deportations, not just by the Trump administration, but also by the Obama administration before it. The stress of not speaking English, of navigating an administrative system in the US that is increasingly online and requires a SmartPhone or laptop coupled with less than a high school education and the confusion of adapting to a new country and its systems, intersect reinforcing each other creating profound disadvantages and compounding marginalization. On this vulnerable terrain, Chelsea residents were hit with a pandemic that killed over 200 of its residents, brought massive unemployment, an eviction moratorium that ended in October, and still no end in sight.

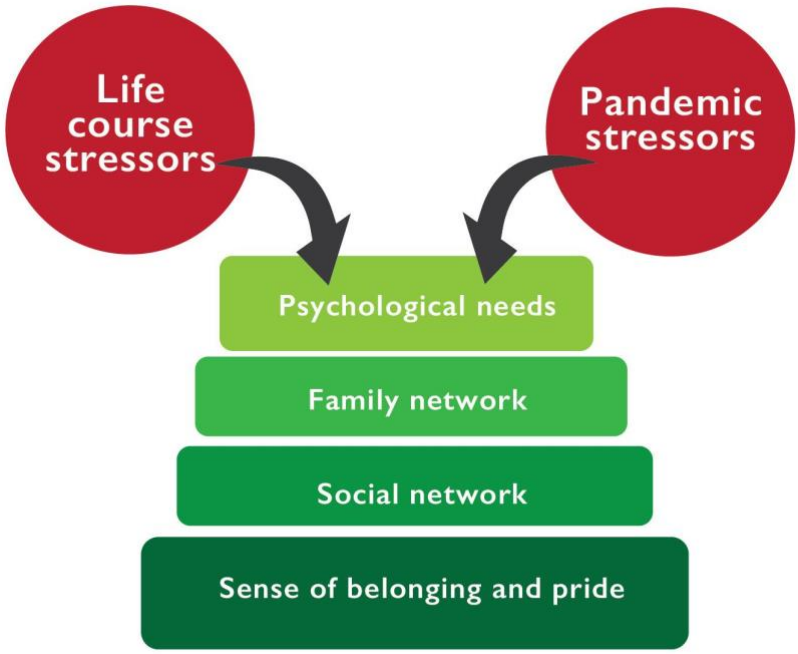
Despite all these challenges, almost 80% of participants in the Community Impact survey were able to say that the pandemic brought them close together as a family, they were able to attend to their health and wellbeing in ways they have never had the time to. Almost 10% were moved and encouraged by how the community came together to take care of its residents. The sense of belonging and loyalty to family that existed long before COVID brought participants strength to

overcome the pandemic's emotional and financial difficulties. Over and over, women in interviews would say that their children were their driving force, the reason to get up in the morning, and the reason to find purpose in life during such a challenging time. Participants talked about their struggle to be good parents, by making sure they had enough to eat and explaining why they couldn't go outside to play with other children. Women talked at length at how they navigated their need to be "good mothers" despite the hardship. Over and over again, Chelsea residents explained that they are social, familial, and rely on family structures for resilience and healing.

Chelsea residents understand their identities in relation to their families and the support networks where they participate. Food and resources are distributed among these networks, and parents rely on extended childcare through social networks. Participants explained that they had brought family members into their homes during the pandemic if they were unable to pay rent. Families prayed together and strategized on how to pool resources together to survive the pandemic, sometimes extending to other countries where remittances were expected to arrive or where the power of prayer was magnified in the case of an ailing family member. Participants explained that food pantry boxes were often shared with other families in the building or those they considered more vulnerable and in need of assistance. At La Colaborativa they even remarked that groups of women were showing up to the food pantry early to huddle together and share time. It is well documented that family health improves when women come together to problem solve, and it is evident that despite social distancing, these groups of women were answering the ancient call to huddle, gossip and problem solve within a collective.

While it is not in Chelsea´s power to end the pandemic and re-activate the economy, residents have found solace in their profound sense of belonging to a community as a lifeboat for navigating the uncertainty of the ongoing pandemic. Western psychotherapy is only used by 15% of survey participants, most of whom are younger or have survived COVID, indicating that it is generally not considered a culturally appropriate means of support and guidance. Therefore, alternative, culturally relevant, and already existing means of community belonging and support must continue to be sustained and activated to support Chelsea residents.

Figure 10: Meeting Chelsea´s Psychological Needs



Self-Fulfillment Needs

Interview participants stressed how sad they felt about losing their daily rituals and workforce participation. Participants expressed great pride in having been a part of a company and often retold detailed accounts of their employment history. They understood their workplaces to be more than places to generate a paycheck. They talked about the friendships they developed, promotions, and a sense of meaning and purpose that their work gave them, regardless of the form of employment. Despite the constant stress of meeting basic needs for their families, participants still grappled with issues of meaning and purpose in life and actively discussed that perhaps the extreme hardship of the pandemic required a deeper search for fulfillment.

Several participants explained that it was essential to maintain a positive outlook on life during this time. They felt that a combination of a sense of belonging to a family and a more extensive social network, faith in God, and trusting that things would work out were key to getting through the pandemic's challenges.

Faith in God and a Church community provided participants with a framework for understanding that the pandemic might have a higher purpose. Participants balanced the humiliation and loss of a sense of purpose from losing their jobs to using their time during unemployment to focus on things they don't usually have time for. Participants described how much they valued coming together as a family and talked about using lockdown time to reach a higher purpose in life.

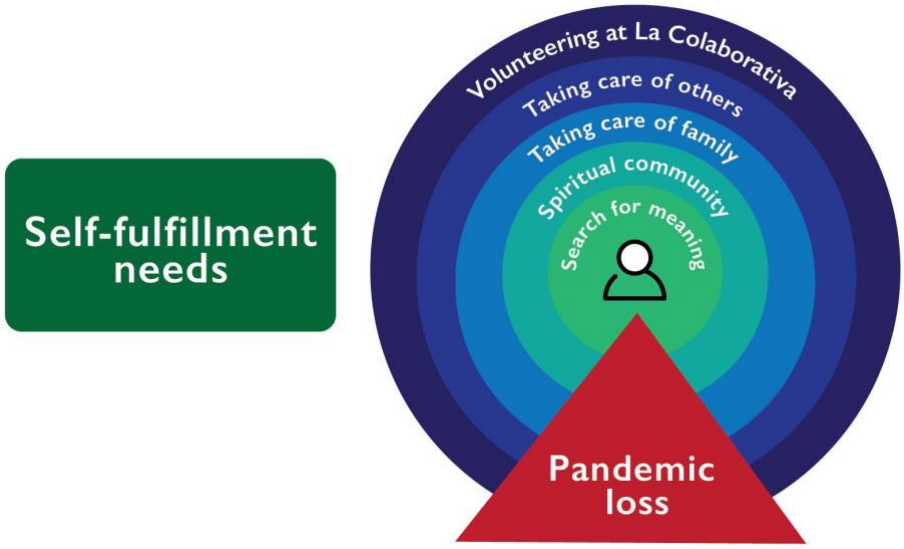
While often public health programs often focus on meeting the basic needs of vulnerable communities, Chelsea residents described how difficult it was to lose a sense of purpose by not having a job. They described their rituals in great detail for getting ready and going to work in the morning, acknowledging a sense of longing and loss. They described how difficult it is not to know when this pandemic will end and how frustrating it is to not participate in society. Women expressed the shock of the pandemic's first months and how no one was expecting it or was ready. They described how difficult it has been to adapt to a sudden loss of employment, coupled with family members being sick and an overall sense of despair. The virus itself has women on edge as they are afraid to leave the house, and as was described above, are afraid to look for work. Aside from getting strength and solace from their families, church communities, and God, women did not talk about any other organization or social service for helping with the trauma and depression of the pandemic. They did not mention that the collective grief has been addressed and explained that the death toll and news coverage added to their emotional burden.

Many participants mentioned that, in general, there was always a family or a person who was worse off than them. Despite dire hardship, women explained how they felt obligated to give the little they had to support others' wellbeing. Not only did they understand this as a community obligation, but also as a spiritual mandate to be a better person. Chelsea residents understand that their personal self-fulfillment is entirely linked to their family and community. They were clear that fulfillment comes when one is a participating member of a community, sharing and contributing to others.

Perhaps the most salient example of understanding self-fulfillment through community service and response helps to explain why La Colaborativa was able to pivot so quickly to address the multiple needs of Chelsea residents during the pandemic. Without hesitation, La Colaborativa set up a food pantry, rental assistance office, distributed PPE, held webinars on vaccine safety, secured emergency housing for evicted families, covered funeral costs, all while continuing existing programs such as youth job placement programs, English classes, immigration assistance programs. For the staff, there was no question that fulfilling the mission of La Colaborativa was through providing full scope, wrap-around services for anyone who needed them in Chelsea. As a result, residents of Chelsea volunteered at the food pantry, even when they themselves were recipients of services from La Colaborativa. This individual drive to come together and help their own, regardless of their own suffering, signaled the collective sense of wellbeing and highlights the sense of obligation and spiritual mandate to be a good person.

What is most interesting about this is that Latinx culture does not value volunteering in the way that it is common in North America. In contrast, Latinx are always volunteering to support their family and loved ones through cooking, childcare, housing, and taking care of others. The fact that Chelsea residents volunteered for La Colaborativa signaled that they considered this network their family, and therefore their loyalty and obligation made it natural for them to help out.

Figure 11: Meeting Chelsea´s Self-Fulfillment Needs



Bringing the three levels together

While participants stated that each one of these levels occur concurrently within their minds and drive how they have navigated the survival and resilience during pandemic, it is evident that La Colaborativa adapted itself along these three levels as well. Without a formal assessment of whether program expansion and new services related to meeting basic, psychological and self fulfillment needs, La Colaborativa seemed to expand in the three directions intuitively. For the leadership of La Colaborativa, it seemed only natural that they would tend to "the needs of our people" (Gladys Vega). Through an informal and iterative process of formal and informal listening and adapting, La Colaborativa rose to meet the complex layering of needs that emerged in Chelsea.

Key to this strategy is that La Colaborativa did not see people as parts of programs, they see each person as a life story that must be listened to and taken seriously. They adapted to meet people's needs because in their minds there was no other way to being La Colaborativa. If people needed financial assistance for a funeral, they helped; if they needed a hotel for a few days after an eviction, they helped while they locate more permanent housing through their own social networks. As matriarchs they saw no boundaries to the limits of their work. Similarly, they did not divide their programs into basic, psychological and self-realization needs, they understood that unless they met all three levels of these needs they were not serving their community. This integrative approach was only achievable by being immersed in and part of the life of the community. Staff and volunteers from La Colaborativa were beneficiaries of their own programs. The leadership spent time in the food pantry line asking people how they were doing and what had happened since the last time they spoke. In addition, due to the existing social and family networks, if one person felt personally connected to the staff at La Colaborativa, they were quick to share the connection with other family members, so that they could also access problem solving.

La Colaborativa succeeded in securing the trust and gratitude of the Chelsea community because they were flexible and responsive to the community's needs. Unlike city and state programs, beneficiaries were not turned away because they lacked paperwork or proof of certain status. La Colaborativa understood that Latinx family composition is flexible and often includes more than the nuclear family of parents and their children. They also understood that, even though they have funding for specific programs, they could adapt this funding to meet the immediate needs of

the community. An example of this is contributing to funeral costs of families who had lost members to COVID.

La Colaborativa stands as a living example of responsive programming rooted in a deep understanding of the needs and voices of the people they serve. Cities and community-based organizations could learn much about how to garner community trust and participation by truly responding to community needs, which is only achievable by listening intently that families have multiple layers of needs that must be met simultaneously.

How this work has impacted COVID response in Chelsea and La Colaborativa

Carrying out this work required establishing working relationships with the City of Chelsea and the local Board of Health as well as being embedded within La Colaborativa. From the beginning, the Chelsea Department of Health and Human Services was reluctant to collaborate on the project and denied the utility of the data analysis of COVID-positive cases. This resistance followed a pattern signaled both within and outside of Chelsea City Government, where this department had, for years refused to work with civic organizations and had been absent in the collective response to COVID.

The Pandemic Response Team was created by the Department of City Planning to coordinate a citywide response between government and civic organizations. As the work was conducted, I made presentations to both the Response Team and its leader, Mimi Graney. Presenting on the COVID-positive cases was important to the Response Team as it provided clear data on the health and demographic impacts and development of the pandemic in Chelsea. The Team appreciated having access to clear and concise information on the key issues that were driving the pandemic´s impact. However, the Team felt that the absence of clear Public Health leadership and a strategic plan to tackle the pandemic and its impact was apparent and hindered the application of certain recommendations made from the reports.

The Local Board of Health in Chelsea has maintained a passive role during the pandemic. The LBOH did not meet until June of 2020 and did not appoint a Chair until July. The role of the LBOH during the pandemic has been to remain informed of community strategies and responses but has lacked the authority to create policy or guide implementation. Both the COVID-positive

results and the community impact survey and interviews results were presented to the LBOH and were met with enthusiasm and curiosity. Due to the current role of the LBOH, however, recommendations made in the presentations were not implemented, as the board is currently not an implementing agency. However, although the pandemic served as impetus for the board to meet regularly and name a Chair, it has had very little impact on the community of Chelsea itself. Much of the restraint of the LBOH to act stemmed from years of a strained relationship with the Director of HHS who did not want to work with the LBOH. While the Chair of the LBOH felt that the pandemic response was led by the Pandemic Response Team, there was no formal relationship or alliance between them. The Chair believed that the LBOH should be more active in building relationships with other City boards and support the newly formed Department of Public Health and formalize its role as a public health institution working for the city.

I developed an advisory relationship with the Chelsea Project which is led by MIT, the Metropolitan Area Planning Council (MAPC) and the Chelsea HUB.[12] The Chelsea Project seeks to improve pandemic response through wastewater monitoring, improved testing and vaccine rollout through neighborhood captains. Results from the three arms of the project were presented to them to help shape their strategy and community impact. These presentations and conversations helped the Project improve their awareness and understanding of how the community has been impacted by COVID and how best to influence behavior change to protect safety, including implementing regular testing.

[12] Chelsea HUB is a community safety and wellbeing model led by the Chelsea Police Department to link at-risk individuals to social services.

The COVID-positive case analysis proved to be crucial for giving the City of Chelsea a deeper understanding of who was being affected and how the virus was spreading throughout the community. The City staff lacked the time and capacity to carry out this analysis, and it was deemed very helpful. In response to the analysis results, messaging from the City Manager specifically focused on the need for regular testing regardless of symptomatology. The City emphasized constantly on Facebook, and in print and television messaging, that one out of three Chelsea residents has no COVID symptoms and the City was unique in Massachusetts in encouraging testing without symptoms. By providing concrete data, the Community Impact Survey confirmed the City´s assumptions on the demographic characteristics of the City and the dire economic impact of the pandemic. Finally, the City would like to continue to have continued analysis of COVID-positive cases to understand the pandemics progression.

All groups are concerned about the lack of public health leadership and coordination in Chelsea´s pandemic response. They hoped that the development of a new Public Health Director job, and the retirement of the previous Director of HHS for Chelsea would bring a new era of collaboration among groups and position public health in the center of pandemic response. During 2020, groups have been entrenched in dealing with their own separate issues, and coordination across needs and departments has been weak. It is left to be seen, however, if the new Director will consider the results of the community impact survey and qualitative interviews as foundations to guide a public health response.

In the absence of strong public health leadership and practice, La Colaborativa feels that this doctoral project supplemented the work of a local Department of Public Health. La Colaborativa

benefited directly from having a deep understanding of the impact and social response of COVID. In addition, identifying vulnerabilities and social determinants of health that existed in Chelsea prior to the pandemic was critical to creating a clear picture of how vulnerable Chelsea residents were to COVID. The project helped La Colaborativa have hard data, language and scientific analysis to continue to advocate for Chelsea, and it found this support to be critical to supporting their work. In a time of such rapid expansion and adaptation, La Colaborativa felt that they were making truly informed decisions on where to best place their attention, funds and resources. The results of the project have been used by La Colaborativa to create an action plan with their Board and push donors to increase their support of La Colaborativa´s work. La Colaborativa feels that my sensitivity in understanding the community they work with was key both for them to trust that I would do valuable work for them, and to gain the community´s trust so they would participate honestly in the survey and interviews.

How this work contributes to Public Health and Pandemic Response

The call to include grass roots voices and priorities is not new to public health. Community-based participatory research and human-centered design are two strong traditions in public health that seek to actively integrate beneficiary communities into research, strategy and implementation. However, Chelsea serves as an example of the tensions between existing public health structures and the need to include community voices in adapting these structures to improve their relevance and utility. The isolation of the Department of HHS from civic organization, the Pandemic Response Team and the people of Chelsea themselves made any effective response difficult. In addition, while respondents mentioned both the BI and MGB as hospitals to access for the treatment of COVID, none of the over 400 participants mentioned being contacted by a Community Health Worker or Home Visiting Provider during the pandemic, despite these institutions signaling these programs as key to their community outreach strategies. The lack of community participation by the hospitals as revealed in the survey begs the question of whether it is the role of hospitals to participate in communities, and if so, how. Perhaps public health should be led by specialized departments in cities and civic organizations that link patients to hospitals for care when needed.

The work carried out in this project exposed the multiple vulnerabilities and strengths that shaped the COVID pandemic in Chelsea. Adelaine´s (2020) "Conceptual framework for understanding disasters, inequality and COVID" provides a model to understand that both vulnerabilities and strengths shape the impact of COVID on a community.

Figure 12: Conceptual framework for understanding disasters, inequality and COVID

By having a clear understanding of the vulnerabilities and strengths of each community, policy makers and public health communities can create COVID response systems that begin to actually address the deep inequities that existed before the pandemic, while elevating the strategies for survival and resilience that already exist in a community and will be essential to creating sustainable programs that actually improve people's lives in meaningful ways. In Latinx communities, this means understanding the powerful role of family connection and loyalty while also understanding how families are perceived as structures that extend far beyond the nuclear families. It means understanding the drive within individuals to participate as caring members of their families by distributing resources, care taking and providing emotional support, even for those who do not live in the same city or country. The sense of family obligation and loyalty is wide and profound, and may come before one's own needs. Essential to understanding Latinx sense of self and meaning is accepting the role of their faith and their relationship to God as a benevolent being who will take care of them, as long as they maintain their relationship to him. Finally, Latinx strive for meaning and purpose in their lives. Regardless of their place on the

social hierarchy, systemic racism, policies and institutions that are designed on the premise that Latinxs are quietly invading the US to steal its resources and jobs, they are driven to seek a better life and improve as human beings.

By understanding COVID response as the interaction of basic, psychological, and self-fulfillment needs, public health responses to COVID among Latinx populations can be shaped by an understanding that first basic needs must be met, without restrictions based on immigration status, family composition or type of employment. A model that integrates access to all services driven by an understanding of how family resources are shared among Latinx will ensure their basic safety and wellbeing. By accessing services and coming together to problem-solve, Latinx will build community and take care of each other. It is through participating in the collective well-being that Latinx communities find emotional solace and purpose. Sustaining hierarchical tiers of service delivery and excluding Latinxs (regardless of education and English levels) from delivery design will continue to exacerbate the systemic racism that has driven the disproportionate impact of COVID among communities of color.

The impact of COVID in Chelsea, and potentially among other Latinx communities, was distributed within and across families as the basic unit under assault. Unemployment, sickness, death, despair, were family experiences that were mediated through collective resource -sharing, caretaking and coming together as one. However, public health policy insists on targeting the individual. In contrast to this approach, adequate policy for Latinx communities would target families and communities themselves, by addressing unequal access to social protections, insurance and basic human rights and leveling access to a community level- regardless of

whether certain individuals are documented are not. Finally, as long as health inequities continue to be driven by racism, classism and exclusion, Latinx families and community networks will seek to distribute their own resources and create internal leveling systems that ensure the well-being of the entire community.

Conclusion

I undertook this project in order to understand the impact on and social response to the COVID-19 pandemic in Chelsea. The purpose was to provide Chelsea and, in particular, La Colaborativa with a better understanding of where public health interventions can help strengthen the community and what local resources are already shaping resilience. Understanding the impact and response came through a mixed-method approach of analyzing positive COVID cases, conducting a community-based survey, and qualitative interviews with female heads-of-households. I also participated in meetings, the food line, and strategized with the Local Board of Health, Pandemic Response Team, and above all, La Colaborativa, all of which were crucial for understanding Chelsea´s unique characteristics.

Understanding Chelsea´s vulnerabilities and strengths can give public health practitioners and policymakers insight into guiding the response to COVID-19 in similar communities. It is becoming more widely accepted that response must include a strategy for addressing health inequities. These insights are relevant to other Latinx immigrant communities in the US and even in Latin America, where response and social protections have been significantly weaker than in the US. While some of the specifics may vary, Chelsea may have something to teach all communities where a synchronous approach to needs may be relevant for all communities.

COVID-19 has demonstrated that communities with a weak public health infrastructure fared worse during the pandemic. However, patchwork investments in public health and systemic disregard for public health professionalization will continue to exacerbate health inequities after the pandemic is resolved. Vaccination is a tool but not a strategy to address social determinants

of health. Every city and every community must have the human, financial and technological resources to address their social determinants of health and develop infrastructure and planning beyond improving access to healthcare services.

The complexities of Chelsea´s response demonstrate that human beings are intricate, multi-faceted, and require more than having their basic needs met. This is true for all communities, including immigrants, undocumented folks, refugees, and ethnic minorities. Programs that restrict access to social protections to those who can prove a certain poverty level will continue to exclude the most marginalized, for example those who cannot provide proof of income or who financially support individuals outside of their nuclear family. Building trust with communities requires trusting that when they ask for help, it is usually because they need it. Social protection programs must consider local variations in types of employment, family structure, the internal distribution of resources, sources of information, and community support networks. Social protection systems are often built on cultural and social assumptions that define who qualifies for assistance. Without careful analysis of these assumptions, programs will continue to isolate those who do not meet them and overlook existing informal social protection systems.

Chelsea's voices and experience also highlight that when catastrophe hits and significantly alters our ways of living, communities can quickly build networks and systems to survive. These systems go beyond resolving the basic needs of food and shelter; they include love, protection, ritual, reflection, negotiation, finding meaning, bonding, and collective problem-solving that embrace the complexities of human survival. How Chelsea, particularly La Colaborativa, stepped

up, without hesitation, to take care of a community's well being is a clear example that even with its vulnerabilities, Chelsea is a model for integrated community action and survival.

As is the case with most communities globally, the pandemic arrived in Chelsea when the City was unprepared, underfunded, and understaffed to be able to respond effectively to a public health crisis. The results of this project expose that a detailed and continued assessment of these vulnerabilities is essential to improve future response to the crisis and improve residents' wellbeing. The purpose of understanding Chelsea´s vulnerabilities is to create a harm reduction strategy where residents are supported in preventing infection, preventing its spread among loved ones, and mitigating the devastating economic and psychological effects of the pandemic. Simultaneously, by recognizing and elevating Chelsea´s strengths, the City and local organizations can better coordinate a relevant, applicable, immediate and sustainable response.

