



BLUE ZONES PROJECT
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Community Resiliency to COVID-19 in a Subset of US Communities



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OVERVIEW

PROBLEM

Communities across the United States are facing severe economic, social, physical and mental health impacts due to the COVID-19 pandemic. Community leaders are striving to learn how they can better prepare their community to handle future challenges of equal or greater magnitude.

OBJECTIVES

To evaluate whether communities implementing a well-being initiative called Blue Zones Project (BZP) are more resilient against negative consequences of the COVID-19 pandemic compared to the nation.

METHODS

Our analysis included 115,739 web-based survey responses from March 20 through May 13, 2020, from across the nation, including 2,550 surveys from 29 BZP communities. The Mann-Whitney test was used to test for statistical significance.

RESULTS

Compared to national respondents, BZP community respondents reported lower prevalence of key COVID-19 risk factors (COPD, diabetes, hypertension); were 25% less likely to report severe stress and anxiety and 20% less likely to report panic and worry; more often reported positive social and community behaviors; and were more likely to report positive health behavior changes such as eating healthier and exercising more.

CONCLUSIONS

The presence of a community well-being initiative aimed at increasing strong social networks, healthy behavior adoption, and reducing chronic health conditions has reduced negative consequences of the COVID-19 pandemic. Communities across the US could benefit from similar initiatives to increase preparedness for future disasters.

BACKGROUND

Community resilience has become top-of-mind as COVID-19 challenges the nation's health and well-being, subsequently inducing a national economic deterioration and growing social unrest. While no individual or community is immune, the virus has struck particular populations harder than others, including Black, Latino, and Native American people and communities that are resource-limited and economically-stressed such as New Orleans, downtown Detroit, and the boroughs of New York City.¹ Rates of COVID-19 diagnoses, morbidity, and mortality vary between neighboring communities in much the same way that life expectancy, rates of chronic and infectious diseases, and health behaviors have varied geographically in the past.² Disparities in socioeconomic conditions and health have been brought to the forefront.

Regardless of the number of COVID-19 diagnoses, all communities across the United States have been impacted through disruptions to the

local economy and social distancing measures. Studies of disasters – natural and man-made – have identified community factors that promote rapid recovery and reduce long-term negative consequences. Pre-existing assets including strength of individuals, social networks, and support systems are foundational for resilient communities.³

This study compares a subset of American communities implementing a community-led well-being initiative, Blue Zones Project (BZP), to the nation to understand if the presence of such an initiative increases community resiliency when faced with a national disaster such as COVID-19. Inspired by the world's longest-lived societies, Blue Zones Project deploys people, places, and policy strategies to create environments that support sustainable, healthy behavior change and subsequently reduce healthcare costs, improve productivity, and boost the economic vitality of communities (Figure 1).



Figure 1. Blue Zones Project Community Model

PEOPLE

- Individual Pledge
- Moais
- Purpose Workshops
- Volunteering

PLACES

- Worksites
- Schools
- Restaurants
- Grocery Stores
- Faith-Based Organizations

POLICY

- Built Environment
- Tobacco
- Food

METHODS

The data for this observational study was collected through a web-based survey assessing the impact of COVID-19 on individuals and communities. The survey was developed by Boston University School of Public Health and Sharecare, a digital health company, and promoted through social media, newsletters, email, and word of mouth. All participation was voluntary, anonymous, confidential, and without risk.

Survey responses analyzed for this paper were collected from March 20 through May 13, 2020. During this time there were 115,739 completed survey responses from all 50 states and the District of Columbia. The 29 Blue Zones Project communities

included in this study span 10 states from different regions of the US and include urban communities as well as rural communities, some with sizable African American, Hispanic/Latino, and Native American populations. Across these communities, we had 2,550 survey responses. The average age for the national sample and BZP community sample was 57 years old. Respondents in both samples were primarily female.

Analysis utilizing the Mann-Whitney test was used to identify statistical significance between survey responses from BZP communities and survey responses from across the nation. The results included in this paper were statistically significant at a 95% confidence level (Table 1).

Table 1. BZP Community and National Results with Corresponding P-Values

	BZP COMMUNITIES	NATIONAL	P-VALUE
Survey Completes	2,550	115,739	N/A
Average Age	57.7	57.5	0.00452
Female	83.2	88.0	5.431e-12
COPD	2.7	3.5	0.004852
Diabetes	10.9	12.3	7.642e-06
High blood pressure	34.2	39.5	< 2.2e-16
Asthma	11.6	11.3	0.02466
Pay has decreased	16.9	15.4	0.04658
Panicked or very worried	40.3	49.9	< 2.2e-16
Severe stress/anxiety	7.5	10.2	2.777e-07
Feel more connected to other people	5.8	4.6	4.797e-10
Feel more gratitude	19.8	18.0	1.651e-13
Spending more quality time with my friends/family	13.2	11.8	1.894e-08
Helping others more	6.1	5.0	1.062e-07
Leave home to walk/exercise outside	34.5	32.7	< 2.2e-16
Eating healthier	22.4	18.5	9.769e-07
Exercising more	24.5	21.3	0.0003114

RESULTS

COVID-19 RISK FACTORS

Survey respondents from BZP communities indicated lower levels of certain disease conditions than the national sample, including lower prevalence of COPD (2.7%), diabetes (10.9%), and high blood pressure (34.2%) compared to the nation. Survey respondents from across the nation reported 3.5% with COPD, 12.3% with diabetes, 39.5% with high blood pressure.