Recommendations

The following recommendations emerge from Tuck´s desire-based framework that "understands the complexity, contradiction and the self-determination of lived-lives" (Tuck, 2009). The recommendations are situated within the proposed model of change as they address all three levels of needs: basic, psychological, and self-fulfillment. Recommendations to Chelsea, or any Latinx community struggling through the COVID crisis, must consider that community members are more than mouths to feed and bodies to house. Understanding the assets that Chelsea already has can ensure a sustainable response that improves lives.

1. Strengthen the Public Health infrastructure of Chelsea.
2. Integrate social protection and support services within a single wrap-around model.

3. Focus on a harm reduction approach to COVID prevention.
4. Ensure that programs and funding focus on building trust and participation with the Chelsea community.

1. Strengthen the Public Health infrastructure of Chelsea:

Without improved funding to public health departments across Massachusetts through the Statewide Accelerated Public Health for Every Community Act (SAPHE 2.0)[13], and similar policy initiatives, local health departments will continue to have a limited capacity to respond to crises. Regional skill-sharing and campaigning could also help to fill gaps in Chelsea´s public health department and improve the department's influence and advocacy capacity.

Before the pandemic, Chelsea lacked a public health strategy and capacity. As a result, different departments such as Development and Planning, and civic organizations, such as La Colaborativa, stepped up to fill the gaps in public health programming. As of February 1, 2021, Chelsea now has a Public Health director and a department where public health initiatives should be centralized. The new director must create a strategic plan with key partners in pandemic response to work collectively and gain the Chelsea community and organizations' trust. The

[13] The SAPHE 2.0 Act was created in response to the impact of the COVID-19 pandemic on Massachusetts. It acknowledges that the state was not adequately structured, staffed, or financed to meet large scale challenge such as the pandemic. It proposes the following measures:

- Ensure minimum public health standards for every community,
- Increase capacity and effectiveness by encouraging municipalities to share services,
- Create a uniform data collection and reporting system, and
- Establish a sustainable state funding mechanism to support local boards of health and health departments.

https://mapublichealth.org/saphe2-0/

public health department cannot take on all of the public health duties that Chelsea needs at the moment, but it can rely on those who have carried out the work during 2020 to expand and deepen outreach and coordination.

The newly formed Department of Public Health must have the capacity to perform data analysis on COVID positive cases and present these results to the LBOH. These results should be used in real-time to inform targeted messaging, design strategies to reduce the spread of COVID-19, and identify and protect the most vulnerable groups. Community organizations, spiritual leaders, and influential residents should be kept informed of the results of this ongoing data monitoring; as key community leaders, they can help effectively communicate with the community and identify practical and grass-roots strategies to protect infected or at-risk families.

The LBOH must take a more active role in public health research, outreach, and leadership to support the Department of Public Health. As long as this Department is limited to a staff of two (the Director and Public Health Nurse), the LBOH could supplement capacity and skills by recruiting additional public health leaders. Improved capacity on the LBOH could directly support the work through data analysis, campaign development, messaging, and skill-sharing with other institutions. The LBOH could actively engage public health students and alumni through the Academic Public Health Volunteer Corps (APHVC) and through University practicum opportunities to improve the capacity of Chelsea´s public health resources[14].

[14] The APHVC is a coalition of nine public health and health sciences universities in Massachusetts. The APHVC was activated in March 2020 to support Local Boards of Health in their response to COVID-19. Current students and alumni volunteer to provide technical assistance to cities and towns to augment, amplify and leverage public health. https://www.mass.gov/info-details/academic-health-department-academic-public-health-volunteer-corps

Vaccine rollout and distribution will reduce transmission and help to re-start the economy, enabling many Chelsea residents to return to work rather than having to rely heavily on social protections and charity. Chelsea residents desperately need to return to work to secure their well-being but cannot do this when their health and their families are at risk of infection. Chelsea residents rely on social networks, live in multi-generational housing, and carry the burden of systemic poverty and discrimination. Therefore, the City of Chelsea should be considered for Phase 2 rollout as a high-risk community instead of selecting particular residents who have specific jobs or comorbidities. The sooner the Chelsea community can be vaccinated, the sooner transmission among families and social networks will decrease and reliance on social protections will decrease.

La Colaborativa has expanded its services into conducting public health work by promoting regular testing at the city level and with a mobile unit, engaging and training health promoters to conduct outreach and education, distributing PPE, conducting educational webinars, and promoting vaccination. The organization should continue to use live social media platforms to showcase themselves and community members accessing these services, as this reinforces public health and harm reduction messaging as social norms.

By recognizing local grassroots organizations such as La Colaborativa in public health outreach, Chelsea can expand its public health infrastructure through the expansion of the definition of public health beyond the usual formal definition of public health. When the government can reach and collaborate with grass roots organizations such as La Colaborativa and provide them with adequate resources to carry out activities that are, in fact, public health in nature. In some

cases, local organizations can carry out public health work more effectively than an agency that is not as rooted in the community.

At this time, La Colaborativa must be supported with funds to expand its staff and capacity as a public health organization. Acknowledging that public health is a pillar of La Colaborativa´s work with specific funding and capacity building will continue to ensure that these strengths remain relevant to the community.

A stronger working alliance between City departments and La Colaborativa would leverage the trust the organization has built over many years with residents. Messaging and behavior change campaigns must go further than a translation from English campaigns and must seek input from local residents or La Colaborativa to ensure relevance and applicability. City leaders should listen to recommendations and requests from La Colaborativa as they can serve as the City´s ears to the ground.

City leaders should also recognize the power and influence that women have with Chelsea families. Women are the center of information, decision-making and often those tasked with ensuring needs are met. Social protection strategies should be designed to enable women´s access, for example, providing services during hours where women are available and providing space for the children who accompany them. Messaging should primarily target women as chief influencers in household decisions.

Finally, the Department of Public Health must establish a community-based system for review and accountability to ensure that COVID response and future initiatives to address health inequities and social determinants of health are put in place. Failed projects, such as the Revere Hotel for isolation should be assessed publicly to garner feedback and improvements.

2. **Integrate social protection and support services within a single wrap-around model.**

La Colaborativa was able to pivot in March of 2020 to begin food, diaper, PPE, and cleaning supplies distribution because they saw the need. Over the course of 2020, programming shifted to include advocacy and assistance for eviction prevention, including RAFT applications, finding emergency housing, and even packing and assisting families during an eviction or covering funeral costs. The food line, phone calls, and informal meetings with staff have provided a safety net for psychological health. In September, La Colaborativa´s existing programs were re-initiated online. These included English classes, “Know Your Rights” training for workers, unemployment assistance, and the youth job placement program. La Colaborativa´s success consists in stepping up to resolve all aspects of the pandemic while ensuring continuity of care and wrap-around services that meet family's needs. La Colaborativa was able to identify needs quickly because they are in constant conversation and listen to residents’ stories. Residents feel comfortable asking for help because they trust the staff at La Colaborativa is responsive to their complex and ever-changing needs.

The integrated social assistance model recognizes that in a crisis like the pandemic all needs must be met and services expanded. La Colaborativa must be supported with funds to expand its

staff and capacity. The organization grew and adapted incredibly quickly this year to respond to Chelsea residents' needs. However, food pantry supplies are still insecure, as La Colaborativa has not received confirmation from the United States Department of Agriculture (USDA) that they will continue to receive federal food supplies. Staff at La Colaborativa run a high risk of burn-out and have neglected to take care of themselves this year, as they have serviced the community continuously.

At an administrative level, quick expansion, multiple hiring rounds, and high staff turnover this year will require that La Colaborativa develop a Human Resources department to free the COO of these tasks. In addition, the organization requires ensuring their physical spaces are secure and ideally owned by La Colaborativa. The building that houses the food pantry will be demolished in mid-2021 and replaced with an apartment building. It is inhumane to expect that the staff can continue providing such comprehensive and personalized care to families while also negotiating their eviction from their offices. Policy makers and funders must recognize and guarantee the need for the Chelsea community to have a secure and safe space they can rely on to meet their social protections.

Other communities in the US could replicate La Colaborativa´s wrap-around social assistance model, grounding it in the community's specific needs. Within Chelsea, it would help if state agencies that provide social protections helped streamline processes that ensure access to state and federal protections or medical services.

Parallel programs in Chelsea must recognize that residents are social, familial, and rely on family structures for resilience and healing. Therefore, community programs, particularly social protections or resilience programs, should focus on targeting and including family units instead of individuals. Food, clothing, childcare, and other essential goods and services are shared and distributed internally within families. Therefore, food pantries and organizations that donate goods to families should remain flexible so that heads-of-households may redistribute goods to others within their social networks. More sensitivity and understanding of the importance and power of internal social networks should drive the design of programs and distribution of goods, as it could otherwise be misinterpreted as hoarding.

In addition, local women should be consulted on the design and implementation of social protection programs. Consulting with women would ensure that the food distributed is culturally adequate and is liked by children, it would ensure basic goods such as diapers, menstrual products and cleaning supplies. Women have a keen understanding of what their home needs to function and should always be involved in program design.

While the mental health impacts of COVID have been profound among this community, residents generally do not find Western psychotherapy culturally appropriate or accessible. Therefore, the City and organizations should design mental health and wellbeing programs that build on existing networks and groups that already meet regularly (formally and informally) and improve local leaders' capacity to facilitate these groups. Working with local churches will be essential to this program, as they are already managing many of these groups, and residents expressed getting a lot of strength and support out of these groups. The role of local churches has

been critical to Chelsea´s resilience. Therefore, learning from churches how they provide safe spaces for emotional respite and courage will be key in any program design.

Residents of Chelsea should have free or low-cost access to English classes, GED and job skills classes, and other skills such as computer literacy necessary for navigating US social support programs. Creating a job training site where residents can share their skills, learn new ones, and even seek micro-financing or shared workspaces (such as kitchens or artisanal workshops) would elevate residents' autonomy and economic well-being.

The state must extend an eviction moratorium to families who have remained unemployed since the start of the pandemic. At the same time, unemployment assistance should be guaranteed regardless of documentation and immigration status. A moratorium on utilities payment will also help families recover faster from the pandemic’s economic devastation.

Food pantries, rental assistance programs, transportation, and utility subsidies must continue throughout 2021. Case managers should be deployed by the City and local organizations to ensure that every family in Chelsea who needs social protection or health insurance has what they need in a timely way. Ending social protections before the end of the year would be devastating to this community and would lead to high costs in homelessness, hunger, and disease in the short- and long-term.

3. **Focus on a harm reduction approach to COVID prevention.**

Chelsea has developed and maintained extremely accessible testing, which should continue throughout 2021. However, too many Chelsea residents still have not been tested, and few get tested regularly. Direct community-based education through CHWs and community leaders, including religious organizations, could promote the message that COVID prevention requires regular testing to protect families. Employers, community organizations, spiritual leaders, and governmental departments, including the LBOH, should continue to encourage residents to be tested regularly, whether or not they have symptoms.

Community influencers should post on social media about getting tested regularly and encourage residents who are afraid of PCR testing discomfort to access self-swabbing via the mobile unit. Local leaders such as Gladys Vega, Father Edgar and other influencers should remind residents that all Chelsea residents are at risk of COVID, mainly if they or someone they live with leaves the home for work or accesses the food pantry. All industries must provide PPE and sick time for COVID-positive workers without the threat of firing.

COVID-19 information, testing and vaccine resources should be spread through the community with the support of female heads-of-households. Not only are they more likely to believe conspiracy theories, they are also influential in driving their families behavior. Taking the time to talk to women individually or in groups through existing programs or CHW outreach will be crucial to women becoming public health advocates.

Chelsea residents rely on their families and social networks for all levels of support. It is unrealistic to expect that they will isolate from each other, especially over the course of an entire year. Therefore, residents need to know exactly how to gather safely. Spikes in cases around the winter holidays marked a combination of pandemic exhaustion with family loyalty. Instead of only telling residents to maintain social distance, it would be helpful for residents to have clear instructions on meeting in person. Global examples abound and present different risk levels according to behaviors (mask-wearing, ventilation, singing, etc.). Adapting these to Chelsea and using them as platforms for community education will help reduce the risks of exposure when residents meet in person. Again, continuous and free access to testing with quick results will also contribute to harm reduction.

Harm reduction includes acknowledging that Chelsea´s recovery must improve the socio-ecological health of Chelsea residents. These strategies must rely on public health and prevention instead of hospital diagnosis and NCDs treatment. Future community programs could emphasize culturally appropriate dietary, exercise, and stress-reduction programs led by respected community organizations and churches.

During 2020, Chelsea residents have relied heavily on their churches and church communities for stress reduction, emotional support, and trauma-informed care. Reaching out to these communities to learn from their support systems and replicate them in non-denominational spaces would be an essential step in creating a realistic and appropriate wellbeing and trauma resilience program in Chelsea.

Public health messaging must remind residents of the increased risks of adverse COVID outcomes among those with chronic diseases and people who are pregnant. Invoking the community spirit of collective care for our elders and future children honors existing values related to lineage in Latino communities. Messaging should focus on regular testing and protecting those at most at risk of adverse outcomes from COVID. Again, these messages make the most sense when imparted and emphasized by respected leaders such as local organizations and churches. Information to the public in Chelsea should be kept at a basic level (maximum 7th grade), in Spanish, and involve oral and visual aids. Messaging should be brief and encourage calls to action that are realistic and accessible.

4. **Ensure programs and funding target building trust and participation with the Chelsea community.**

Chelsea's immigrant community has endured decades of systemic racism, exclusion, and fear of deportation. Anti-Latinx immigrant propaganda and policies assume Latinx as "the single most immediate and most serious challenge to America´s traditional identity" (Huntington, 2009). While the City of Chelsea is keenly aware of the city's demographics, most government employees are not Latinx and not (recent) immigrants. Building a relationship of trust and cooperation between the state and the community requires much more than translating words into Spanish. It requires open and respectful dialogue that genuinely honors the community's cultural realities and values. Simultaneously, the government (and institutions) must be transparent about their capacities and limitations.

While residents state that they are grateful for the social protections available to them, they are often confused by the processes and require additional support to navigate them successfully. Online Zoom town hall meetings, application assistants, and additional staff to answer individual's questions and concerns over their applications and status are fundamental to ensuring the most vulnerable have access to existing programs.

Additional funding should be provided to train and pay staff to function as case managers who can clarify confusion over processes and access. Staff at la Colaborativa and City Hall are already stretched too thin and cannot answer all social protection systems questions. Residents are confused over the status of their applications and eligibility for programs. Creating a hotline where case managers can answer their concerns over applications and assistance would help build trust in government support.

Continuous monitoring and evaluation of the accessibility and quality of social protection services are fundamental to improving access and protecting residents. Too often, applications are rejected because a resident does not know how to scan her identification card or cannot show proof of income. These bureaucratic hurdles put residents at risk and break relationships of trust. When governments fail to trust that residents are applying for the help they need, residents cannot trust that governments will take care of them.

La Colaborativa has maintained resident trust because the staff can problem-solve tiny details and substantial legal barriers, ensuring residents access all the protections they qualify for. Trust building requires working with residents to ensure their needs are met, not creating obstacles.

Chelsea is at a critical juncture for trust and community building, given the collective sense of care-taking that has occurred during the pandemic.

Chelsea residents live in existing networks of trust. Many migrated to Chelsea because someone in their family or village was already there. Jobs are passed to family, friends, and church members. These networks extend to Central America, where residents send remittances, and their families trust that they will continue to care for them.

Building on the community's sense of pride and belonging, public health messaging around testing and vaccination could focus on keeping the community safe and taking these actions as an act of care and loyalty to a community that takes care of its residents. Messaging on social protections should clarify how to overcome obstacles to access, avoid rejections, and track applications.

Fostering trust in Chelsea requires acknowledging the local resources within the community. Female heads-of-household could be trained as CHWs and as advocates for different programs, expanding the “promotoras” (health promoters) program developed by La Colaborativa and the Chelsea Project for COVID outreach. Chelsea residents are experts on the nuances and difficulties of their lives, and they are also absolutely clear on the social networks that exist to overcome these obstacles. Listening to how the community has built resilience and survived the pandemic is more critical than seeking external assistance.

Community healing and recovery must take on a collective face, engaging the existing pride and sense of belonging that residents have towards Chelsea. Staff in supporting organizations such as La Colaborativa and City Hall should be formally and publicly acknowledged and thanked for their hard work helping city residents.

Chelsea should embody the collective spirit of survival and resilience by creating a monument or mural to honor those lost to COVID and those who fought to keep the community safe. To provide community healing and grieving spaces, City Hall and La Colaborativa should work with local church groups to expand access to community groups. For those who are not religious, establishing community groups on Zoom and, post-vaccination, in-person gatherings to generate informal spaces of community and support.

Chelsea residents trust and rely on each other. They know that their survival depends on collective survival and wellbeing. Organizations and City Government that serve Chelsea could learn a lot by listening to how residents have worked every day in this past year to heal and rebuild the city. By developing a collective vision, strategy and sharing the burden for public health action, Chelsea can model recovery and demonstrated resilience.

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Appendix A: Data Analysis Report to the City of Chelsea

Data Analysis Report to the City of Chelsea

COVID positive cases:

March 3 2020 through August 9 2020

Presented by:

Cristina Alonso

Harvard T.H. Chan School of Public Health

October 2020

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Executive Summary and Key Takeaways:

During September of 2020, health equity analysis was conducted on data extracted from the MAVEN database. A total of 3302 positive COVID-19 cases were analyzed to identify trends, frequencies and correlations between social determinants of health and outcomes.

Analysis of this database revealed important findings that can help shape public health strategy and policy in Chelsea going forward:

1. **Improving data quality is an important step in tracking the spread and impact of COVID:**

Actions steps to improve the quality of data collection could include:

a. Revise current protocols for classification of race/ethnicity/Hispanic and ensure that all Hispanic are consistently classified.
b. Establish a protocol to ensure there is consistent classification of Hispanics.
c. Code for Ethnicity according to federal standards, which are Hispanic and Latino or non-Hispanic and Latino.
d. Establish a protocol to explain the difference in coding for: Unknown, NA and No.
e. Propose the addition of an additional response- RTA (Refused to answer) and LTF (lost to follow up) to determine pubic behavior and trust in the contact tracing system.

f. Ensure all variables in the dataset are completed, especially those pertaining to employment.

g. Check to see if "possible exposure location" is captured on MAVEN and if it is not, discuss the possibility of adding this variable since it is already being collected at a local level.

    i. Establish a clear protocol on how locations will be collected to ensure external researchers can understand location.

b. Establish monthly monitoring and analysis of the database to provide feedback to contact tracers and city staff on the importance and relevance of data quality.

2. **In Chelsea, those who are most likely to get COVID are Hispanic essential workers in their 40´s and retired persons.**
3. **Almost 35% of positive cases have no symptoms**
4. **Patients take about 1 week between onset of symptoms to testing, which may lead to increased spreading**
5. **Retired persons and older people are more likely to be hospitalized and die of COVID**
6. **While Hispanics are less likely to die of COVID, those with cardiac or pulmonary diseases, hypertension and diabetes are much more likely to die of COVID.**
7. **While women are less likely than men to be hospitalized, pregnant women are highly likely to be hospitalized.**
8. **Those with asthma, unemployed and retired persons are much more likely to be hospitalized.**

Action steps in response to trends in COVID outcomes:

1. Public health messaging to inform the public that 35% of COVID cases in Chelsea are asymptomatic.
2. Public health messaging should consider these results and target subgroups specifically to inform them of added risks:
    i. Targeting youth- that younger people are not at risk of being hospitalized and dying, their older family members are. They can keep their elders safe by stopping the spread of COVID to older generations and those with asthma, hypertension and heart disease.
    1. Targeting seniors- The senior center and other culturally relevant spaces could inform elders with hypertension, pulmonary and cardiac disease and asthma of their elevated risk of mortality so that they take extra precautions and get tested for COVID regularly.
    2. Reach out to the Senior Center and Soldiers home to inform staff and residents about the discrepancies in symptoms among elders who present significantly less fever, chills and aches than younger adults.
2. Direct messaging efforts at getting tested. Residents should get regularly tested (every two to four weeks) as symptoms vary by age groups and a third of cases do not present symptoms. Waiting to develop symptoms of COVID to get tested is not ideal.
3. Target the unemployed to register for MassHealth to reduce delays in seeking care and having access to preventative health.

4. Adopt a city wide strategy to address social determinants of health including reducing diabetes, asthma, heart and pulmonary diseases and hypertension.

Introduction:

COVID among Latinos

The epidemic has disproportionately impacted the U.S. Latinx population. According to the CDC, Latinxs represent 34.6% of all COVID positive cases, representing only 14% of the U.S. population (CDC, 2020). In comparison, Black non-Hispanic represent 20.8% of cases, Asians 3.6%, Native Americans 1.4%, and other race and ethnic groups 4% of cases. It is important to note that half of all cases still lack race and ethnicity data, contributing to the lack of data transparency on COVID cases.

This over-representation in Latinx COVID-19 cases highlights systemic issues related to work and living conditions, access to healthcare, as well as the perception of risk and access to COVID-19 prevention information and mitigation strategies. In Massachusetts, residents of Chelsea have six times the rate of COVID-19 than the rest of the state. Chelsea is a highly vulnerable city, yet the impact of COVID has surpassed predictions of vulnerability and consequence.

Researchers have stated that COVID-19 is occurring against a backdrop of social and economic inequalities in existing health conditions, including NCDs and inequity in the social determinants of health. High prevalence of pre-existing conditions, including NCDs, may have exacerbated the incidence and severity of COVID-19 in Latinx communities (Bambra et al., 2020).

Health among Latinx Communities

Latinxs represent 18.3% of the U.S. population, reaching 59.9 million in 2018 (US Census Bureau, 2020). This number often does not include undocumented Latinx who are not counted in the Census. The Brookings Institute estimates that approximately 10-12 million undocumented people are in the U.S., of which half are from Mexico, and 1.9 million are from Central America (Stenglein, 2019). Latinx workers are much more likely to work in low-wage jobs, and in 2017 one in five Latinx workers were paid poverty wages (Mijente Support Network and the Labor Council for Latin American Advancement, 2020).

Before the COVID pandemic, Latinx populations represented the majority of low-wage workers in the U.S., with only 38.2% having access to health care. Since the pandemic, half of Latinx report they or someone they know has either lost their job or taken a pay cut. Undocumented workers are not counted in unemployment statistics, do not qualify for benefits under the CARES act, and cannot file for unemployment (Mijente Support Network and the Labor Council for Latin American Advancement, 2020). According to CNN, although all demographic groups have experienced significant increases in unemployment, Latinx unemployment has reached nearly 19%, the highest of all demographic groups (CNN, 2020).

Latinx populations are disproportionately affected by NCDs with Mexican American groups having rates as high as those seen in low and middle-income countries (Reininger et al., 2015). Existing comorbidities including hypertension, diabetes, asthma, chronic obstructive pulmonary disease, heart disease, liver disease, cancer, cardiovascular disease, obesity, and smoking are known to increase the rate and severity of COVID-19 (Bambra et al., 2020).

Latinx communities have significantly less access to healthcare services, which is affected by their acculturation, language, and immigration status. Undocumented folks delay access to healthcare services, out of fear of reporting to ICE. Those who recently arrived in the U.S. or have limited English skills may be unaware of how to access services (Escarce & Kapur, 2006). According to the Office of Minority Health, Latinxs have the highest uninsured rates in the country at 17.8%, as compared to 5.9% of the non-Hispanic White population (The Office of Minority Health, HHS, 2019).

Decades of research on social determinants of health have concluded that marginalized communities are at higher risk of infections, even without underlying health conditions. Chronic stress and psychological determinants of health lead to immunosuppression (Bambra et al., 2020). Constant feelings of exclusion, powerlessness, and collective threat affect the immune system and impact the risk of NCDs, and may also impact individual and collective responses to disease and epidemics. We see this through both delays in accessing care and demanding attention to a devastating outbreak for fear of reprisal.

High rates in NCDs reflect inequalities in social determinants of health. Latinx populations chronically suffer from stressful living and working conditions, insecure housing and food, and potential harassment from employers, landlords and authorities, including ICE. Latinx groups are more likely to work in low wage jobs where they are exposed to adverse working conditions and lack of workers protections and rights. It cannot be ignored that Latinx groups migrate from countries where these conditions are rampant and endemic. The transgenerational effect of food and economic insecurity, political conflict, low-intensity conflicts, revolution and war, and the

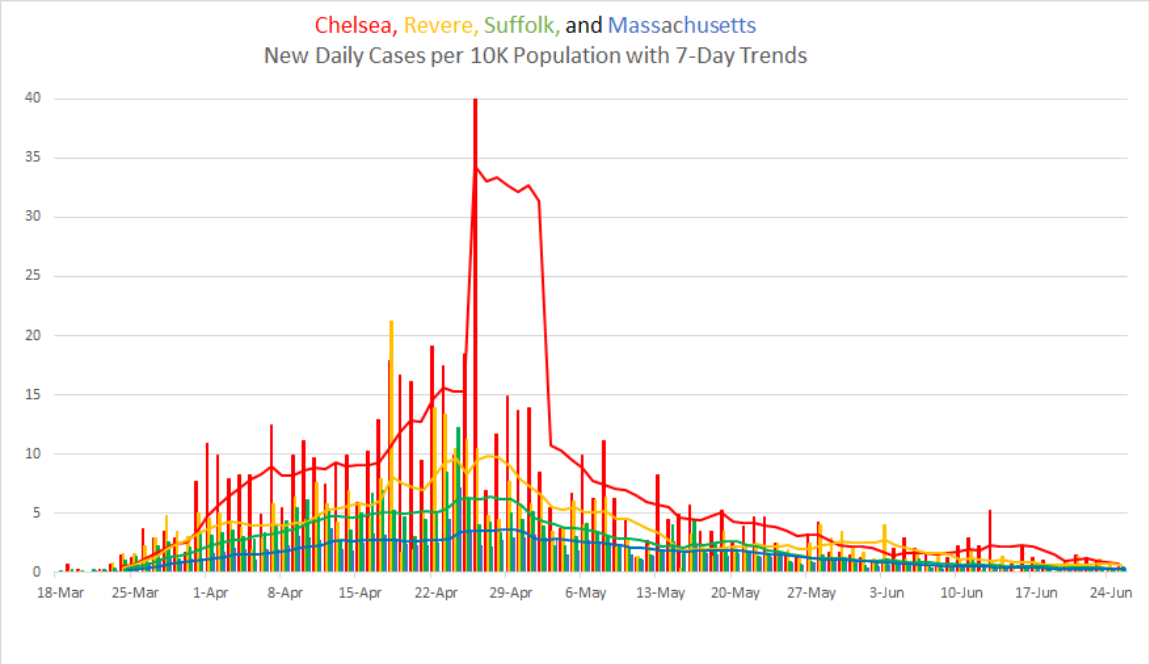
recent Narco and gang realities in Mexico and Central America must be included in any understanding of the health and wellbeing of Latinx populations.

The impact of COVID in Chelsea

The city of Chelsea occupies about two square miles north of Boston. It has an estimated formal population of 40,000 residents, but informal estimates claim there may be up to 75,000 residents (Editorial Board, Boston Globe, 2020). For the week of June 10, 2020, right after the peak in cases Chelsea had recorded 2839 cumulative cases of COVID, at a rate of 7537 per 100,000. 7444 individuals had been tested with a positive rate of 38.14%. The state had reported 100,158 cases with a rate of 1437 per 100,000 and a positive testing rate of 15% (Massachusetts Department of Public Health, 2020). During this time Chelsea had a COVID-19 rate almost six times higher than the state average and that many of those being tested are positive, indicating low access to testing (Barry, 2020). In short, the community of Chelsea was the hardest hit in Massachusetts.

By the week of September 30, Chelsea had registered a cumulative total of 3596 cases, with 99 cases being registered in the second half of September. The positivity rate had reduced to 2.75% indicating that both the absolute number of cases had decreased while the number of people being tested has significantly increased in the last few months (Massachusetts Department of Public Health, 2020).

Figure 23: COVID cases in Chelsea from March to June 2020



(Source: Department of Planning and Development Chelsea, 2020)

Chelsea holds many of the reasons mentioned above why the COVID epidemic spread so rapidly and had such a severe impact. Many Chelsea residents are immigrants from Central America, are undocumented, and are low-wage or essential workers. Chelsea residents live in overcrowded housing and lack access to health care and social services (The Boston Globe, 2020). The Governor's Command Center established a hotel for isolation and quarantine of positive patients, yet it was closed down in early June due to lack of use (Chelsea Record, 2020).

In order to understand the impact of COVID-19 on Chelsea it was important to conduct data analysis of data collected in the city of Chelsea through contact tracing of positive cases. Therefore, the Chelsea Local Board of Health requested the dataset from the Massachusetts

Department of Health in August 2020. Data analysis was carried out during September and October 2020.

Goal: To conduct health equity analysis to understand the impact of COVID-19 in Chelsea.

Methods:

The dataset was received by the lead researcher from MDPH through a secure and private email server to protect privacy. The first step involved cleaning and recoding the dataset for consistency, relevance and efficiency in the data analysis.

After cleaning the data set and recoding certain variables, the following issues and trends were identified in the data collection:

1. Incomplete data: a number of cases had incomplete data, for example, hospital admit data but no discharge date, although the person was marked as recovered.
2. Race-ethnicity data: There seems to be confusion over how to code race and ethnicity. Other/unknown/NA are used almost interchangeably. If a person was marked as hispanic, they are often marked as "other" in race, although not always. While some hispanics were marked as "white" and others marked as "unknown". Where unknown was "marked" it was re-coded to "other".
3. Addresses: Some address data was incomplete. Some Zip Codes were marked as NA, when the address was clearly in Chelsea.
4. Symptoms: A number of symptoms were marked as "unknown". Again, it is unclear whether “unknown” is used interchangeably with "No" or "NA". In some instances "loss of sense of smell and taste" were in the notes section, but not checked off in the symptoms box.
5. Gender: Some contacts were marked as NA. There seems to be no option for non-binary or anything other than male-female.
6. Overall missing data: Most of the missing data is on employment, race and ethnicity. These variables are key for understanding the epidemic and are not being collected consistently.

7. Variables not captured: There is no information on how many people live in a household and no variable for "possible exposure location". These are key variables that can help stop the spread and are collected during the contact tracing conversation.
8. Unclear responses: It is unclear what the difference is between NA and UNKNOWN. There is no option for "refused to answer" which is different from Lost to Follow-up or that the person does not know. Adding this response option would help understand people's trust in the contact tracing process.

Recoding the Dataset

In order to prepare data analysis, it was necessary to recode certain data for clarity and consistency.

1. Lab facilities included the name and address of the lab. These were recoded for simplicity and a codebook was created for reference (See appendix A). We identified 34 labs where Chelsea residents are getting tested for COVID. Mass General Hospital was most frequently used.
2. Comorbidities were registered in nine columns under the title “underlying_illness”. The columns were fused which resulted in one column with Yes/no/NA and 4 columns listing comorbidities, which was the maximum amount that any case listed. All types of cancers were recoded as “cancer”.
3. “Other symptoms” were recoded to capture patterns. All body aches were recoded as “bodyache” and symptoms that had their own columns were corrected. Notes about the course of care were deleted.
4. All variables marked as “unknown” were recoded as NA

5. “Case_Hospialized” included 3 columns and were merged into one that notes either Yes/No/NA.
6. All cases who were hospitalized and coded as UNKNOWN outcome were recoded as LTF (Loss of Follow up).
7. All data related to occupation were merged into one row.

Data was analyzed using R statistical programming. Frequency tables and histograms were used for frequency data and logistic regression and odds ratios were determined for questions related to social determinants of health.

Four research questions were answered by the dataset that relate to the impact of COVID-19 on individuals according to gender, race/ethnicity, employment status and comorbidities. These four questions include:

•Are symptoms related to gender, race or comorbidities?

•Are outcomes related to gender, race, employment, or comorbidities?

•Is there any variable that can explain higher risk of hospitalization or death?

•Do jobs, gender, race, or comorbidities affect the type of symptoms reported?

Results:

1. **Total number of cases: 3302**

2. **Missing Data:**

   Outcomes: 1711 (51.8%)

   Race: 570 (17.3%)

   Ethnicity: 3292 (99.7%)

   Hispanic: 642 (19.4%)

   Sex: 39 (1.2%)

   Date of symptoms onset: 2708 (82.0%)

   Hospitalization: 1945 (58.9%)

   Discharge from Hospital (among those hospitalized): 179 (62.5%)

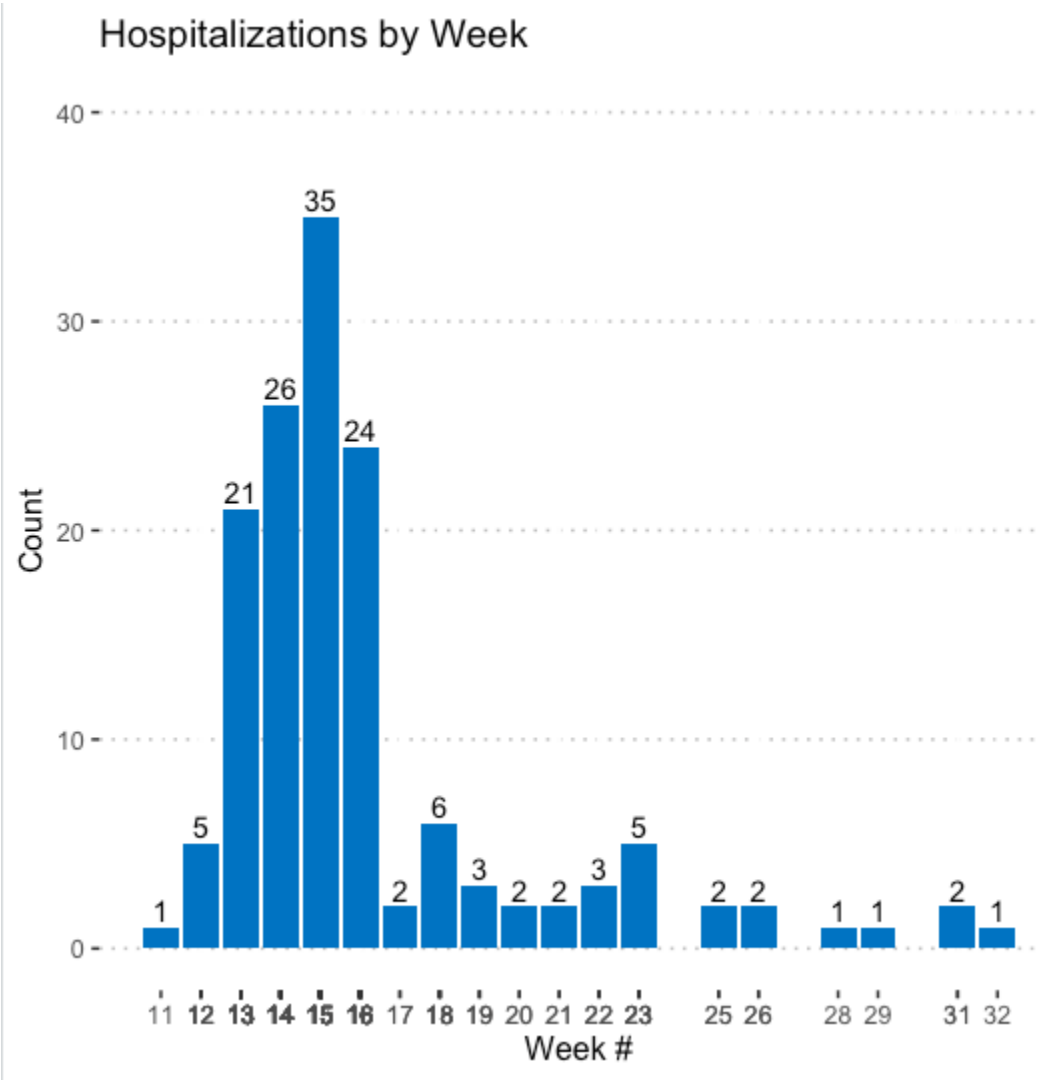
      Total number hospitalized - 286

   Employment: 2550 (77.2%)

3. **Cases by dates**

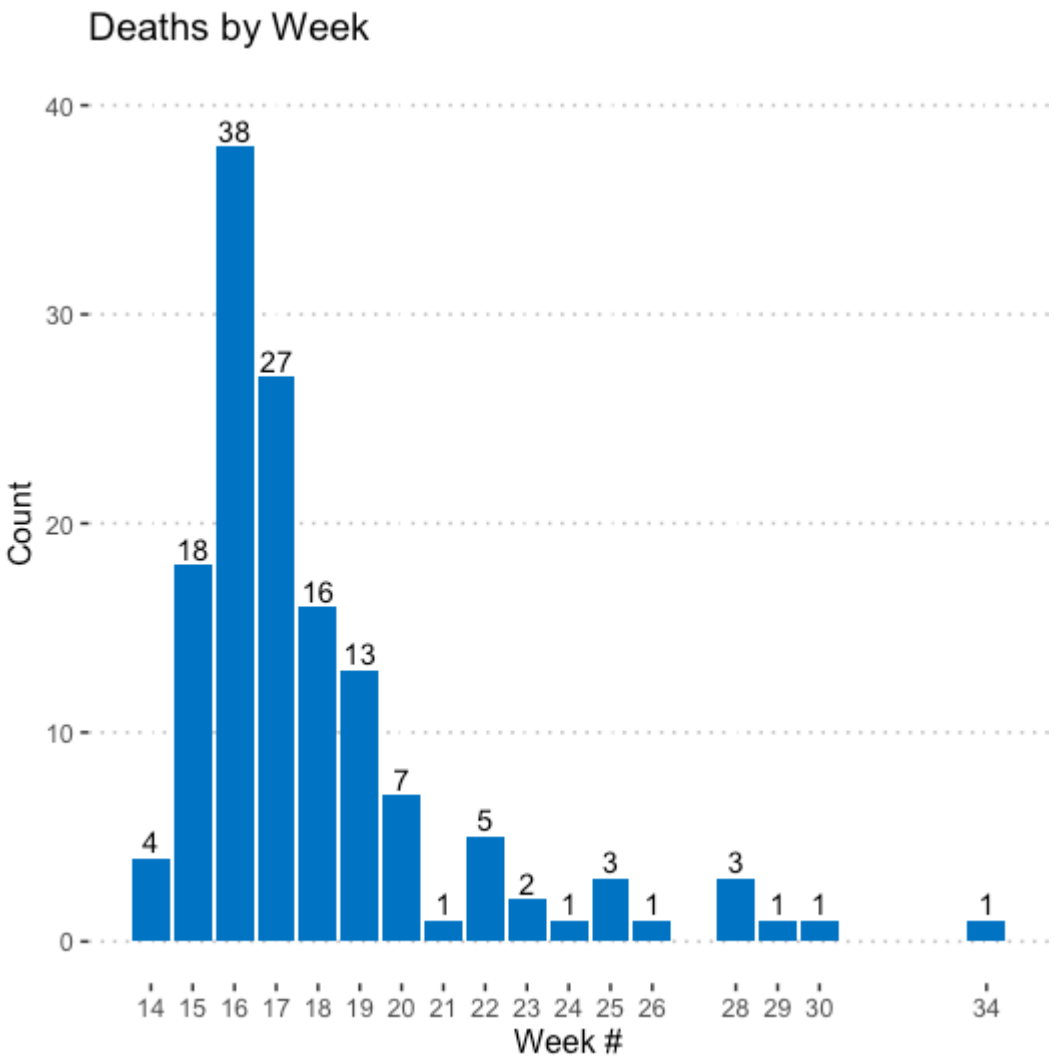
a. Hospitalizations peaked between weeks 13 and 16 (March 23 to April 19)

Figure 14: Hospitalizations from COVID by weeks



a. Deaths by dates: Peak deaths occurred between weeks 15 and 19 (April 6 to May 10)

Figure 15: COVID Deaths by week



3. **Demographic and Case Information:**

a. Average age of cases: 44.2 years

b. Average age by gender: Female 44.4 years

Male 43.9 years

Figure 16: Average age of COVID cases

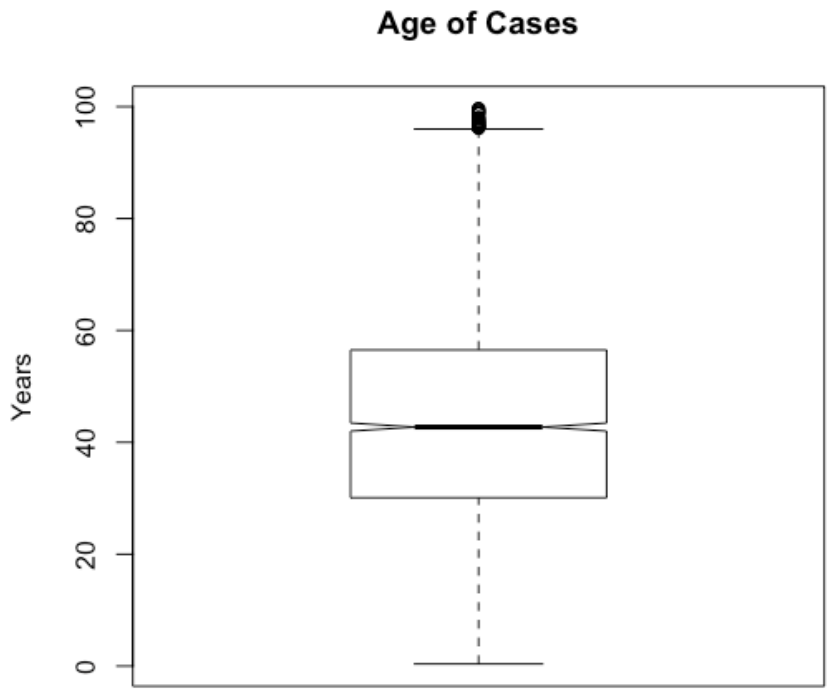


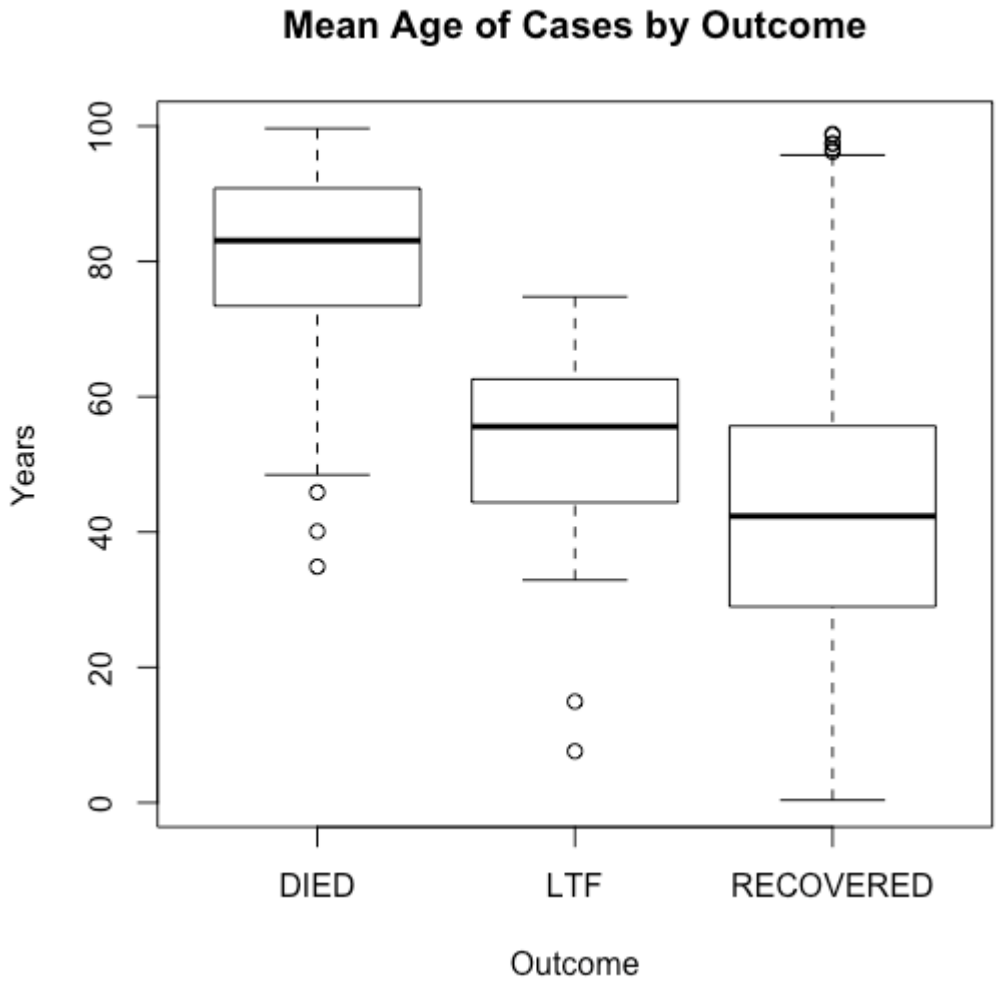
Figure 17: Average age of cases by gender

c. Average age by outcome: Died: 80.7 years

Recovered: 43.2 years

Lost to follow up: 49.4 years

Figure 18: Average Age of Cases by Outcome



d. Mortality related to gender:

	Female	Male
DIED	69	73
RECOVERED	750	662

Pearson's Chi-squared test with Yates' continuity correction

data: genderdeath

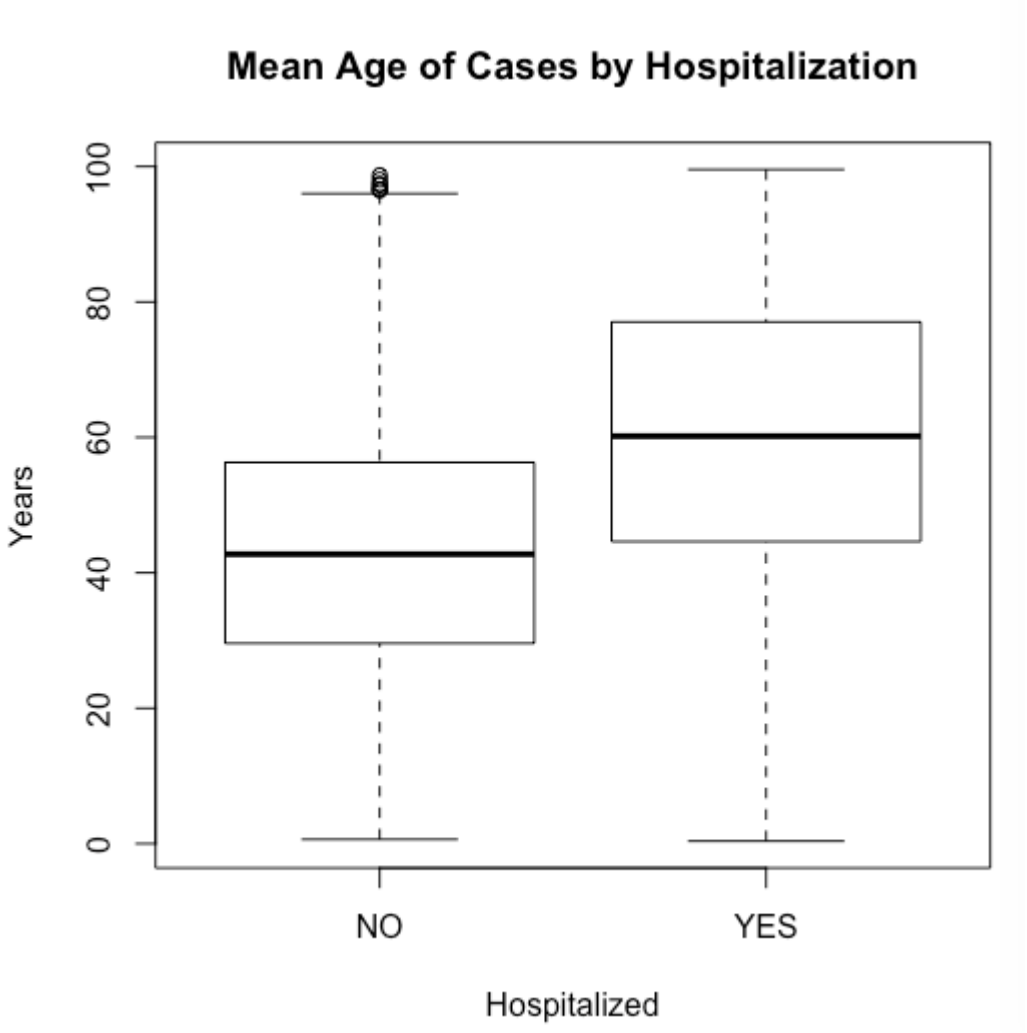
X-squared = 0.88591, df = 1, p-value = 0.3466

There appears to be no difference in mortality rate of women as compared to men.

e. Average age by hospitalization: Hospitalized: 58.7 years

Not hospitalized: 44.4 years

Figure 19: Average age of cases by hospitalization



e. Cases by race/ethnicity:

Table 1: Cases by Race

American Indian or Alaskan Native	3 (0.1%)
Asian	16 (0.6%)
Black or African American	105 (3.7%)
White	634 (22.2%)
Other	1974 (69.1%)

Table 2: Cases by Ethnicity

African American	1 (8.3%)
American	1 (8.3%)
Columbian	1 (8.3%)
Dominican	1 (8.3%)
Honduran	2 (16.7%)
Mexican	1 (8.3%)
Middle Eastern	1 (8.3%)
Puerto Rican	1 (8.3%)
Salvadoran	1 (8.3%)
Unknown	2 (16.7%)

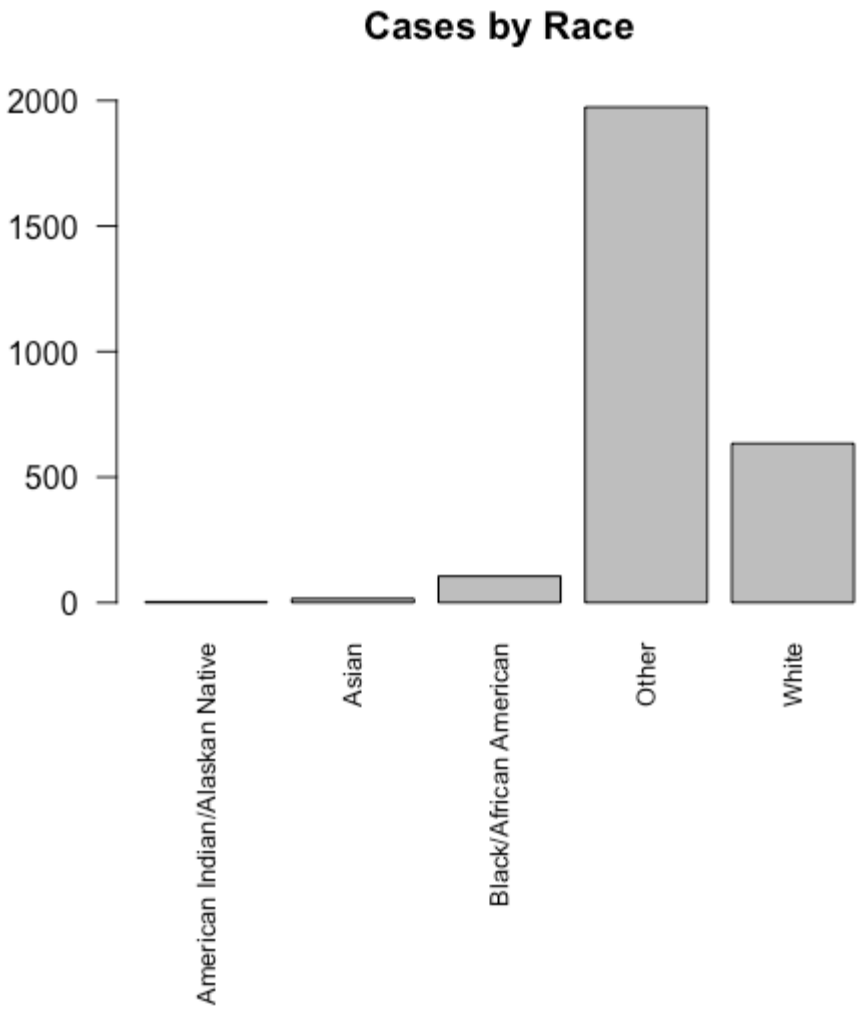
Hispanic:

Unknown - 642 (19.4%)

Yes - 1938 (59.7%)

No - 722 (22.2%)

Figure 20: Cases by Race



4. Lab testing

Table 3: Days between testing and result by lab

AFC	NaN days
ARUP	4.00 days
BC	0.17 days
BIDMC	0.00 days
BIO	1.67 days
BMC	0.98 days
BMH	1.50 days
BROAD	0.96 days
CAPE	0.00 days
CHA	0.54 days
HVMA	NaN days
LABCORP_NC	7.00 days
LABCORP_NJ	2.33 days
LAHEY	1.00 days
LGH	0.00 days
MAYO	2.20 days
MDL	NaN days
MDPH	1.56 days
MGH	0.41 days
NSM	0.25 days
QUEST	2.03 days
QUEST_CA	7.33 days
QUEST_PA	5.00 days
QUEST_VA	4.57 days
SHATTUCK	NaN days
STLIZ	0.00 days
TUFTS	0.74 days
UMASS	0.00 days
VA/VA_CT/RX	NaN days

Table 4: Number of tests by lab

AFC	1
ARUP	1
BC	6
BIDMC	392
BIO	3
BMC	91
BMH	6
BROAD	300
CAPE	1
CHA	63
HVMA	3
LABCORP_NC	1
LABCORP_NJ	116
LAHEY	1
LGH	1
MAYO	5
MDL	1
MDPH	149
MGH 1	1113
NSM	4
QUEST	772
QUEST_CA	3
QUEST_PA	2

Table 4 (Continued)

QUEST_VA	30
SHATTUCK	1
STLIZ	1
TUFTS	35
UMASS	3
VA	2
VA_CT	4
VA_RX	27

Table 5: Most frequently used labs for testing

Lab	**Turnaround time**	**Number of Tests**
BIDMC	0.00 days	392
BROAD	0.96 days	300
LAPCORP NJ	2.33 days	116
MDPH	1.56 days	149
MGH	0.41 days	1113
QUEST	2.03 days	772

Average time between symptom onset and results in general: 7.1 days

6. Clinical Characteristics:

a. Hospitalized

   i. Average hospitalization time: 7.9 days

b. Outcomes

   i. Recovered - 1434 (90.1%)

   ii. Died - 142 (8.9%)

   iii. Lost to Follow-up - 15 (0.9%)

c. Underlying illness

   i. Specific comorbidities

Table 6: Comorbidities present in COVID positive patients

1	ADRENAL	1
2	ALCOHOLISM	2
3	ANXIETY	1
4	ARTHRITIS	2
5	ASTHMA	23
6	CANCER	6
7	CARDIAC_DISEASE	18
8	CHRONIC_PULMONARY_DISEASE	31
9	CHRONIC_RENAL_DISEASE_OR_HEMODIALYSIS	9
10	DEMENTIA	4
11	DIABETES	58
12	EMPHYSEMA	1
13	EPILEPSY	1

Table 6 (Continued)

14	GASTRITIS	2
15	HEART TRANSPLANT	1
16	HEMIPLEGIA	1
17	HYPERTENSION	48
18	IBS	1
19	IMMUNOCOMPROMISED	2
20	KIDNEY TRANSPLANT	1
21	LIVER_DISEASE	3
22	MS	1
23	MYASTHENIA	2
24	ONE KIDNEY	1
25	PARAPLEGIA	1
26	PARKINSONS	1
27	PRE-DIABETES	2
28	PREGNANT	6
29	SEIZURES	4
30	SINUSITIS	1
31	SLEEP APNEA	1
32	STROKE	3
33	THYROID	3
34	ANEMIA	1
35	CARDIOVASCULAR DISEASE	2
36	CEREBRAL PALSY	1

Table 6 (Continued)

37	CIRRHOSIS	2
38	CORONARY ARTERY DISEASE	2
39	HYPERLIPIDEMIA	1
40	OBESITY	1
41	OTHER	1
42	PARKINSON'S DISEASE	1
43	DIASTOLIC DYSFUNCTION	1
44	GANGRENOUS LIMB	1

Table 7: Summary of most frequent comorbidities

1	ASTHMA	23
2	CARDIAC_DISEASE	18
3	CHRONIC_PULMONARY_DISEASE	31
4	DIABETES	58
5	HYPERTENSION	48
6	PREGNANT	6

Table 8: Comorbidities associated to deaths

1	ALCOHOLISM	2
2	CANCER	3
3	CARDIAC_DISEASE	10
4	CHRONIC_PULMONARY_DISEASE	12
5	CHRONIC_RENAL_DISEASE_OR_HEMODIALYSIS	5
6	DEMENTIA	3
7	DIABETES	13
8	HEART TRANSPLANT	1
9	HEMIPLEGIA	1
10	HYPERTENSION	17
11	LIVER_DISEASE	3
12	MYASTHENIA	1
13	PARAPLEGIA	1
14	PARKINSONS	1
15	SEIZURES	4
16	CARDIOVASCULAR DISEASE	2
17	CEREBRAL PALSY	1
18	CIRRHOSIS	1
19	CORONARY ARTERY DISEASE	2
20	OBESITY	1
21	OTHER	1
22	PARKINSON'S DISEASE	1
23	STROKE	2

Table 8 (Continued)

24	DIASTOLIC DYSFUNCTION	1
25	GANGRENOUS LIMB	1
26	HIGH BLOOD PRESSURE	1

d. Symptoms:

ii. Among those who answered, 865 (65.1%) had symptoms -

1. Single symptom - 92 (6.9%)
2. Multiple symptoms - 773 (58.2%)

iii. 463 (34.9%) had no symptoms

d. Average time between symptoms onset date and results

i. By race/ethnicity

Table 9: Average time between symptom onset and results

Asian	4.3 days
Black or African American	4.9 days
White	7.5 days
Other	6.7 days
Unknown	6.9 days
American Indian or Alaskan Native	missing
Hispanic	7.7 days

6. **Employment:**

Table 10: Cases by type of employment

Essential	143 (19.0%)
Non-essential	97 (12.9%)
Retired	262 (34.8%)
Unemployed	104 (13.8%)
Child/minor/infant	46 (6.1%)
Other	100 (13.3%)

Table 11: Employment among those hospitalized

Essential	13 (10.0%)
Non-essential	10 (7.7%)
Retired	74 (56.9%)
Unemployed	20 (15.4%)
Child/minor/infant	2 (1.5%)
Other	11 (8.5%)

Figure 21: Cases by employment

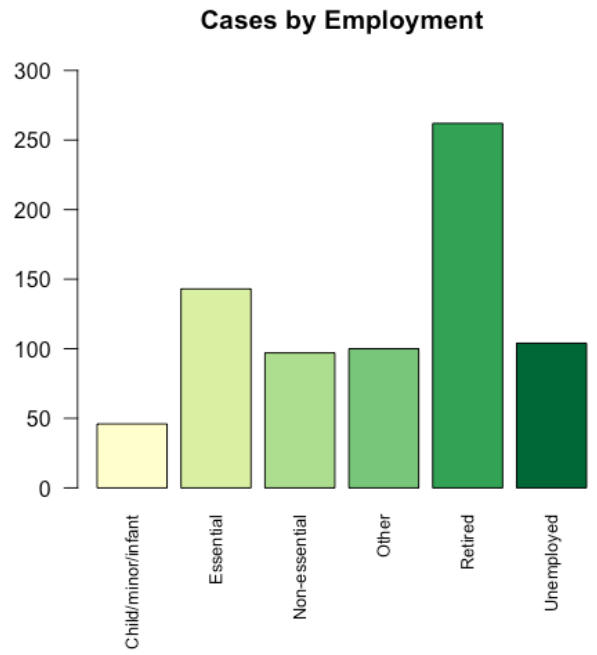
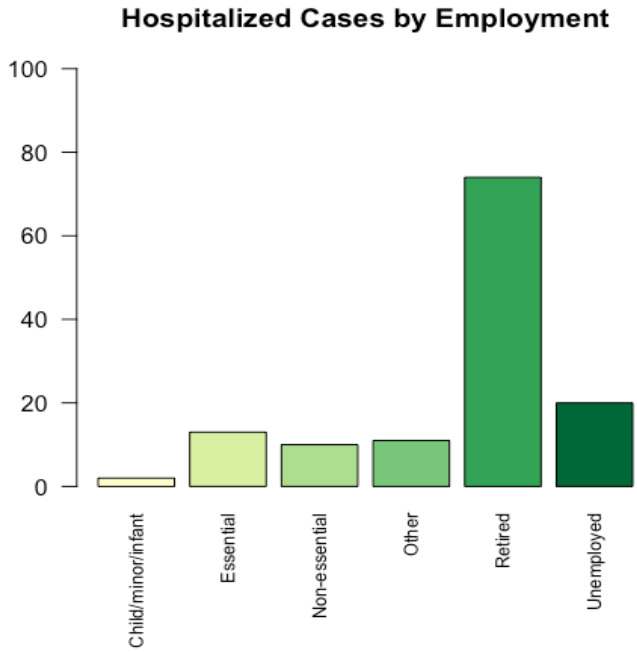


Figure 22: Hospitalizations by employment



8. Health Equity analysis

Health Equity analysis involved logistic regression and Odds Ratios to understand the relationship between social determinants of health (gender, race and comorbidities) to outcomes of COVID-19 (symptoms, hospitalization and mortality).

Four research questions guided the analysis and are summarized below with responses. The full regression tables and Odds Ratios are presented in the appendix for clarity and ease of the reader.

1. **Are symptoms related to gender, race or comorbidities?**

We can conclude that there is no significant difference in symptoms reported according to race, gender, or comorbidities.

2. Are outcomes related to gender, race, employment, or comorbidities?

After controlling for gender and comorbidities, we conclude that compared to those who are White, those who identify as Other have 0.11 times the odds of dying ($p < 0.05$). Therefore, those who identify as Other are 89% less likely to die than those of other races.

After controlling for gender and race, we conclude that compared to those who have no comorbidities, those who had cardiac disease had 132.6 times the odds of dying ($p < 0.05$), those who had chronic pulmonary disease had 131.4 times the odds of dying ($p < 0.05$), those who had diabetes had 40.3 times the odds of dying ($p < 0.05$), and those who had hypertension had 116.5 times the odds of dying ($p < 0.05$).

2b. Do certain jobs affect the outcome of the disease?

After controlling for gender and race, we conclude that compared to those who work in essential services, those who were retired had 78.5 times the odds of dying ($p < 0.05$).

3. Is there any variable that can explain higher risk of hospitalization?

After controlling for comorbidities and type of employment, we conclude that females had 0.38 times the odds of hospitalization compared to men ($p < 0.05$). Therefore, females are 62% less likely to be hospitalized.

After controlling for gender and type of employment, we conclude that those who were pregnant had 27.45 times the odds of hospitalization compared to those with no comorbidities ($p<0.05$).

After controlling for gender and comorbidities, we conclude that those who were unemployed had 5.94 times the odds of hospitalization compared to those working in essential services ($p<0.05$) and those who were retired had 17.44 times the odds of hospitalization compared to those working in essential services ($p<0.05$).

4. Do jobs, gender, race, or comorbidities affect the type of symptoms reported?

We can conclude that there is no significant difference in abdominal pain, appetite loss, cough, diarrhea, loss of smell or taste or vomiting symptoms reported according to race, gender, comorbidities, or employment.

Chills:

After controlling for race, gender, and comorbidities, we can conclude that those who are retired have 0.02 times the odds, or are 98% less likely to report chills compared to those who work in essential services. Children have 0.16 times to the odds or are 84% less likely to report chills compared to those who work in essential services ($p<0.05$).

Shortness of Breath:

After controlling for gender, comorbidities, and employment, we can conclude that those who identified themselves as Other had 4.70 times the odds of reporting shortness of breath or difficulty breathing compared to those who identified themselves as White ($p<0.05$).

After controlling for gender, race, and employment, we can conclude that those who had asthma had 6.1 times the odds of reporting shortness of breath or difficulty breathing compared to those who did not report comorbidities ($p<0.05$).

Fever:

After controlling for gender, comorbidities, and race, we can conclude that those who are retired had 0.24 the odds or are 76% less likely to report fever compared to those who work in essential services ($p<0.05$).

Headache:

After controlling for gender, comorbidities, and race, we can conclude that those who are retired had 0.02 times the odds or 98% less likely to report a headache compared to those who work in

essential services (P<0.05). Children had 0.23 times the odds or were 77% less likely to report a headache compared to those who work in essential services (P<0.05).

After controlling for gender, employment, and race, we can conclude that those with diabetes had 0.35 times the odds, or 65% less likely to report a headache compared to those who work in essential services (P<0.05).

Muscle Aches and Pain:

After controlling for gender, comorbidities, and race, we can conclude that those who are retired had 0.02 times the odds, or are 98% less likely to report muscle aches and pain compared to those who work in essential services (P<0.05). Children had 0.09 times the odds, or are 91% less likely to report muscle aches and pain compared to those who work in essential services (P<0.05)

Sore Throat:

After controlling for gender, comorbidities, and race, we can conclude that those who are retired had 0.05 times the odds, or are 95% less likely to report a sore throat compared to those who work in essential services (P<0.05).

Conclusion and Discussion:

The data analysis reveals some conclusions that are similar to the national impact of COVID and others that are specific to the City of Chelsea. While it will always be difficult to determine exactly what caused Chelsea to have such high rates of COVID, we can determine aspects of the health and behavior of Chelsea residents that contributed to the spread and outcomes of the pandemic.

It is important to consider that although this research provides important insights into the impact of the pandemic on Chelsea residents, it also has a number of limitations that must be stated. The lack of consistent data collection on variables such as race/ethnicity, employment and outcome may have limited the results. We believe that more complete data collection would reveal more refined analysis and may suggest that other comorbidities also impact the outcome of the disease. These limitations reveal the importance of improving the training and on-boarding of contract tracers, as from April to August volunteers from the Academic Public Health Volunteer Corps and staff from Partners in Health assisted the city in contact tracing. They also highlight the importance of trust building between government officials who call residents to solicit private information during a time of mass fear and uncertainty over the pandemic. We do not know how many of the missing variables are due to “refused to answer” as this option is not available in the dataset. Adding this option would provide improved insight onto where to direct data quality improvements.

A second important limitation is that the data presented offers insight into the first six months of the pandemic. Since August, testing capacity and access have significantly improved in Chelsea, and rates have gone down. It would be important to carry out monthly assessments of disease behavior in addition to 3 month or six month analysis to observe changes in disease impact as a way to evaluate public health interventions and outcomes of COVID-19 cases in the city.

In Chelsea, those who are most likely to get COVID are Hispanic essential workers in their 40´s and retired persons. Patients take about 1 week between onset of symptoms to testing, which may lead to increased spreading during that week, putting both co-workers, family and friends at risk for exposure. This is particularly salient among the almost 35% of cases that reported no symptoms.

The majority (34.8%) of COVID cases in Chelsea were among retired persons who are more likely to be hospitalized and die of COVID. This cohort is also less likely to experience fever, chills, body aches, sore throat and headaches which tend to be socially understood as classical COVID symptoms. The data suggest that there may be significant delays in seeking COVID testing and care in retired persons due to a lack of identifiable symptoms of the disease. Again, this may contribute to the spread and may also contribute to the gravity of symptoms and outcomes.

Regarding social determinants of health, as seen in the rest of the country, the presence of cardio-vascular comorbidities are highly correlated with mortality in outcomes. While Hispanics are less likely to die of COVID, individuals with cardiac or pulmonary diseases, hypertension and diabetes are much more likely to die of COVID, regardless of their race, ethnicity or gender. In addition, while women are less likely than men to be hospitalized, pregnant women are highly

likely to be hospitalized. While their outcomes tend to be favorable, we are aware that pregnant women with COVID may have increased risk of premature birth, induced labor and cesarean birth, all of which pose important health risks to the mother and the baby both in the short and long term. Finally, those with asthma, those unemployed and retired persons are much more likely to be hospitalized.

Recommendations and Next Steps:

The analysis provided insight into both the quality of data collected on COVID cases and the impact of COVID on Chelsea residents. Therefore, we recommend that the City take steps to integrate the results of the analysis into Public Health management and policy.