MENTAL HEALTH IMPACTS

Fewer BZP community respondents were panicked or very worried about COVID-19 (40.3%) compared to respondents in the national pool (49.9%). Among BZP communities, 7.5% reported severe stress and anxiety compared to 10.2% for respondents in the national pool.

SOCIAL AND COMMUNITY IMPACTS

Among BZP community respondents, 19.8% report feeling more gratitude, compared to 18.0% nationally; 13.2%

report spending more quality time with friends and family compared to 11.8% nationally; 6.1% report that they are helping others more, compared to 5.0% nationally, and 5.8% report that they feel more connected to other people, compared to 4.6% nationally.

HEALTH BEHAVIOR IMPACTS

More BZP community respondents are leaving their homes to walk or exercise outside (34.5%) compared to respondents in the national pool (32.7%). Among BZP community respondents, 24.5% report exercising more now compared to before the pandemic; nationally, only 21.3% report this. Twenty-two percent of BZP community respondents report that they are eating healthier now compared to before the pandemic; nationally, only 18.5% report this.

ECONOMIC IMPACTS

The percentage of BZP community respondents reporting that their pay has decreased is higher (16.9%) than that for respondents in the national pool (15.4%).

DISCUSSION

COVID-19 has a higher risk of morbidity and mortality in people with COPD, diabetes, hypertension, and other comorbidities.⁴ Respondents in Blue Zones Project communities self-reported a lower prevalence of these conditions than survey respondents from across the country. Published studies have established an inverse relationship between amount/severity of the above listed illnesses and healthy lifestyles.⁵ By creating an environment that supports healthy lifestyles and lower prevalence of chronic health conditions, Blue Zones Project could be conferring a protective

effect against COVID-19.

Experts anticipate that the direct and indirect effects of the COVID-19 pandemic will increase the prevalence of mental health issues which were already on the rise prior to the pandemic.⁶ According to our survey data, 50% of the national pool of respondents were panicked or very worried about COVID-19; whereas, only 40% of people living in BZP communities had similar feelings.

Studies have shown that the COVID-19 pandemic has led to high levels of

anxiety, particularly among young people, people spending a lot of time thinking about the pandemic, and healthcare workers.⁷ BZP community respondents were 25% less likely to report severe stress and anxiety due to the pandemic than respondents nationally. This finding is surprising given that more people in these communities report that their pay has decreased compared to communities nationwide. Blue Zones Project's focus on creating strong social bonds and a sense of belonging within community could be protective buffers to combat negative mental health effects from COVID-19 as sharing thoughts, discussing options, and expressing fears to supportive people can lower anxiety, relieve stress, and reduce feelings of isolation.⁸⁻⁹

Blue Zones Project's efforts to create strong social networks and increase community engagement and collaboration could explain why more BZP community respondents report greater feelings of gratitude and connection to other people, spending more quality time with friends and family and helping others more as a result of the COVID-19 pandemic compared to respondents nationally. These positive social and community indicators are protective buffers against loneliness, a deleterious factor for mental health that

is associated with all-cause mortality.¹⁰

An analysis of financial stressors due to COVID-19 and health behaviors among all respondents nationally found that having one or more financial stressors, such as losing a job, a decrease in pay, or trouble paying bills due to COVID-19, was associated with 58% greater odds of having two or more negative health risk behavior changes.¹¹ Despite more individuals in BZP communities reporting a pay decrease, a significant financial stressor, BZP community respondents report more positive health behavior changes such as eating healthier and exercising more compared to respondents nationally. Furthermore, BZP community respondents were more likely to maintain physical activity by walking or exercising outside during the COVID-19 pandemic than respondents across the nation. Blue Zones Project communities have historically increased population health behaviors over time, such as consumption of more fruits and vegetables and greater exercise frequency; therefore, community members' inclination toward positive health behaviors prior to the pandemic may explain why BZP communities are further improving their health behaviors in the midst of a crisis where people may have more time to cook healthily or exercise.

LIMITATIONS

There are important limitations to this comparison of BZP communities to the nation. The COVID-19 survey was not administered to a representative random sample of the population at a national or BZP community level; therefore, selection bias could impact the results. Within BZP communities, the survey was promoted through BZP email and social media channels, and this could have resulted in voluntary response bias with those who are already engaged in healthier behaviors more likely to take the survey over others. Another confounding factor is that the

subset of BZP communities are not representative of the nation in that their collective demographic, socioeconomic, geographic, and other characteristics may differ considerably from the nation. Weighting may offset this concern about comparability; however, due to limitations in the data around traditional demographic weighting variables, we did not create weighting variables. Further measurement of a representative sample of BZP communities and the nation will validate whether the distinguishing characteristics we see in this analysis are true at a population level.

CONCLUSION

A national survey on COVID-19 impact revealed that some communities are buffering the effects of the pandemic better than others. Communities implementing a community-wide well-being initiative called Blue Zones Project reported lower levels of at-risk health conditions; less worry, loneliness, stress and anxiety in reaction to COVID-19; greater connectedness with family and others; and more positive health behaviors compared to communities across the nation. This was in spite of more individuals in BZP communities reporting a pay decrease, a significant financial stressor. These findings suggest that the presence of a multi-year initiative that has strengthened social support networks, reduced chronic health conditions and increased health behaviors across a population can increase community resiliency to crises such as COVID-19. Communities across the US could benefit from similar initiatives to increase preparedness for future disasters.

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