Data Quality:

1. Revise current protocols for classification of race/ethnicity/Hispanic and ensure that all Hispanics are consistently classified.
2. Establish a protocol to ensure there is consistent classification of Hispanics.
3. Code for Ethnicity according to federal standards, which are Hispanic and Latino or non-Hispanic and Latino.
4. Establish a protocol to explain the difference in coding for: Unknown, NA and No.
5. Propose the addition of an additional response- RTA (Refused to answer) and LTF (lost to follow up) to determine pubic behavior and trust in the contact tracing system.
6. Ensure all variables in the dataset are completed, especially those pertaining to employment.
7. Check to see if "possible exposure location" is captured on MAVEN and if it is not, discuss the possibility of adding this variable since it is already being collected at a local level.
    i. Establish a clear protocol on how locations will be collected to ensure external researchers can understand location.

8. Establish monthly monitoring and analysis of the database to provide feedback to contact tracers and city staff on the importance and relevance of data quality.

Public Health Information and Interventions:

1. Public health messaging to inform the public that 35% of COVID cases in Chelsea are asymptomatic.
2. Public health messaging should consider these results and target subgroups specifically to inform them of added risks:
    a. Targeting youth- that younger people are not at risk of being hospitalized and dying, their older family members are. They can keep their elders safe by stopping the spread of COVID to older generations and those with asthma, hypertension and heart disease.
    b. Targeting seniors- The senior center and other culturally relevant spaces could inform elders with hypertension, pulmonary and cardiac disease and asthma of their elevated risk of mortality so that they take extra precautions and get tested for COVID regularly.
    c. Reach out to the Senior Center and Soldiers home to inform staff and residents about the discrepancies in symptoms among elders who present significantly less fever, chills and aches than younger adults.
3. Direct messaging efforts at getting tested. Residents should get regularly tested (every two to four weeks) as symptoms vary by age groups and a third of cases do not present symptoms. Waiting to develop symptoms of COVID to get tested is not ideal.
4. Target the unemployed to register for MassHealth to reduce delays in seeking care and having access to preventative health.

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Appendix 1: Lab Codes

	Recode as:	Lab Facility
1	AFC	AFC Urgent Care
2	ARUP	Associated Regional and University Pathologists Inc - 500 Chipeta Way, Salt Lake City, Ut 84108, (801) 583-2787
3	BIDMC	Beth Israel Deaconess Medical Center/East - 330 Brookline Avenue, Boston, MA 02215, (617) 735-3648
4	BIO	Bio Reference Laboratories Inc. - 481 Edward H Ross Drive, Elmwood Park, NJ 07407 (201) 791-2600
5	BC	Boston Children's Hospital Clinical Labs - 300 Longwood Avenue, Boston, MA 02115, (617) 355-6000
6	BMC	Boston Medical Center - One Boston Medical Center Place, Boston, MA 02118, (617) 638-8000
7	BMC	Boston Medical Center/Department of Anatomic Pathology - One Boston Medical Center Place, Boston, MA 02118, (617) 414-5314
8	BWH	Brigham and Women's Hospital Clinical Laboratories - 75 Francis Street Amory 2 Room 215, Boston, MA 02115, (617) 732-6360
9	BROAD	Broad Institute CRSP - Clinical Research Sequencing Platform, LLC Broad Institute of MIT and Harvard 320 Charles St. Cambridge, MA 02141
10	CHA	Cambridge Health Alliance Laboratory - 1493 Cambridge Street, 3rd Floor

		Lab Cambridge, MA 02139, (617) 665-1226
11	CAPE	Cape Cod Hospital - 27 Park Street, Hyannis, MA 02601, (508) 862-5024
12	HVMA	HVMA-Needham - 152 Second Avenue , Needham, MA 02494, (781) 292-7200
13	LABCORP_NC	Laboratory Corporation of America - 1447 York Court, Burlington, NC 27215 (336) 584 -5171
14	LABCORP_NJ	Laboratory Corporation of America - 69 First Avenue, Raritan, NJ 08869 (908) 526-2400
15	LAHEY	Lahey Clinic Medical Center - 41 Mall Road Box 541, Burlington, MA 01805, (781) 744-5100
16	LGH	Lawrence General Hospital, Lab Satellite GE - 34 Haverhill Street, Lawrence, MA 01841, (978) 683 4000
17	SHATTUCK	Lemuel Shattuck Hospital - 170 Morton Street, Jamaica Plain, MA 02130, (617) 971-3550
18	MGH	Massachusetts General Hospital Department Of Pathology - 55 Fruit Street, GRB 539, Boston, MA 02114, (617) 726-2275
19	MAYO	Mayo Clinic Labs, 3050 Superior Drive Northwest, Rochester, MN 55901 (507) 538-7260
20	MDL	Medical Diagnostic Laboratories, L.L.C., 2439 Kuser Road, Hamilton, NJ 08690 (609) 570-1000

21 NA	NA
22 NSM	North Shore Medical Center Salem - 81 Highland Avenue, Salem, MA 01970, (978) 354-4130
23 NA	Other Hospital/Health Facility
24 QUEST	Quest Diagnostics - 200 Forest Street 3rd Floor, Marlborough, MA 01752, (774) 369-3900
25 QUEST_CA	Quest Diagnostics Infectious Disease, Inc - 33608 Ortega Hwy Bldg B-West Wing, (714) 220-1900
26 QUEST_VA	Quest Diagnostics Nichols Institute - 14225 Newbrook Drive PO Box 10841, Chantilly, VA 20153, (703) 802-6900
27 QUEST_PA	Quest Diagnostics Of Pennsylvania Inc - 875 Greentree Road 4 Parkway Center, Pittsburgh, PA 15220, (420) 920-7675
28 STLIZ	Steward St. Elizabeth's Medical Center Laboratory - 736 Cambridge Street Cbr-2, Boston, MA 02135, (617)789-3299
29 TUFTS	Tufts Medical Center - 800 Washington Street, Floating 3 MS Box 115, Boston, MA 02111, (617) 636-7216
30 UMASS	UMass Memorial Medical Center Incorporated - 365 Plantation Street, Worcester, MA 01605, (774) 442-9615
31 VA	VA Boston Healthcare System - Boston Opc - 251 Causeway Street 2nd Fl Rm 270, Boston, MA 02114, (617) 248-1173

32 VA_RX	VA Boston Healthcare System - West Roxbury - 1400 VFW Parkway Orea Bldg 1st Fl 1B02, West Roxbury, MA 02132, (617) 323-7700
33 VA_CT	VA Connecticut Healthcare System - 950 Campbell Avenue, West Haven, CT 06156 (203) 932-5711
34 MDPH	William A Hinton State Laboratory Institute - 305 South Street, Jamaica Plain, MA 02130, (617) 983-6201

Appendix B: Community Impact Survey Results

Community Impact Survey:

The Impact of COVID-19 in Chelsea

Prepared for La Colaborativa

August-December 2020

By Cristina Alonso, DrPH(c), MPH, CPM

1. Executive Summary

A community impact survey was developed with the goal to assess the impact of COVID-19 on the Community of Chelsea, specifically among beneficiaries of services from La Colaborativa. The survey aimed to collect responses through online and in-person participation at the food pantry. However, changes in the way data were collected were necessary given the social realities and the pandemic. Online response rates were very low and resulted in high rates of survey error. In-person data collection at the food pantry was considered to be too risky for data collectors, as it put them in close contact with participants for approximately 15 minutes. Therefore, the majority of surveys were collected through phone banking using lists of members and beneficiaries from La Colaborativa. Phone calls were made after 2 pm until 8:30 pm during the week and on weekends. The phone surveys also generated participants to often tell their stories in more detail, adding to the qualitative understanding of the impact and response to the pandemic. Finally, 365 survey responses were collected.

Data analysis was done using the "R" statistical package. Frequencies and logistical regressions were modeled to understand both the impact of COVID-19 and identify predictors of certain outcomes related to beliefs and behavior around COVID-19, economic impact, and impact on mental health.

The most significant findings are listed below and detailed in the results section:

1. Almost half of participants did not complete a highschool degree.
2. Over half of participants stated low levels of English fluency.

3. 45% of participants lost their job and an additional 21% lost a significant amount of hours.
4. Over half (53%) of participants believe some form of conspiracy theory regarding COVID-19.
5. Women and adults between the ages of 31 and 40 are much more likely to believe conspiracy theories.
6. Among those who had not had a COVID-19 test, 73% stated that this was because they had not had symptoms and therefore did not consider it necessary. Only 1% of participants stated they were afraid of doing a COVID test because they might lose their job and 9% stated they were afraid of going to the testing site or afraid of the pain of the test.
7. A quarter (25%) of respondents had tested positive for COVID-19, representing double the rate for Chelsea. This suggests that individuals who rely on services from La Colaborativa are twice as likely to have had COVID-19.
8. Those with very basic and basic English and essential workers were much more likely to have had COVID.
9. The vast majority (83%) of respondents had accessed food pantries of food delivery services because of the economic impact of COVID. The mean number of visits per week is 1.4.
10. One third (35%) of participants owe rent, and those who do not, stated that it was because any income or savings go towards paying rent. Participants stated that they rely on not having to buy food to be able to pay rent and are generally not paying bills.

11. Essential workers, those who owe 1 month of rent, and those who rely on a food pantry are much more likely to be depressed.
12. Young adults (18-30), those who speak basic English, and fluent English are much more likely to feel anxiety, along with those who owe rent , and those who rely on a food pantry are much more likely to suffer anxiety.
13. Participants who access therapy are much more likely to be young adults (18-30), people who have had COVID, and are more likely to owe rent.

These results offer insight into the impact of COVID-19 and offer suggestions as to how to best support the community. Action steps must be developed at a community level, taking into account the voices of those most affected to ensure they are relevant, useful and trustworthy.

2. Introduction:

One of the first requests of La Colaborativa was to develop a survey to understand the impact of COVID-19 on the community they serve. The survey's goal was to measure the economic and psycho-social impacts of COVID-19 on Chelsea's Latinx community. The target population was established as beneficiaries of services from La Colaborativa. The survey results would allow for generalizability among Chelsea residents who use or are likely to use social services. This cohort tends to have low socioeconomic status, predominantly Latinx, and low-wage workers who were likely impacted by job loss and other economic and social shocks due to the pandemic. A cross-sectional design was chosen to enable a quick turnaround of results, which could impact policy proposals and future work and funding priorities of La Colaborativa.

2. Developing the Survey

The survey design began on August 13 and was completed on August 28. The first step in the design included brainstorming with the Chelsea Collaborative staff all questions they were interested in exploring. This brainstorm session created 156 questions that were grouped into nine sections:

Demographic

Housing

Health

Employment

Perceptions and experience of COVID

Food security

Mental Health

Education

Qualitative questions

A preliminary survey was designed on a google form in English and Spanish to facilitate the survey testing during August. Testing involved sitting with members of the Chelsea Collaborative community and going through the questions for relevance, redundancy, and importance. We eliminated the education and qualitative section through this process, eliminated questions that can be answered through public data, and questions that might generate fear or shame. The survey was tested with seven women and one man, of which only one individual provided feedback in English. By mid-August, the survey had been reduced to 45 questions that had been revised for language, relevance, and comprehension. Most questions had multiple choice answers.

The final distribution and of the survey included the following themes and distribution:

Eligibility and consent: 3

Demographic information: 6

Employment: 6

Health: 2

Perceptions and experience of COVID: 11

Food security: 4

Housing: 7

Mental Health: 5

IRB exemption was sought and approved following survey development. The survey was uploaded to Qualtrics and a link created for social media, texts, and email blasts. The final survey was launched on September 10.

3. Data Collection

The target population was beneficiaries of Chelsea Collaborative's COVID-19 assistance programs including Collaborative membership, food pantry services, and eviction mitigation services. The survey was administered through multiple means including social media and email blasts sent to collaborative members and followers, through directly targeting individuals in the food and diaper pantry lines at La Colaborativa and phone banking. Phone banking was conducted during October and the first week of November and was the most successful method of survey recruitment. Calls were made to previous Collaborative members as well as beneficiaries of COVID related services from La Colaborativa. No incentive was provided for participation.

4. Data Analysis

The final dataset of 448 responses was downloaded from Qualtrics in excel form and cleaned. Incomplete surveys and surveys where consent was not affirmed or where the respondent was a minor were deleted. A final data set of 365 responses was initially analyzed to determine frequencies and means for each question. These were shared with staff with La Colaborativa and the Department of Urban Planning for Chelsea in order to generate inferential questions to guide logistic regression analysis.

A second level of analysis involved re-coding the dataset for importation into the “R” statistical package. The dataset was analyzed in “R” guided by inferential questions generated through community-led conversations.

Due to the nature of the dataset, three different statistical tests were conducted on the dataset. Chi-square tests were conducted In order to understand the association between outcomes and a specific demographic variable such as sex, education level, level of English and job type.

Multiple regression was conducted on multiple variables to determine the relationship between several variables and a selected outcome variable. For those outcomes that were significant at a p-value below 0.05, Pearson correlations were drawn to establish odds ratios.

Finally, and in accordance with the mixed methods approach, qualitative analysis was conducted on two aspects of the qualitative survey: beliefs about conspiracy theories regarding COVID and beliefs about whether anything good has come out of the pandemic. Although both of these questions were designed to be close-ended, it was determined that the richness and variety of responses called for thematic analysis.

In the case of conspiracy theories, participants were offered five options response:

1. I don´t believe COVID exists, I think it is a hoax
2. I think COVID was designed by humans
3. I think it is a story for pharmaceutical companies to make money
4. I think it is a strategy to influence the elections

5. I think that because of COVID they will implant a chip in our bodies to extract personal information

These responses were selected from conversations with the staff at La Colaborativa on beliefs and "*dichos" (sayings)* heard about COVID among the Chelsea community. Although quantitative analysis was performed on these variables, additional thematic analysis was performed to better understand the meaning of these assumptions.

The final question in the survey asked participants to reflect on one good thing that the pandemic had brought to their lives. It was determined that the subjective nature of this question called for thematic analysis.

6. Results

Demographic information

The average age of participants was 41. The majority of participants were women (81%) and 19% were men. This skewed percentage favoring women highlights previous assumptions described in the qualitative section that women are often the decision makers in Latinx families and usually take on the task of ensuring family subsistence. The average number of children in this cohort was 2.4, although it is important to note that over 20% had four children or more. Ninety-eight percent identified as Latinx, one participant was Native American, one identified as Black, five as white and 85% answered the survey in Spanish.

Almost half (47%) did not complete a highschool degree, and four percent of the cohort had received no education. Thirty six percent had completed high-school and thirteen percent had completed a degree above highschool. The low level of education of this cohort is important when considering access to information, technology and jobs. In addition, over half of participants stated low levels of English fluency, with 17% stating no English, and 28% stating basic and very basic levels. Health and COVID information must therefore be accessible in Spanish, mostly in oral format or at a 6th grade reading level for it to be relevant to the Chelsea community.

Figure 23: Level of education among respondents

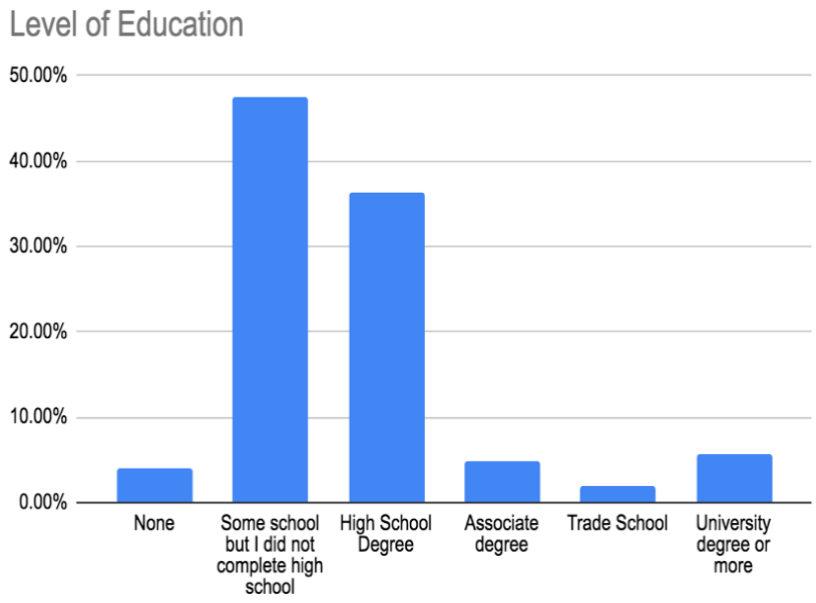
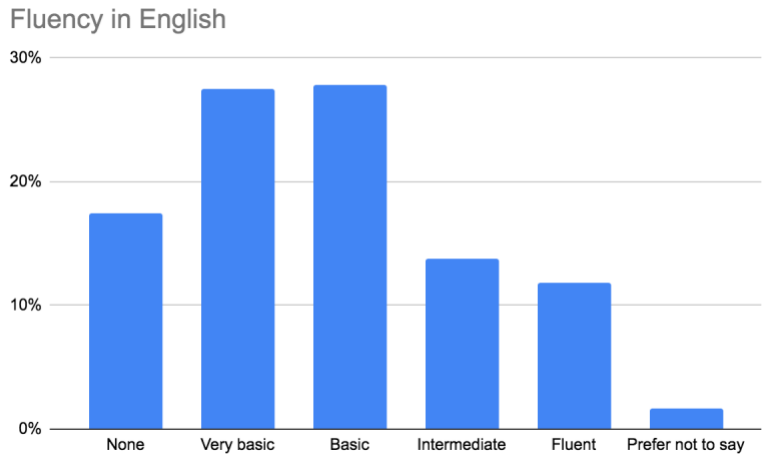


Figure 24: Fluency of English among respondents

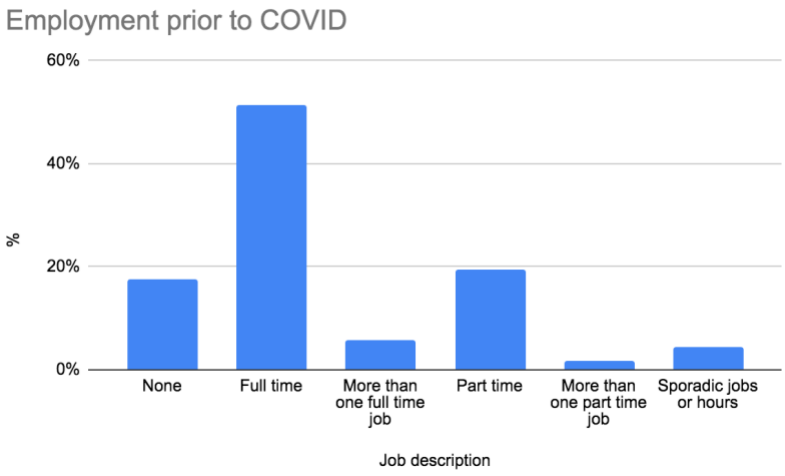


Employment

Over half of participants had a full time job before COVID (51%) and 17% had no job before COVID. Most of the unemployed before COVID were women who opted to stay home to take care of their children or had had a baby in the previous year.

COVID has profoundly impacted employment, with 45% of participants losing their jobs. Only 2% of participants gained hours since COVID and 31% did not lose their job or hours. The economic implications of 66% of a population losing income are serious and are well above national estimates of Latinx job loss.

Figure 25: Employment prior to COVID

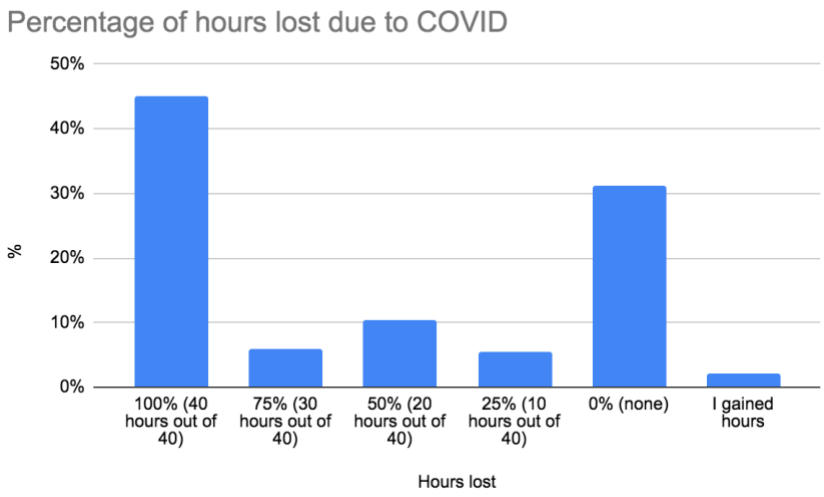


Transportation

Prior to COVID, participants relied mostly on public transportation to get to work, either the train (10%), bus (16%) or a combination of both (15%). Cars were used by 34% of participants and 9% bike or walked

Over a third of participants (39%) changed their mode of transportation because of COVID, mostly due to job loss and staying at home. Some participants mentioned avoiding public transportation since job loss because of a need to save money. Of the 137 participants who stated changing mode of transportation because of COVID, 74 (56%) are now staying at home. It is important to note that participants stated they changed mode of transportation because of unemployment, not because they were afraid of getting COVID in public transportation.

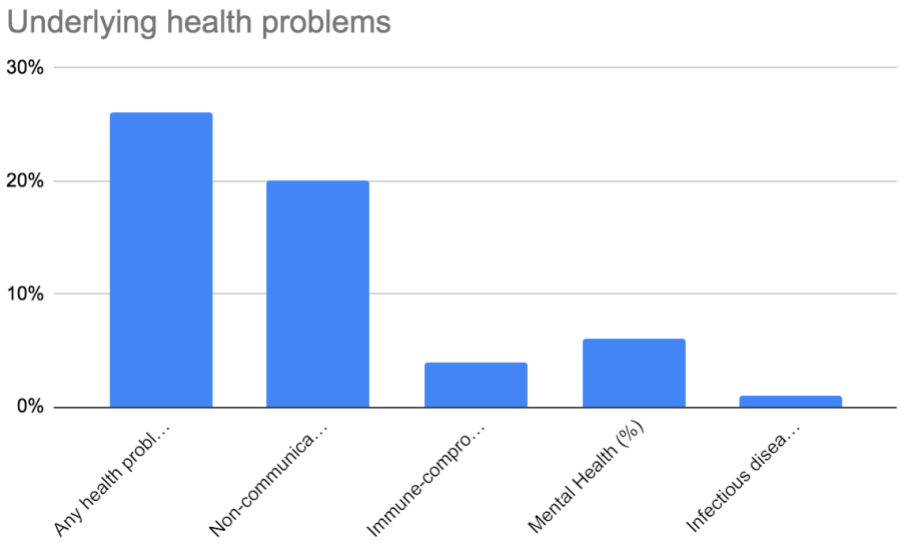
Figure 26: Percentage of hours lost due to COVID



Health

A quarter of the cohort (26%) reported at least one underlying health problem. Among them, over half reported a Non-Communicable disease (20%), followed by six percent stating mental health issues. Other health issues reported included infectious diseases and immune system compromise. Sixteen individuals (16%) reported having underlying health problems in more than one category.

Figure 27: Underlying health problems



Although the majority of participants have public health insurance (MassHealth or Medicare) (69%), nine percent lack health insurance. MassHealth provides limited coverage for undocumented folks, therefore it is important to target this population to ensure full coverage.

Beliefs about COVID

The vast majority (96%) of survey participants stated they feel they have sufficient information to protect themselves from COVID. In phone interviews, participants would list these to demonstrate knowledge, “Wash your hands, stay socially distant, avoid crowds, always wear a mask, use the hand gel, don´t go outside”. These responses demonstrated that on the whole participants are aware of how to avoid the spread of COVID regardless of education and English fluency levels.

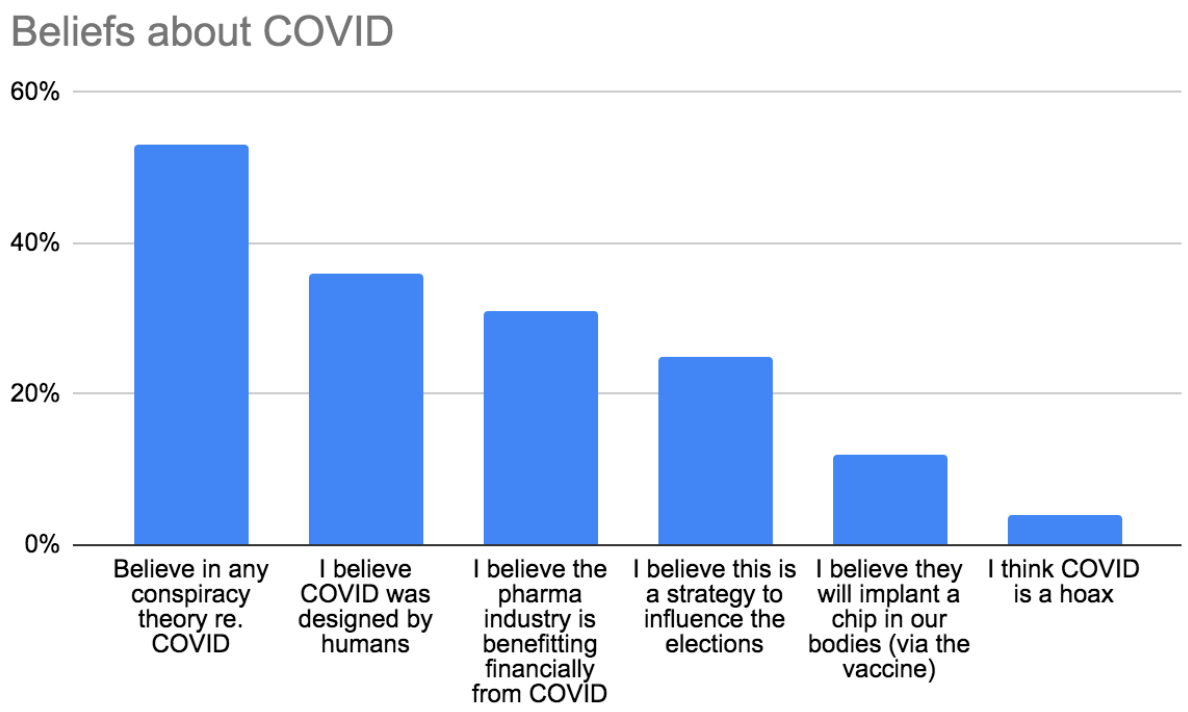
The survey sought to explore conspiracy theories or ideas around the development and progression of the pandemic that may affect how health information is perceived. The response options related to ideas that Chelsea residents had heard mentioned “they say”. It was unclear who “they” is, but in phone conversations, many of the responses were “that is what they say”. While the majority believe that COVID is an infectious virus, four percent still believe it is a hoax and do not believe in its existence. Over a third (36%) of participants believe COVID was designed in a lab by humans. Participants explained that it was designed in a lab but “got out of researchers control” when it was released into the world. Several participants explained that most, if not all viruses are designed in labs and then escape and infect the world. Several older people explained that it was specifically designed to eliminate the high numbers of older people because they are very costly to the system.

Another 31% believe that pharmaceutical companies are benefiting financially from COVID, and many stated that they will continue to benefit once the vaccine is released. Several participants explained that the reason vaccine development has occurred so quickly is because pharma companies already have the “code” to the virus, because they developed it themselves, making it very easy then to solve the vaccine problem. A quarter (25%) believe COVID was used by politicians to influence the election and 12 per cent believe that the COVID vaccine will have a chip that will be implanted into our bodies to extract our personal information. Over half of all participants (53%) believe at least one conspiracy theory about COVID.

A logistic regression model was designed to better understand predictors of conspiracy theories around COVID. Exposures included gender, sex, education and English levels, underlying health issues, type of insurance, employement pre and post COVID and total household members.

Women were much more likely to believe conspiracy theories on COVID (p=0.03) as well as people aged 31-40 (p=0.01).

Figure 28: Beliefs about COVID

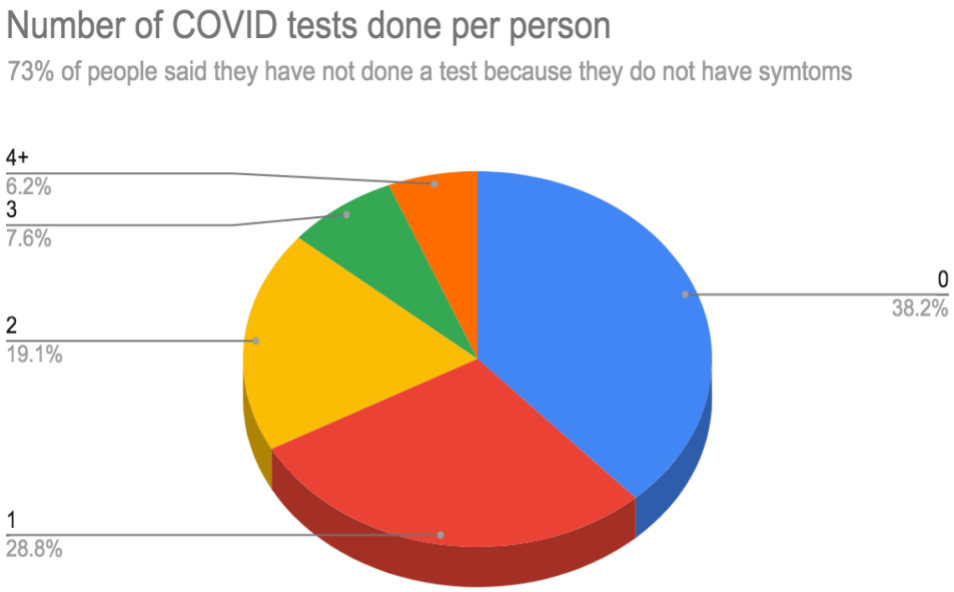


COVID

The majority (58%) of participants had done at least one COVID test. Among those who had not done a COVID test, 73% stated that they did not feel the need to because they did not have symptoms. Although public health messaging has focused on targeting testing at those with symptoms, the data analysis for Chelsea revealed that 35% of COVID positive patients were asymptomatic. Therefore, once again it is important to highlight messaging around frequent testing among high incidence communities, such as Chelsea. Only 1% of participants stated they

were afraid of doing a COVID test because they might lose their job and 9% stated they were afraid of going to the testing site or afraid of the pain of the test.

Figure 29: Number of tests done per person



A quarter (25%) of respondents had COVID, which is over double the official rate for Chelsea (12%), reflecting that beneficiaries of La Colaborativa are twice as likely to get COVID as the general population. Among those who had had COVID, a third (33%) stated having felt discriminated against because of it. A quarter (23%) of participants had taken care of someone with COVID. Only 6% stated they were unable to take care of someone with COVID who lived in their household and had to leave them by themselves.

The second logistic regression model aimed to determine predictors of getting a COVID test. The model included getting a COVID test as an outcome and the following variables: gender,

age, education, level of English, underlying health issues, type of insurance, employment pre-COVID, unemployment, belief in conspiracy theories and the total number living in the household. After controlling for these variables, it was determined that Those with a university degree were slightly less likely to get a COVID test (p=0.06). Those who lost 25% of hours were much less likely to get a COVID test (p=0.003).

The third model aimed to assess predictors of getting COVID among this cohort. After controlling for sex, age, education and English levels, being an essential worker, health history, type of insurance, employment pre and post COVID, belief in COVID conspiracy theories and total number of household members, the following predictors were determined. Those with very basic and basic English were much more likely to have had COVID (p=0.05, 0.01). Essential workers were much more likely to have had COVID (p=0.03). Those who were unemployed before COVID were much more likely to have had COVID (p=0.02). Those who lost 25% of hours were more likely to have had COVID (p=0.02).

Food and Housing Security

The vast majority (83%) of respondents had accessed food pantries of food delivery services because of the economic impact of COVID. Participants visit La Colaborativa (45%), Salvation Army (25%), City of Chelsea (12%), Churches (8%) and other organizations. Two-thirds of participants visit a food pantry once a week, but another third visit two or more times. Multiple visits reflect both large families and social networks within families that are described in the qualitative analysis. The mean number of visits per week is 1.4.

Food pantries were described as essential to enabling participants to pay rent. Two thirds (65%) of participants do not owe any months of rent, and many stated that it was because any income or savings go towards paying rent. Some participants described using all of their savings to pay rent and are unsure as to how they will pay in the upcoming months. Other participants described having just paid off a backlog of months because of a new job. Some participants explained that only one member of the family had a job and all that money went towards rent, while the others distributed chores, including visiting food pantries. Ten percent of participants stated owing three or more months of rent, leading to extremely high levels of distress.

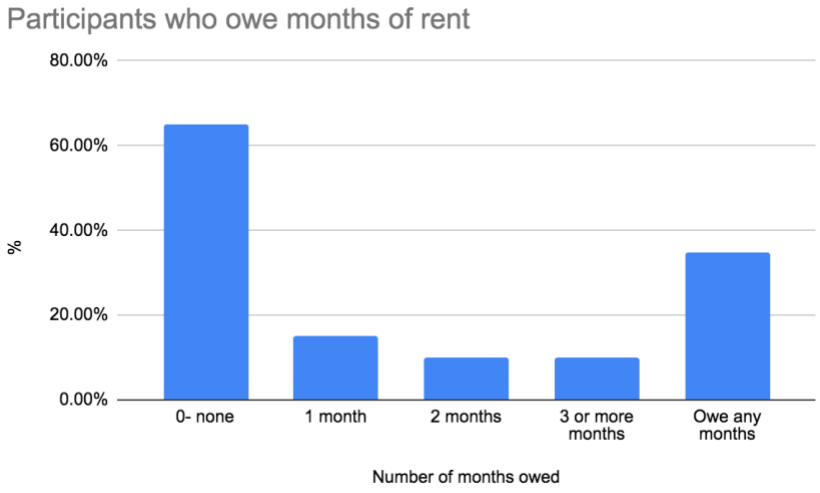
A fourth logistic regression was designed to assess predictors of food pantry use. Variables assessed in this model included gender, age, level of education and English, being an essential worker, health history, type of insurance, unemployment status, home ownership, number of people in the home, and months owed for rent. It was determined that those with public insurance ($p=0.04$) as well as those who were unemployed before COVID began are much more likely to need a food pantry. Those who have not lost job hours because of COVID were much more likely to need a food pantry ($p=0.03$). Those who stay with friends and family instead of renting or owning a home are much more likely to need a food pantry ($p=0.01$). Finally, those who owe 1 month of rent are much more likely to need a food pantry ($p=0.04$).

Predictors of owing rent were assessed through a fifth logistic regression model. In this case, age, level of education and English, being an essential worker, job status before COVID, unemployment, total number of people in the home, and food pantry access were assessed as potential exposures. It was determined that those who owe rent are much more likely to have not entered or finished highschool ($p=0.01, 0.02$). Those who lost 50% of job hours are much more

likely to owe rent (p=0.04). Those who rely on a food pantry are much more likely to owe rent (p=0.002).

The majority of participants rent their home (68%) or a room (18%). Five percent stated they live with friends or family and although some participants explained that this was due to COVID, it was not the majority. Only 9% of participants own their own home, reflecting the low levels of wealth accumulation among this cohort, especially given that 62% of Massachusetts residents own their own home (US Census).

Figure 30: Participants who owe rent



Mental Health and Wellbeing

Mental health has been impacted by the profound social and economic shocks of the pandemic. The extremely high rates of job and income loss, reliance on social protection measures such as food donations and navigating complex online application forms are stressful and humiliating.

Although Latinos are proud and resilient, the ongoing and interminable nature of the pandemic and moreso, its economic catastrophe have impacted everyone´s mental health in some way or another. Two thirds of respondents stated that since COVID they have felt more depressed and more anxious. At the same time, the majority of respondents also stated not resorting to smoking, drinking or drugs to manage their mental health. Many stated that they were Christian, and therefore no one at home had "vices", which could be a protective factor among this cohort both against substance use and domestic violence. Only 6 percent of participants stated that violence at home had increased during the pandemic.

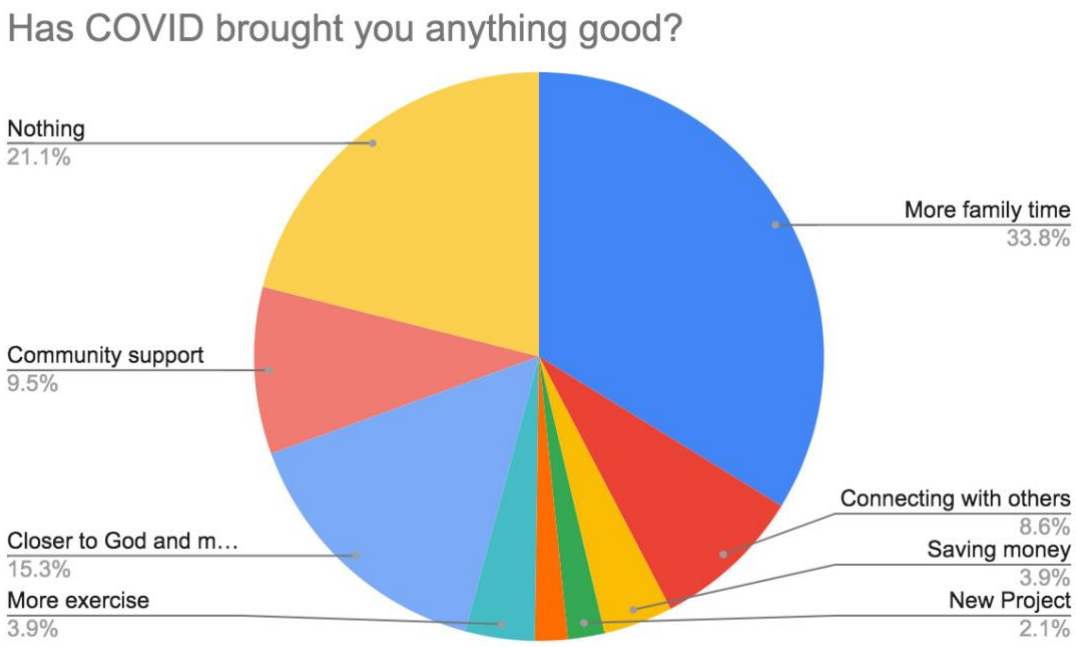
In order to better understand exposures that are impacting depression and anxiety, logistic regression models were designed assessing the impact of age, level of education and English, being an essential worker, belief in conspiracy theories, have tested positive for COVID, total household members, home ownership, months owed of rent and reliance on a food pantry. Essential workers ($p=0.05$), those who owe 1 month of rent ($p=0.00$), and those who rely on a food pantry ($p=0.05$) are much more likely to be depressed. In terms of anxiety, young adults (18-30) ($p=0.03$), those who speak basic English ($p=0.01$), and fluent English ($p=0.00$) are much more likely to have stated feeling this way. Part-time pre-COVID employees ($p=0.02$), those who owe 1 month ($p=0.00$) and 3 months ($p=0.02$) of rent , and those who rely on a food pantry ($p=0.01$) are much more likely to suffer anxiety. It was also found that younger adults (18-30) ($p=0.00$), people who have had COVID ($p=0.01$), and those who owe 1 ($p=0.00$) and 2 ($p=0.01$) months of rent are much more likely to be in therapy.

The last question in the survey asked respondents to identify one good thing that has come out of the pandemic. A third (34%) of respondents stated joy in spending more time with their family. Some participants explained that “in the US one is constantly running from job to job, and now we could finally all be together”. Fifteen percent stated they used the pandemic as an opportunity to get closer to God, or to take better care of themselves. Almost 10% stated a sense of pride and relief for being part of a community that has provided residents with a lot of support. Some respondents stated being extremely grateful for being in Chelsea because in the home countries the governments are not helping people with food and rent. Just over 21% of respondents stated clearly that nothing good had come out of this pandemic, that there was too much suffering and too much loss.

Figure 31: Mental health and substance use during the pandemic

Question	Every day	Often	Once in a while	Never
More depressed	15%	20%	36%	29%
More anxiety	20%	19%	29%	33%
Smoke, drink or do drugs more than usual	2%	2%	3%	94%
Someone I live with smokes, drinks or does drugs more than usual	3%	1%	2%	93%

Figure 32: Perception of anything positive coming out of the pandemic



Summary results:

Table 12: Summary of survey results

Item	Overall
n	365
User Language is Spanish (%)	311 (85.2)
Age (%)	
18-30	108 (30.5)
31-40	82 (23.2)
41-50	82 (23.2)
51-60	57 (16.1)
61-74	22 (6.2)
Over 75	3 (0.8)
Female (%)	287 (81.1)
Num. of Children (mean (SD))	2.37 (1.37)
Latino (%)	346 (97.7)
Education (%)	
None	14 (4.0)
Some school but I did not complete high school	169 (47.7)
High School Degree	127 (35.9)
Trade School	7 (2.0)
Associate degree	17 (4.8)
University degree or more	20 (5.6)
Level of English (%)	
None	61 (17.2)
Very basic	98 (27.7)
Basic	99 (28.0)
Intermediate	48 (13.6)
Fluent	42 (11.9)
Prefer not to say	6 (1.7)

Table 12 (Continued)

Employment preCOVID (%)	
Yes, Full time	179 (51.4)
Yes, More than one full time job	20 (5.7)
Yes, Part time	68 (19.5)
Yes, More than one part time job	6 (1.7)
Yes, Sporadic jobs or hours	15 (4.3)
No	60 (17.2)
Unemployment postCOVID (%)	
100% (40 hours out of 40)	157 (45.1)
75% (30 hours out of 40)	21 (6.0)
50% (20 hours out of 40)	37 (10.6)
25% (10 hours out of 40)	19 (5.5)
0% (none)	109 (31.3)
I gained hours	5 (1.4)
Transport preCOVID (%)	
Private transportation (taxi, my own car, with a friend)	119 (34.2)
Subway or train	37 (10.6)
Bus	54 (15.5)
Subway and bus	51 (14.7)
I worked from home	50 (14.4)
Bike or walk	31 (8.9)
Company pickup van	6 (1.7)
Changed means of transport (%)	135 (38.8)
Current means of transport (%)	
Private transportation (taxi, my own car, with a friend)	31 (23.3)
Subway or train	4 (3.0)
Bus	7 (5.3)
Subway and bus	4 (3.0)
I worked from home	74 (55.6)
Bike or walk	10 (7.5)

Table 12 (Continued)

Company pickup van	3 (2.3)
Essentialworker (%)	102 (29.5)
Underlying Health problems (%)	94 (25.8)
Non-communicable diseases (%)	71 (19.5)
Immune-compromised (%)	13 (3.6)
Mental Health (%)	21 (5.8)
Infectious disease (%)	3 (0.8)
Insurance (%)	
Private	74 (21.6)
Public	236 (69.0)
None	32 (9.4)
I don´t have enough information to protect mysef from COVID	15 (4.4)
Believe in any conspiracy theory re. COVID	184 (52.6)
I believe COVID was designed by humans	122 (35.8)
I believe the pharma industry is benefiting financially from COVID	105 (30.9)
I believe this is a strategy to influence the elections	86 (25.4)
I believe they will implant a chip in our bodies (via the vaccine)	43 (12.4)
I think COVID is a hoax	12 (3.5)
COVIDTest times (%)	
0	129 (38.1)
1	98 (28.9)
2	65 (19.2)
3	26 (7.7)
4	21 (6.2)
COVID positive (%)	84 (24.8)
I felt discriminated because I had COVID	28 (33.3)
Did you have to take care of anyone with COVID?	

Table 12 (Continued)

No someone else took care of them / I didn't have to take care of anyone	212 (67.1)
No, I left them by themselves	20 (6.3)
Yes but it did not affect my pay	40 (12.7)
Yes and I lost pay	44 (13.9)
Regularly visit Food Pantry (%)	280 (82.6)
Average weekly visits to Pantry (mean (SD))	1.40 (0.72)
Housing (%)	
I own my own home	29 (8.6)
I stay with friends or family	16 (4.7)
I rent a home or apartment	230 (68.2)
I rent a room	60 (17.8)
I do not have a stable housing situation at the moment	2 (0.6)
Average number of adults in household (mean(SD))	3.02 (1.38)
Average number of children in household (mean (SD))	1.73 (1.37)
Average total household (mean (SD))	4.75 (1.82)
Months owed on rent (%)	
0	217 (65.0)
1	50 (15.0)
2	33 (9.9)
3	34 (10.2)
Have been threatened with eviction (%)	24 (7.2)
Fear impending eviction (%)	90 (26.9)
Have been evicted (%)	6 (1.8)
Have sought help to prevent eviction (%)	40 (12.0)
Depression (%)	
Never	96 (29.1)

Table 12 (Continued)

Once in a while	119 (36.1)
Often	65 (19.7)
Every day	50 (15.2)
Anxiety (%)	
Never	107 (32.4)
Once in a while	95 (28.8)
Often	63 (19.1)
Every day	65 (19.7)
Substance Use (%)	
Never	310 (93.9)
Once in a while	10 (3.0)
Often	5 (1.5)
Every day	5 (1.5)
Substance use in my home (%)	
Never	308 (93.3)
Once in a while	8 (2.4)
Often	3 (0.9)
Every day	11 (3.3)
In therapy (%)	52 (15.8)
Increased violence = 1 (%)	24 (8.5)

7. Conclusions and implications

The survey results provide an important landscape to understand the reality of the population that was affected by COVID-19 in Chelsea and the profound impact on their wellbeing. Implications of these findings should guide programming and funding in the next year. Programming should be developed at a community level to ensure acceptance and relevance among beneficiaries.

Public health programming, messaging and planning in Chelsea should consider the following implications:

Demographics:

- Women are the main caretakers and decisions makers among this cohort. Public Health programs should target them and consider their realities in terms of time, access, childcare and gender identities.
- Public health messaging should be oral and visual in simple Spanish. Leaflets with written instructions are difficult to understand among this population.

Economic Impact:

- The economic impact of COVID-19 on this population has been devastating, therefore, social protection measures must continue throughout 2021 and include food, rental and utility assistance.
- Families have had to bystep other expenses such as utilities, transportation, clothing purchase, and any purchase that is not a basic need. Social protection measures must be expanded to consider complete wellbeing and safety of families.
- Online and paper application forms are complicated and difficult to navigate within this cohort. Families require simple instructions that explain application and acceptance processes for social protection measures. Community Health Workers, Social Workers or any skilled individual who can help them with applications will significantly impact their ability to access these measures.
- Public Charge is a real deterrent to accessing social protection benefits. Families are confused about which are relevant, and may fear applying for any benefit out of fear of retaliation in their immigration process.

COVID-19 prevention

- Although most feel informed about how to prevent COVID-19, individuals are using a symptom-based framework to determine their risk of COVID. Previous studies determined that 30% of positive individuals in Chelsea are asymptomatic, therefore messaging around real risk is important.
- Fear of the pain of testing is real and a deterrent. Implementing self-testing in Chelsea will help improve the perception of the testing process and may increase levels.
- There is a lot of confusion about the role of pharmaceutical companies in designing, spreading and protecting us from COVID. Tapping into gossip and information networks to clarify theories related to vaccines will be helpful in improving correct information about COVID-19.

Mental Health

- COVID-19 response must include culturally appropriate and accessible attention to mental healthcare. Therapy is not appropriate or accessible to many participants. Therefore, researching collective forms of grieving, healing and support will be essential to navigating the rest of the pandemic and transitioning to a post-vaccine world.
- Individuals have found solace in connecting with their families, God, church communities and themselves. The majority of participants have found a reflective meaning in the lockdown and have found this a source of strength. Facilitating connection through free city-wide Wifi, access to collective (but small) online meetings and other safe practices will give families much needed strength.
- Church communities have provided a space for meaning-making, strength and purpose during this time. Replicating these models, working more closely with the spiritual

community and focusing COVID-19 resilience on togetherness and collective strength is much needed by these families.

In conclusion, this survey reminds us that basic needs, belonging and self-realization must coexist in public health and city planning. While ensuring access to basic needs (housing, food, utilities) is critical, it is not enough. Individuals require a sense of belonging to a community and seek a higher purpose in their lives. Participants of this survey are proud of living in Chelsea, feel blessed by the kindness and support they have received from La Colaborativa, the city and their neighbors and friends. At the same time, they are frustrated with having lost their jobs, are scared for their children's wellbeing and development and want to continue being active, useful and participating members of society. Recovery programming therefore must address issues of self-realization including English classes, GRE classes, job skills, parenting among others. It is our hope that the results of this survey will inform the next steps in supporting the Chelsea community in recovery and resilience from COVID-19.

Appendix C: Semi-Structured Qualitative Interview Guide

Research project title:

The impact of COVID-19 in Chelsea Study

Principal Investigator: Cristina Alonso

1. **Topic: Adapting to COVID**

   We were all deeply affected by COVID. Can you tell me how it has affected you?

   EL COVID nos ha afectado a todos de maneras importantes. ¿Me puedes contar cómo te ha afectado a ti?

   a. Work/trabajo
   b. Home life and family/familia
   c. Finances/ economía familiar
   d. When you had difficulties, who did you turn to or what helped you?
   e. Why do you think things were worse in Chelsea than in other parts of Massachusetts?
   f. Why do you think things were better/worse for your family than for other families?
   g. Did you ever feel shame about things you had to do to survive or live with COVID? (Food pantry lines, having COVID, going to work, childcare, asking for help).
      i. How did this impact you and your family's health?
      ii. How did you overcome this shame?

2. **Topic: Finding support and survival**

With all that you have been through, tell me what gave you strength and courage?

Con todo lo que has vivido, me puedes contar que te ha fortalecido y dado esperanza?

a. Community support /apoyo comunitario
b. Spiritual and religious faith /la fe y la iglesia
c. Family support / la familia
d. Reaching out to others / amigos y conectar con otros
e. Having more time / tener más tiempo

- Sub-Topic: Joy and desire

Can you tell me about the positive things that have happened as a result of all these changes? What has changed in you? ¿What gives you hope or how do you see yourself as a survivor of this situation?

Me puedes contar sobre cosas positivas que han ocurrido como resultado de tantos cambios? ¿Qué ha cambiado en tí? ¿Qué te da esperanza o cómo te ves como sobreviviente de esta situación?

- Tell me what makes you feel stronger? ¿Qué te hace sentir más fuerte?
- Sadness and loneliness /tristeza y soledad
- Who has helped you the most? How? /¿quién te ha ayudado, cómo?
- Who or what has made things worse? / Qué hace que todo sea peor?

3. **Topic: Day 2- the time in between**

We have been in this pandemic for almost 6 months now. We don´t know how much longer it will last and we don't know what life will look like after COVID. How is this time for you? In what ways do you think you have adapted? And in what ways do you think you are not adapting and things are getting worse?

Llevamos casi 6 meses en esta pandemia. No sabemos cuánto más va a durar y no sabemos cómo será la vida después del COVID. ¿Cómo son estos días para ti? De qué manera te has adaptado? De qué maneras crees que no te has adaptado y te sientes peor que al principio?

- Sub-Topic: Dealing with the unknown

One of the hardest things we have felt with this is the idea that we don't know what will happen next. There are a lot of unknowns. Can you tell me how you are dealing with all of the unknowns?

Una de las cosas más difíciles de esta pandemia es vivir sin saber que va a pasar. Hay mucho desconocido. ¿Me puedes contar cómo estás viviendo con tanta incertidumbre?

a. Finances / economía familiar
b. Job / trabajo
c. School / escuela
d. Other surges / Otros brotes

4. **Topic: Trust**

There are so many things we need to learn about supporting communities like Chelsea to survive COVID. If you could speak to policymakers or the government, what would you tell them? Do you trust them to protect and take care of you? Why or why not? Who do you trust?

Speaking of trust, many people are not filling out the Census this year. Why do you think that is?

Hay mucho que tenemos que aprender sobre cómo apoyar a comunidades como Chelsea. Si pudieras hablar con políticos o el gobierno, qué les dirías? ¿Confías en que te puedan proteger y cuidar? ¿Por qué o porqué no? ¿En quién si confías?

Hablando de confianza, mucha gente no está llenando el Censo este año. ¿Porqué crees?

Appendix D: Qualitative Interviews Report

Qualitative Interviews Report:

The Social Response of COVID-19 in Chelsea

Prepared for La Colaborativa

August 2020-January 2021

By Cristina Alonso, DrPH(c), MPH, CPM.

Executive Summary

The deep social inequities and triple burden on women's lives in Chelsea lead to a catastrophic scenario on the pandemic's impact. Women were already juggling low paying jobs, taking care of extended family, including sending money back to their countries of origin and mothering. However, the Latinx Community of Chelsea provided a series of buffers and strategies of resilience that allowed women to navigate the tremendous loss with a broad community that provided basic needs, a sense of belonging, and an understanding of a higher purpose.

The pandemic's devastation would have been immeasurably worse if not for the community bonds that enabled Chelsea to respond with resilience and collective caretaking. Resilience in Chelsea has been carefully organized through extensive social protection systems and increased funding. Simultaneously, it has emerged spontaneously out of a community of individuals who believe deeply that individual survival rests on collective care-taking and wellbeing. These traits are rare and unique in a country that prides on individualism and self-reliance and must be considered a key element in rebuilding Chelsea.

This research demonstrates that in the face of profound tragedy and loss, the Latinx values of family loyalty, community obligation, and an understanding that God is ultimately benevolent are what enabled the community to survive and should be highlighted in re-building a healthier, stronger Chelsea. Understanding Chelsea´s vulnerabilities and strengths can give public health practitioners and policymakers insight into guiding COVID-19 response. It is becoming more widely accepted that response must including addressing health inequities. These insights are

relevant to other Latinx immigrant communities in the US and even in Latin America, where response and social protections have been significantly weaker than in the US.

Key findings and recommendations are discussed extensively in the report and include the following:

1. **Chelsea residents are proud of where they live. They recognize and are grateful for the social protections available to them.**
2. **Chelsea residents have a deep sense of connection and loyalty to family (both nuclear and extended) and share resources and support anyone who is considered family.**
3. **Chelsea residents acknowledge the leadership and commitment of Gladys Vega and all the staff at La Colaborativa.**
4. **Chelsea residents have a deep sense of belonging to their social networks, a church group, and Chelsea, which have mitigated emotional and financial stress.**
5. **Chelsea residents seek a meaningful and purposeful life. This sense of meaning and purpose is shared and collectively defined by helping others and contributing to society.**

These interviews reveal the resilient capacity of a community driven by a dedication to family and community and a profound understanding of life as meaningful and interconnected. Healing and rebuilding Chelsea would benefit significantly from policymakers, donors, and civic organizations recognizing the tremendous power of existing social networks and engaging family, community, and church leaders who have protected and held the community together during this dark year.

Table of Contents: Qualitative Analysis Report

Introduction to the Qualitative Methods

Qualitative interviews were conducted using a narrative approach and transformative paradigm to better understand the complexity of the impact of COVID and layered and non-linear responses to the pandemic (Creswell, J., 2009). The transformative paradigm challenges oppressive social structures relies on transparency of goals and strategies and community participation to build trust and disseminates findings to enhance social justice and human rights (Creswell, J., 2009). Although public health often separates specific social determinants of health for analysis, individuals experience these aspects (health, environment, access to services) as intertwined, and their perceived impact is often messy and intangible. Therefore, to illuminate how COVID impacted families in Chelsea, it was essential to carry out qualitative interviews.

The first draft of an interview guide was designed in July, stemming from the brainstorming session conducted with La Colaborativa staff to guide quantitative and qualitative research. Based on qualitative experts and peers' feedback, the draft was refined several times to ensure the interview focused on women´s perceptions of what made them feel strong and helped them get through the pandemic. The study population was restricted to women heads of households in Latinx communities. It is mostly women who decide on financial allocation, food distribution, organize their family among chores and childcare, and are the emotional and often the spiritual center of the family. Latino and Southern European cultures can be described as "matrifocal-patriarchies," where the social structure is patriarchal, and men hold political and social power, yet homes are run by women who hold authority over domestic resources and decisions (Massey et al., 2006). Also, Latin America has seen a significant rise in female-headed households over the past four decades, regardless of relationship and marital status (Liu et al., 2017).

The interview guide was structured to focus on the perception of the impact of COVID on families, followed by questions related to resilience and survival. A third theme that emerged during the design process was the idea of “Day 2” (Brown, 2015). Day 2 is the middle part of a process, “where you are in the dark and have no clue where you are going and what you are doing.” It is also a point of no return. Day 2 is when things are raw, real, and never-ending. Following the initial outbreak and response, the pandemic seemed to follow Brown's “Day 2” description. Although the initial shock of the crisis of COVID had already passed, we were still overwhelmed by fear of getting the virus, heartbroken over loved ones that continued to get sick and die; we have not settled into the new normal, yet there seems no end in sight. As a society, we keep deciding on dates when this will end, almost as a strategy to believe there is an end (in June, in the Fall, after flu season, in March, etc.). Questions on Day 2 focused on understanding how people are getting through the uncertainty of not knowing when things will get better.

The second draft of a guide was developed focusing on four sections:

1. The storytelling of the tragedy: what happened to them and how did their world change because of COVID
2. Finding joy and connection amid tragedy: What kept them going, how did they connect to others, did they find new ways of connecting?
3. Living through Day 2: How do they feel now that we are in Day 2? What have they integrated as a survival strategy, and what still causes anxiety? How/when do they predict the end of this?

4. Recommendations and trust: How can the City and La Colaborativa do better? What is their assessment of how the City and civic organizations handled social protections? What was missing?

IRB exemption was sought and approved following the interview guide's development, enabling recruitment. Because of the nature of COVID-19, the Harvard Longwood Campus Institutional Review Board (HLC IRB) recommended that interviews be conducted online.

Data Collection

Due to COVID restrictions, qualitative research was limited to participant interviews with little participant observation. The majority of interviews were conducted on the phone with no visual cues. The few conducted in person were in a highly controlled environment due to transmission risk.

Twelve of the sixteen participants were recruited by telephone using lists of previous members from La Colaborativa. All male names were eliminated from the membership list. With a list of only female names, every tenth member was selected and called. If there was no answer, the following person on the membership list was called. If they did not answer, the next person on the list was called until a member answered.

Initially, the phone conversation would inform the woman of the study's purpose and methodology, and we would schedule a time for a Zoom interview. However, after trying to establish five Zoom appointments, it became apparent that this methodology was too

cumbersome for participants. Women would not show up for the appointment, have difficulty starting Zoom, or be very late to the appointment. Only three interviews were conducted via Zoom.

Therefore, the recruitment strategy was shifted to allow for spontaneous participation. Using the same randomization method described above, calls were made to women asking if they might have 15 minutes to chat about how COVID had impacted them and their families. After reviewing the study and obtaining verbal consent for participation and recording on the phone, a Zoom meeting would be started on my computer to record the phone interview. This recruitment method worked much better than the previous one, and I could record conversations. Nine interviews were conducted on the phone and recorded using Zoom as an external device.

The third recruitment method sought to address women who had not been Colaborativa members before COVID but were current beneficiaries of services. I approached women in the food and diaper lines outside the Chelsea Collaborative and requested twenty minutes of their time to discuss the impact of COVID on their lives. Four women agreed to be interviewed. Participants sanitized their hands for safety precautions and wore masks, as did the interviewer. For confidentiality reasons, the interviews were conducted inside La Colaborativa in a large meeting room with open windows. The interviewer and participant sat more than six feet apart. In-person interviews were recorded using the Zoom meeting function on a laptop.

All women recruited were Latinx Spanish speakers between the ages of 25 and 60. All were residents of Chelsea. Sixteen interviews were conducted in Spanish, four in-person, and 12 on the phone or zoom.

Of the 16 women interviewed:

- Three were interviewed via Zoom,
- Nine were interviewed on the phone,
- Four were interviewed in person at the food pantry.

The interviews averaged about 15 minutes each, with some extending as long as 25 minutes. The shortest interview lasted 10 minutes.

The interview guide served to create a structure to explore the impact of COVID and perceptions of resilience strategies within the interviewee's family. Depending on where the woman led the conversation and what her initial story was about how COVID had impacted her life, more specific questions would be asked in certain directions. For example, some women talked more about their job and money, and others talked more about their faith and God's role.

In addition to the in-depth interviews, qualitative responses were gathered from the survey phone calls. During these calls, participants would often tell detailed accounts of loss, suffering, and resilience. These were not recorded, but notes were taken to capture themes and remember stories shared by participants. These accounts contributed to a deeper understanding of how the Latinx community of Chelsea is coping with the impact of COVID-19.

Data Analysis

Preliminary data analysis was carried out in September and early October to inform La Colaborativa and community impact survey implementation. This analysis involved identifying overarching domains and themes within each of those domains.

In November, an in-depth analysis was carried out and involved both an inductive and a deductive approach.

Inductive Analysis:

Thematic analysis was used to analyze the qualitative interviews using both an essentialist or realist method, "which reports experiences, meanings and the reality of participants" (Braun, V., & Clarke, V., 2006). An inductive and constructivist approach to a realist method was used to identify themes from the data. There is no prior qualitative research on the impact of COVID in Chelsea. In an inductive approach, themes are identified from the data collected specifically for the research question. Inductive analysis is the process of coding data without fitting it into a pre-existing framework (Braun, V., & Clarke, V., 2006).

The themes were identified by coding transcribed interviews and grouping them into themes. These themes were then grouped into larger overarching domains. These domains were then compared to the initial thematic analysis in September.

Deductive Analysis:

The second level of analysis was based on the constructivist method, “which examines how events, realities, meanings, experiences and so on are the effects of a range of discourses operating within society” (Braun, V., & Clarke, V., 2006). This method was put into practice through a deductive approach to discourse analysis. The deductive analysis was deemed necessary because Latinx resilience has been described as operating from individual, familial, and community levels (Bermudez & Mancini, 2012). Therefore, once the interviews were coded, themes were grouped into existing overarching themes established by Maslov´s hierarchy of needs (Maslow, 1943), which include:

1. Basic needs
2. Psychological needs
3. Self-fulfillment needs

Maslow's “Hierarchy of Needs” was utilized as a deductive approach framework. As the interviews were carried out, I became keenly aware that participants were directly refuting his theory that each level of needs must be achieved before individuals worry about addressing the next level. Maslow argued that when basic needs are unmet, “the organism is then dominated by the physiological needs, all other needs may become simply non-existent or be pushed into the background” (Maslow, 1943).

However, the women interviewed discussed all three levels of needs as intermingled and occurring in their thought process and daily navigation of the pandemic. While women were concerned with getting enough food on the table, finding out where and at what time the food pantries were open, they were also holding on to their families and their faith for strength to get out of bed in the morning. Equally, women talked about the sadness and humiliation of no longer

going to work and having a job that they were proud of. Women also described the contradiction of knowing that the pandemic was the worst of times while at the same time explaining how they had used this time to become better people, take better care of themselves, and establish deeper bonds with their families.

These intermixed, contradictory feelings and approaches signaled to the researcher that humans are complex and layered, and in times of extreme poverty and despair, people long for meaning and belonging. The methodology for grouping the codes identified in the qualitative section, therefore, called for refuting previous hierarchical models that argue that hungry individuals cannot concern themselves with belonging and more significant issues of "the meaning of life." The qualitative interviews support the idea that higher-level issues become more salient and more relevant to our survival as whole beings in times of deep human despair.

Qualitative Analysis and Results

Thematic analysis was conducted on the sixteen qualitative interviews through a deductive approach. As the interviews were conducted, initial themes were identified to inform data collection. Upon interview completion, an initial report identifying preliminary themes was prepared and distributed to La Colaborativa to guide programming in the fall. These themes also helped to guide the interviews for the community impact survey.

The preliminary analysis identified three overarching themes:

1. **The Impact of COVID-19: "*We all lost our jobs and couldn't send money back home.*"**
2. **Resilience and Survival: *"Because of God and the Children"***
3. **Trust in government and local organizations: *"I think they did a good job."***

More in-depth analysis was carried out in December upon completing the community impact survey analysis. Coding was carried out manually by transcribing participants' key statements and identifying themes. Once themes were identified, they were grouped into three overarching themes:

1. **The impact of COVID-19 on basic needs**
2. **Reliance on a sense of belonging to families and a larger community**
3. **The importance of a sense of self-fulfillment and higher purpose**

These three overarching themes are similar to the preliminary themes, demonstrating the codes' reliability. Subthemes were grouped under each overarching theme, although some quotes were coded under two subthemes. Excel was used to organize themes and codes.

1. **The impact of COVID-19 on basic needs**

One of the most dire impacts of COVID-19 on Chelsea residents has been the financial blow, as seen in the community impact survey. Families are struggling to pay bills, rent, and food, which is emotionally taxing. On top of struggling with the cost of daily life, families have also been burdened with additional medical expenses, such as bills from hospitalization and funeral costs.

There were expenses that accumulated, bills, the rent, and that´s how we have been, paying little by little, but it has affected us a lot. Both in the economic sense, but also emotionally… We couldn´t eat two or three times, we couldn't have seconds, and there were no snacks (Victoria)

We´ve been having difficulties because my husband also lost his job, and he´s been receiving unemployment. We are really behind on rent, light, gas, it has been really hard… and we have two daughters, and it's really hard (Patricia)

I also owe about 2500 at the hospital… and when I was in the hospital, they kept calling me to ask me how I was going to pay my bills. For me, that was even more traumatic, owing bills at home, owing the rent, me sick, and I still have to pay the hospital bill. That was the most traumatic part for me (Elsa)

As a result of financial hardship, families have had to decide where to allocate the money they have and cut expenses not considered essential, or that can wait. This has meant not paying utilities, knowing that these won´t be cut off, not buying new clothes, and limiting food to the most essential goods.

It has been hard because only my husband has been working, and with what he is [making by] working, we are barely getting by and buying some food. We stopped buying yogurt to buy oil. We stopped buying cookies to buy oil. Only what is most important… but it isn´t enough to fill the fridge (Victoria)

Families prioritized paying rent over other expenses, as keeping their home was considered the most essential need. Bills were left unpaid and accumulated, and food was reduced to critical goods and reliance on food pantries.

We didn´t pay rent for two months, but little by little, we have been paying that off. We don't have that much left to pay (Yessenia)

Savings were used to pay rent, bills, food and avoid catastrophic consequences. However, at the time of the interview (September), participants had already run out of savings and were unsure of how they would continue making payments.

I was able to pay because of savings I had, and now I've started to collect unemployment (Laura)

All the money we had saved disappeared in rent and bills. When I saw that our savings were running out, I went to ask for food stamps. I don't know if it's my bad luck, but I didn't get anything, not even that $1,200 that they said we would get. I applied for rental assistance and didn´t qualify (Victoria)

Confusion over application procedures and guidelines for social protections was a consistent theme among many participants. Women were confused about why they qualified for certain benefits and not others or why their applications were denied. Other women were overwhelmed by the application process itself and felt they needed help.

I have looked for help to pay the rent, bills, food, but I can't find anyone to help me. One time I went to La Colaborativa to get food, but I was too exhausted to stand in the line [for too long] ..I would like it if someone explained to me how I can get help, for rent, to get internet. (Elsa)

Here things are different than back home… especially now during the pandemic. I haven't gotten any help from the government. I would ask them to help us. I would ask them all to help us to pay rent, bills, some medicine. I would ask them to help us. I need help. (Isabel)

An additional financial commitment that families have is to send remittances to their families in Central America. The pandemic's financial strain has stressed families because they are struggling or can no longer send money to their countries of origin, leaving them feeling that they are failing as immigrants and family members.

I have to help my family in Honduras, and he has to help his family in Honduras, and we can´t right now; everything is stopped. We were building a house for them there, and we can't do that right now (Victoria)

After I lost my job, I felt depressed. I felt depressed because without work, paying rent, bills, and still my parents there, [in El Salvador], waiting for one to send money home because things are even worse there (Camila)

Added to the financial strain is the sensation that the pandemic is never-ending. Families do not know how long they will have to rely on continued social protection measures and deal with unemployment uncertainty. The continued uncertainty removes agency and disables any planning or respite for families. As the pandemic continues, families who rely on social protections become more vulnerable to aid and charity fluctuations.

Weeks come and go, months come and go. This month they told us definitively that we will not be going back to the company. This was a very hard blow because I was hoping to go back to work. It's hard because so many restaurants won't reopen (Patricia)

2. Reliance on a sense of belonging to families and a larger community

Families have been able to ensure basic needs are met due to reliance on social networks among families, church communities, and neighborhoods. Participants explained that they have been able to navigate childcare, homecare, and basic needs by sharing the burden with close family and friends.

We are helping each other out because she has kids and has to work, so we´ve been exchanging help. And I have a friend who is 75 years old. She has a heart problem and has asked me to help her, and I´ve told her that of course I can. Not everything in life is money. We are very lucky to have one another to help each other out. (Daniela)

Participants explained that they shared food from pantry boxes with family members and others in the community. Participants explained that although they are struggling financially because of the pandemic, there is always someone worse off and felt an obligation to support those in more need than them, especially if they were at risk, had had COVID, or had small children.

I try to share, with neighbors, with family... Sometimes they ask me if I have food, or I take food to them… one has to share what one has… [I give to] people I know and even people I don´t know. One day I was walking home with some eggs, and I was walking, and a woman asked me, "do you have any money?" and I said, "here, take these," and I gave her the eggs. (Victoria)

We try to share [the box] with other people. Suppose I get a box, well, I take it, and I share it. We try to help others because that is what this is about because whatever we get, we have to share. And that is what we are doing, sharing amongst ourselves, and helping each other out. We have even taken food to other places for our brothers, and we tell them, "here, there you go" (Daniela 2)

Participants expressed a sense of pride, belonging, and gratitude for being part of the Chelsea community. Women emphasized the importance of La Colaborativa in ensuring their basic needs

and wellbeing. They were aware of the tremendous effort required by La Colaborativa and the Chelsea community to provide assistance and enthusiastically wished blessings on all the staff. Families were aware that living in Chelsea provided them additional protections that they may not have gotten elsewhere, particularly in their countries of origin.

But I think it's better to be here [in the US], because at least here we have insurance, and there, in Mexico, you have to pay to get care. I think La Colaborativa has helped people a lot, and the government has too; they helped everyone. It's good that they always help people, and even more when they know that one had a sick family member at home, they always sent food. (Diega)

The most important help was when we went to get food, and my children never went to bed with an empty stomach. There was a lot of help here [in Chelsea]; we never lacked food. Because in other places, they don't help people, and that's why I feel blessed to live in Chelsea because of these programs where they distribute food. I would say thank you to all of them, all the people working there, [at La Colaborativa], but especially to Gladys; she is a woman who wants to even give her heart to people (Camila)

The sense of pride and belonging also extended into qualifying behaviors as "bad" and "good." Participants explained that part of the reason Chelsea was in such a dire situation was that some people are not taking the pandemic seriously and are putting the community at risk. They were clear that COVID-19 requires a sense of community protection to ensure basic needs and reduce transmission.

Many people are not responsible, who only think about themselves, themselves, themselves. I think that is why it was so bad because many people didn't have any interest in respecting [the virus] because they think they are untouchable. (Daniela)

Many are walking around as though nothing was happening; many people say this is a big hoax, but we already went through it; we know that it does exist… because they think this is a game, they haven´t been through it. They say, "oh, God will take care of me," but you have to wear a mask. (Diega)

Similarly, participants had integrated public health measures into their daily lives, often at a high economic and emotional cost. Some participants had reduced income or turned away job offers out of fear these would put them at risk for COVID. Others isolated themselves if a family member had COVID and was sick at home or in the hospital, making family logistics more complicated. However, women felt that this was their obligation to the larger community.

We had a room that we rented out, but we don't anymore out of fear of not knowing who would be coming to our house and bringing the virus. So we have to pay for all the rent (Victoria)

I need to get my things done, but I'm not going to risk my life to make more money… Why would I risk getting sick? I am not going to put myself at risk looking for a job now. I got a job at Costco, but they only offered part-time 20 hours. I did the math, and it's not worth it because I make more from unemployment, and I don't want to put myself at risk and contract that disease (Daniela)

Despite increased isolation and distancing, and in support of the community impact survey results, participants stated that the pandemic had brought families closer together. Families were inspired to come together out of the collective need to pool resources and look out for each other's mental and physical health. Despite reports of an increase in domestic violence rates and marital strain during COVID, women in relationships within this cohort expressed that the pandemic had brought them closer together as a couple. Women explained that they had found their husbands' strength and encouragement to be a crucial part of their resilience.

My husband helped me to stay calm. He never left my side. He was always there saying, "stay calm" (Camila)

This virus has taught us a lot as a family. It has taught us that we need to stay united. We realized that by spending more time together, now he [my husband], spends more time with his kids and the family. We are much stronger as a couple. It may be the only good thing this pandemic has brought that it has united us more... My husband is a very patient man; he takes everything with a sense of calm. Sometimes I would sit on the edge of the bed and cry because I was so frustrated, and he would hold my hand and give me strength. (Victoria 2)

The sense of belonging and loyalty to family brought participants strength to overcome the pandemic's emotional and financial difficulties. Over and over, women would say that their children were their driving force, the reason to get up in the morning, and the reason to find purpose in life during such a challenging time.

My children give me so much strength to keep going. I have to get food for them. And if an opportunity arises to go out and work, I have to go and not stay home. We have to overcome fear because otherwise, it will take us over. (Victoria)

I think [what gives me strength] is my son; he is my heart's motor and encourages me. I believe that if I am sad, he will be too. (Carla)

Perhaps the most potent and meaningful space for belonging, strength, and resilience was the participant's belief in God and participation in a church. Women talked about how much strength they got through praying, both individually and collectively. They talked about prayer being a mechanism to keep family members alive while in Intensive Care. This group of participants described that God has a reason for creating this pandemic, and some explained that the reason is to get close to him. Despite God's hand in creating this pandemic, they concur that God is a benevolent Alpha male who has people's interests and wellbeing at heart. They explained that even though the pandemic had caused great suffering, it was through God that they found relief, and ultimately God had his reasons for creating this situation.

We spent the day asking God to help us, praying. We spent every day asking God to keep her alive. I think these prayers are what most gave me strength. I used to be really afraid, and I´m not so scared anymore (Diega)

What's left but to ask God and pray. They tell us to read the bible and that everything is in there to stay strong. That's why I´ve been going to church; it gives me strength. God is who has the final word. We have to have faith and know that things will get better (Elsa)

Not only did faith communities provide a spiritual framework that gave women strength and a belief that things would get better, but they also provided families with a physical community of friends who share the same system of values. In-person and on Zoom, Church gatherings were a lifeline for families through isolation and social distancing. This community also became part of the social networks to share food, take care of the sick, and make sure families' basic needs and emotional needs were met.

We got together on Zoom; we created pods to pray together and ask God to protect us. The pastor also gave us lots of encouragement and comfort (Carla)

Through my church, I always have sisters whing me how I am doing and looking out for me. That's why I´m not alone (Patricia)

A small subset of participants (mostly Jehovah's Witnesses) explained that the pandemic and all recent global catastrophes were described in the bible. They were clear that none of this should be a surprise and that only those who get closer to God during this time will survive. Women described these difficult times being the result of collective and persistent sin, and some explained that these events were before the second coming of a savior (Jesus). Their understanding of this particular time was grouped with the pandemic, climate change, and political upheaval as evidence as a forecasted biblical apocalypse.

We are in a system that already collapsed, and all of this is written in the bible. These things have to happen, and that's just how it is; these will be hard times. One has to understand that

and teach that to children so that tomorrow they can keep going. The earth is tired of us, we, we already destroyed it, this is the consequence of our actions. (Victoria)

Because of the sin, so many things, and because the Lord is coming soon. We believe in the word of the Lord… so Jesus… because there's this book that you have to follow, the commandments, the concepts from beginning to end. The word says where our salvation is, and it is in Jehovah who made the skies and the earth. There is no other way than to follow him…. And so we pray for the authorities and all the people to know that everything that is happening is our fault because humanity has disobeyed; we have to find God. (Daniela 2)

3. The importance of a sense of self-realization and higher purpose

Faith in God and a Church provided participants with a framework for understanding that the pandemic has a higher purpose. Participants balanced the humiliation and loss of a sense of purpose from losing their jobs to using their time during unemployment to focus on things they never have time for. Participants described how much they valued coming together as a family and talked about using lockdown time to reach a higher purpose in life.

I haven't gotten on a bus in six months… I miss it so much, waking up early, filling my days, I need to occupy my mind. So now, with all this time, I´m not really doing much; I watch documentaries, movies that I´ve never had time to see. I write poems… I have started reading. I talk to my son and tell him, "you are with your family now" (Daniela)

Several participants explained that it was essential to maintain a positive outlook on life during this time. They felt that a combination of a sense of belonging to a family and a more extensive

social network, faith in God, and trusting that things would work out were key to getting through the pandemic's challenges.

When one door opens, another door shuts. That is the kind of person I am. It doesn't matter what happens. You have to believe that you will be alright. My bravery comes from my family, from myself, and always from God first. Whatever happens, is his will and his desire… Things will get better, little by little. Things are hard now, but what can we do, throw ourselves on the floor? We have to be strong, know that this will pass, and at least we have our lives. (Yessenia)

Participants talked about how difficult it was to lose a sense of purpose by not having a job. They described their rituals in great detail for getting ready and going to work in the morning, acknowledging a sense of longing and loss. They explained how difficult it is not to know when this pandemic will end and how frustrating it is to not participate in society. Women expressed the pandemic's first months' shock and how no one was expecting it or was ready. They described how difficult it has been to adapt to a sudden loss of employment, coupled with family members being sick and an overall sense of despair. The virus itself has women on edge as they are afraid to leave the house, and as was described above, are afraid to look for work. Aside from getting strength and solace from their families, church communities, and God, women did not talk about any other organization or social service for helping with the trauma and depression of the pandemic. They did not mention that any effort or attempt has been made by the City of Chelsea or the State of Massachusetts to acknowledge the collective sense of grief that is present after so many deaths. Women explained that the death toll and news coverage added to their emotional burden. While they relied on news sources and social media for information, they also

had to take breaks because of the emotional toll of constantly hearing about the number of dead. Families struggle with their own grief while also feeling connected to the collective grief that is felt worldwide.

For me, the pandemic has been traumatizing, because first of all, we have all been sick. It affected everything… and I can´t watch TV anymore, because of so many dead people, it is traumatizing (Elsa)

I think that women, we are more sensitive, we get depressed. I got very depressed and wanted to go back to my country. One always thinks this will pass, but it doesn't, we don't even have a vaccine or anything… everything happened so suddenly (Carla)

The deep social inequities and triple burden on women's lives in Chelsea lead to a catastrophic scenario on the pandemic's impact. Women were already juggling low paying jobs, taking care of extended family, including sending money back to their countries of origin and mothering. However, the Latinx Community of Chelsea provided a series of buffers and strategies of resilience that allowed women to navigate the tremendous loss with a broad community that provided basic needs, a sense of belonging, and an understanding of a higher purpose.

The pandemic's impact on Chelsea has been devastating, as described by the COVID positive cases and the community impact survey. However, this devastation would have been immeasurably worse if not for the community bonds that enabled Chelsea to respond with resilience and collective caretaking. The pandemic arrived in a city that women described as

a community that looks out for its people and takes care of them, and that residents know that they can count on each other for the support they need. The sense of community and belonging cannot be measured in a survey but has directly impacted the amount of food and shelter residents have.

Resilience in Chelsea has been carefully expressed through extensive social protection systems and increased funding. Simultaneously, it has emerged spontaneously out of a community of individuals who believe deeply that individual survival rests on collective care-taking and wellbeing. These traits are rare and unique in a country that prides on individualism and self-reliance and must be considered a key element in rebuilding Chelsea.

Conclusion and Recommendations

While it was disproportionately impacted by COVID, Chelsea organized to meet the needs of its residents and reinforced a collective sense of belonging and purpose in a way that few other cities have replicated. Therefore, this research demonstrates that in the face of profound tragedy and loss, the Latinx values of family loyalty, community obligation, and an understanding that God is ultimately benevolent are what enabled the community to survive and should be highlighted in re-building a healthier, stronger Chelsea.

The following conclusions map out the most salient strengths highlighted by this work, followed by recommendations supporting Chelsea's resilience and rebuilding from the pandemic. Without a deep understanding of why Chelsea was so profoundly impacted and how it survived the pandemic, we will not create a relevant, accessible, and timely response. Therefore, understanding Chelsea´s unique characteristics and highlighting the sense of community and collective support will be foundational to a healthier Chelsea in the long run.

1. **Chelsea residents are proud of where they live and recognize and are grateful for the social protections available to them.**

Participants in both the community impact survey and qualitative interviews expressed a deep sense of gratitude and acknowledgment for support from La Colaborativa, the City, and other organizations during the pandemic. Participants recognized that they would not have been able to pay rent without this support and have access to the food pantries, diapers, rental assistance programs, and information on COVID prevention. Participants identified La Colaborativa and the City as the primary sources of social support and mentioned the Salvation Army, local

churches, East Boston Health Center, and online RAFT application sites. None of the participants mentioned either of the Hospital systems (BI or MGH) except to assess the quality of care they received during hospitalization due to COVID.

Participants valued the support they received often in comparison to their countries of origin, where governments have mostly failed in providing social protection systems.

Recommendation:

- Community healing and recovery must take on a collective face, engaging the existing pride and sense of belonging that residents have towards Chelsea.
- Staff in supporting organizations such as La Colaborativa and City Hall should be formally and publicly acknowledged and thanked for their hard work supporting city residents.
- Chelsea should embody the collective spirit of survival and resilience by creating a monument or mural to honor those lost to COVID and those who fought to keep the community safe.
- Utilizing the collective sense of pride and belonging, public health messaging around testing and vaccination could focus on keeping the community safe and taking these actions as an act of care and loyalty to a community that takes care of us as residents.
- Without the continuation of social protections, trust in existing systems will be violated. Therefore, all three levels of government (Federal, State, and the City) must ensure that social protections are guaranteed throughout 2021.
- An approach that prioritizes those most affected by COVID-19 should guide vaccine rollout. Therefore, while at-risk individuals must be prioritized, so must at-risk communities. Vaccines should be deployed in Chelsea at a community level accompanied

by a community education campaign that builds strategies and organizations that residents already trust for information and support.

2. **Chelsea residents have a deep sense of connection and loyalty to family (both nuclear and extended) and share resources and support anyone who is considered family.**

Chelsea residents understand their identities in relation to their families and the support networks where they participate. Food and resources are distributed among these networks, and parents rely on extended childcare through social networks. Participants explained that they had brought family members into their homes during the pandemic if they could not pay rent. Families prayed together and strategized on how to pool resources together to survive the pandemic, sometimes extending to other countries where remittances were expected to arrive or where the power of prayer was magnified in the case of an ailing family member. Participants explained that food pantry boxes were often shared with other families in the building or those they considered more vulnerable and in need of assistance.

During the pandemic, families came together to rely on each other for the emotional support needed to get through the long, dark months of uncertainty. Participants mentioned the joy of spending more time with their children and watching them grow in ways they had never been able to before the pandemic. Marriages were strengthened through problem-solving and emotional support, and friendships and church groups became spaces for resilience, joy, and strength.

Recommendation:

- Chelsea residents are social, familial, and rely on family structures for resilience and healing. Therefore community programs, particularly social protections or resilience programs, should focus on targeting and including family units.
- Food, clothing, childcare, and other essential goods and services are shared and distributed internally within families. Therefore, food pantries and organizations that donate goods to families should remain flexible so that heads-of-households may redistribute goods to others within their social networks. More sensitivity and understanding of the importance and power of internal social networks should drive the design of programs and distribution of goods, as it could be misinterpreted as hoarding.
- While the mental health impacts of COVID have been profound among this community, residents generally do not find Western psycho-therapy culturally appropriate or accessible. Therefore, the City and organizations should design mental health and wellbeing programs that build on existing networks and groups that already meet regularly (formally and informally) and improve local leaders' capacity to facilitate these groups. Working with local churches will be essential to this program, as they are already managing them, and residents expressed getting a lot of strength and support out of these groups.
- Local women and community leaders should be trained as community health workers and case managers with specific training in culturally appropriate referrals and support strategies for mental health, including identifying individuals at risk for suicide, self-harm, and violence. Community-based CHWs can be critical for providing education and informing local families of local resources.

- Mental health is directly linked to having access to basic needs. Again, ensuring the continuity of supply of social protections will be vital to protecting Chelsea´s mental health.

3. **Chelsea residents acknowledge the leadership and commitment of Gladys Vega and all the staff at La Colaborativa.**

The role of Gladys Vega and La Colaborativa in protecting and taking care of Chelsea residents cannot be underestimated. Gladys is a confirmed matriarch of the community and is highly respected. Almost every participant expressed their gratitude and wished blessings on Ms. Vega and her team. Ms. Vega´s leadership style is appropriate to the Latinx community as it is transparent, direct, and grounded in residents' realities. She holds almost daily sessions on Facebook live where she gives concrete information of what social protections are being offered by La Colaborativa and how to access them. She is on the street, speaking to residents, helping evicted residents pack, hugging her workers, and praying with her team for a more just country and city. La Colaborativa is continuously adapting its programs to the current realities. By remaining flexible and grounded in immediate needs, La Colaborativa has gained the Chelsea community's trust and respect.

La Colaborativa can influence Chelsea's social behavior through its leadership and communication style. Residents rely on La Colaborativa for support to navigate application processes for citizenship, RAFT assistance, eviction prevention, emergency housing, and of course, a constant supply of food.

Recommendation:

- Ms. Vega and her staff should be engaged to promote regular testing, promote self-testing at the mobile unit, and promote vaccination when it is available. They should continue to use live social media platforms to showcase themselves and community members accessing these services.
- City leaders, especially within the public health department, should work with La Colaborativa to build trust with residents for messaging and behavior change campaigns. City leaders should listen to recommendations and requests from La Colaborativa as they can serve as the City´s ears to the ground.
- La Colaborativa must be supported with funds to expand its staff and capacity. The organization grew and adapted incredibly quickly this year to respond to Chelsea residents' needs. However, food pantry supplies are still insecure, as La Colaborativa has not received confirmation from USDA that they will continue to receive federal food supplies. Staff at La Colaborativa run a high risk of burn-out and have neglected to take care of themselves this year, as they have serviced the community continuously. At this time, the health of the organization's key leaders is at risk, and the leadership of La Colaborativa must be compensated and taken care of adequately.
- Quick expansion, multiple hiring rounds, and high staff turnover this year will require that La Colaborativa develop a Human Resources department to free the COO of these tasks.
- Supporting La Colaborativa will require significant funding and ensure their physical spaces are secure and ideally owned by La Colaborativa.
- La Colaborativa has stepped in to fill an essential gap in Chelsea's public health programming during 2020. Therefore, the organization would benefit from being

consulted and listened to in developing public health initiatives in Chelsea. Internally, further developing a specific public health approach to community outreach and education would help La Colaborativa position its expertise.

4. **Chelsea residents have a deep sense of belonging to their social networks, a church group, and Chelsea, which have mitigated emotional and financial stress.**

The impact of the pandemic on mental health and wellbeing has been dramatic. Among the community impact survey participants, fifteen percent stated they feel depressed every day, and twenty percent said they often feel depressed because of the pandemic. Similarly, twenty percent of participants feel anxious every day, and nineteen percent often. Protectors of anxiety and depression among this cohort include being up to date on rental payments and not relying on food pantries. Therefore, it is evident that the primary emotional stressors are financial hardship and uncertainty.

While it is not in Chelsea´s power to end the pandemic and re-activate the economy, residents have found solace in their profound sense of belonging to a community as a lifeboat for navigating the uncertainty of the ongoing pandemic. Western psychotherapy is only used by fifteen percent of survey participants, most of whom are younger or have survived COVID, indicating that it is generally not considered a culturally appropriate means of support and guidance. Therefore, alternative, culturally relevant, and already existing means of community belonging and support must continue to be sustained and activated to support Chelsea residents.

Recommendation:

- To provide community healing and grieving spaces, City Hall and La Colaborativa should work with local church groups to expand access to community groups. For those

who are not religious, community groups could be established on Zoom and post-vaccination, in-person to generate informal spaces of community and support.

- Grassroots qualitative research should be conducted to explore appropriate means of community building to replicate spaces where residents feel safe, heard, and supported. These groups will only be successful if they are designed and implemented by the community itself.
- Developing public health messaging on COVID-19 testing and vaccination requires more than translating existing materials into Spanish. Acknowledging the deep and historic connections residents have to each other and integrating residents in the development of public health campaigns will go a long way to promote success messages.

5. **Chelsea residents seek a meaningful and purposeful life. They seek to help others and grow as humans contributing to society.**

Interview participants stressed how sad they felt about losing their daily rituals and workforce participation. Participants expressed great pride in having been a part of a company and often retold detailed accounts of their employment history. They understood their workplaces to be more than places to generate a paycheck. They talked about the friendships they developed, promotions, and a sense of meaning and purpose that their work gave them, regardless of the form of employment.

Participants were clear that, in general, there was always a family or a person who was worse off than them. Despite dire hardship, women explained how they felt obligated to give the little they had to support others' wellbeing. Not only did they understand this as a community obligation, but also as a spiritual mandate to be a better person.

The community impact survey revealed that although the pandemic has been devastating, eighty percent of participants have found a deeper purpose in being at home. They expressed joy in finally being able to be with their families, explained that they used this time to have a closer relationship to God (as it gave them strength) and take better care of themselves and focus on their health.

Recommendation

- At La Colaborativa and other local organizations, programs should support personal growth and development through job skills training and leadership programs. Participants stated that the program “mentes sanas” (health minds) at La Colaborativa had helped provide them with mental health skills for the pandemic. This program could be replicated and expanded.
- Latinx culture does not value volunteering in the way that it is carried out in North America. However, Latinos are always volunteering to support their family and loved ones through cooking, childcare, housing, and others’ care. Chelsea programs could identify neighborhood and family leaders and expand messaging and social protection systems by recognizing community caretaking as an already existing volunteer network. Understanding existing (culturally appropriate) networks for protection and wellbeing and supporting them would enable Chelsea´s programs to reach deeper community levels.

These interviews reveal the resilient capacity of a community driven by a dedication to family and community and a profound understanding of life as meaningful and interconnected. Healing and rebuilding Chelsea would benefit significantly from recognizing the tremendous power of

existing social networks and engaging family, community, and church leaders who have protected and held the community together during this dark year.

By understanding COVID response as the interaction of basic, psychological, and self-fulfillment needs, public health responses to COVID among Latinx populations can be shaped by an understanding that first basic needs must be met, without restrictions based on immigration status, family composition, or type of employment. A model that integrates access to all services driven by an understanding of how family resources are shared among Latinx will ensure their basic safety and wellbeing. By accessing services and coming together to problem-solve, Latinx will build community and take care of each other. Through participating in the collective well-being, Latinx communities find emotional solace and purpose. Sustaining hierarchical tiers of service delivery and excluding Latinxs (regardless of education and English levels) from delivery design will continue to exacerbate the systemic racism that has driven the disproportionate impact of COVID among communities of color.

The impact of COVID in Chelsea, and potentially among other Latinx communities, was distributed within and across families as the unit under assault. Unemployment, sickness, death, despair were family experiences that were mediated through collective resource sharing, caretaking, and coming together as one. However, public health policy insists on targeting the individual. Yet, adequate policy for Latinx communities would target families and communities themselves by addressing unequal access to social protections, insurance, and fundamental human rights and leveling access to a community level- regardless of whether certain individuals are documented are not. Finally, as long as health inequities continue to be driven by racism,

classism, and exclusion, Latinx families and community networks will seek to distribute their resources and create internal leveling systems that ensure the entire community's wellbeing.

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