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Assessing the Impact of the COVID-19 Pandemic on Health and Social Wellbeing in Low-socioeconomic Status Seniors

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health and social wellbeing without reference to food insecurity. It has been a pleasure working with her throughout this project.

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Abstract

The COVID-19 pandemic has presented challenges for all age groups, with older adults being disproportionately affected as some of the most vulnerable people in society. Low-socioeconomic status (SES) older adults experience further challenges surrounding mental health, social wellbeing, and food insecurity. Given the unprecedented nature of the pandemic, it is important to understand the extent of the impact COVID-19 has had on this population, with the ultimate goal of identifying gaps in care services for low-SES seniors and opportunities for improved programming. In this cross-sectional mixed methods study, 93 low-SES seniors living in two affordable housing communities in the East Bay Area were surveyed. Around 76% of participants were aged 70 or older, 72% were female, and 58% identified as non-Hispanic White. In the printed 6-page questionnaire, participants were asked to reflect on their experiences prior to the pandemic and compare them to their present state, one year into the pandemic. Following survey collection, a subset of five respondents was interviewed over the phone to identify key themes. Statistical analyses on the survey data showed that as compared to pre-COVID-19, participants indicated a significant decline in their diet and nutrition, physical health, sleep quality, mental health, and social networks. In terms of social wellbeing, there was a decline in feelings of connectedness to one's community and time spent eating in the company of others, and an increase in feelings of loneliness and isolation. However, perceptions of general support and having people to turn to did not decline. Interview data generally confirmed survey findings, with participants, two of whom had lost partners during the pandemic, frequently citing feelings of anxiety and intense isolation from friends. Finally, participants indicated a need for better COVID-19 informational services and programming. These results reveal the need for increased safe social programming and outlets for low-SES seniors who often suffer from poorer mental and physical health at baseline. The findings help reveal the changing needs of seniors during this challenging time and urge the development of solutions to improve health and wellbeing in the low-SES senior population, especially during periods of crisis involving social restrictions.

I. Introduction

The COVID-19 pandemic has presented unique challenges to mankind- forced social isolation, intense fear and worry associated with going outside and getting sick, finding ways to occupy time without the company of others, online learning and remote work environments, etc. The list goes on. Challenges were present for all age groups, but one of the populations perhaps most affected by COVID-19 has been older adults who are most at risk for developing severe illness and dying from the virus.

i. Impact of COVID-19 Among Older Adults

A recent review study published in JMIR Aging on the impact of the pandemic on older adults found that the pandemic had caused an exacerbation of ageism, and "decreased social life and fewer in-person social interactions reported during the COVID-19 pandemic were occasionally associated with reduced quality of life and increased depression." The study also points to difficulties accessing services, sleep disturbances, and a reduction of physical activity during the pandemic (Lebrasseur et. al, 2021). A similar study reports on this lack of physical activity and the emotional burden caused by the pandemic, stating: "the reduction or complete interruption of physical activity …comes with an additional charge harmful to health. Thus, the older adult isolated in an impoverished environment of regular social, cognitive, and sensorimotor stimulation will worsen health conditions and, even, can lead to a lonely and premature death (Grolli et. al. 2021). A plethora of studies report similar findings, particularly in terms of worsening mental health among older adults during the pandemic (Tilburg et. al. 2020, Garcia-Esquinas et. al. 2021).

Contrary to the evidence presented by these studies, however, a survey-based study done by the CDC on the impact of the pandemic across age groups found that seniors were actually less negatively impacted by the mental health outcomes compared to other age groups, perhaps as a

function of older adult resiliency and a lower stress reactivity in older adults. The study reports that "participants aged 65 years or older reported significantly lower percentages of anxiety disorder, depressive disorder, or trauma- or stress-related disorder (TSRD) than participants in younger age groups." This study found a disproportionate impact of the pandemic between subgroups "especially young adults, Hispanic persons, black persons, essential workers, unpaid caregivers for adults, and those receiving treatment for preexisting psychiatric conditions" (Cszeisler et. al. 2020). In terms of the finding on older adult resiliency, a cross-sectional study conducted in Spain on mental health during COVID-19 reports similar results, noting that "older age (60-80 years) compared with younger age (40-59 years) was associated with lower rates of anxiety, depression, and posttraumatic stress disorder (PTSD)." In this study, women were found to be disproportionately affected, experiencing a "higher prevalence of anxiety, PTSD, and depressive symptoms than men" (Gonzalez-Sanguino et. al. 2020; Vahia et. al., 2020). These studies were done during the early stages of the pandemic, however, so they do not capture the more long-term effects of COVID-19 as it played out over the following year.

Taken together, these results suggest that the true impact of the pandemic on older adults is not yet well-understood, or at the very least is heterogenous (Kivi et. al. 2021). While some literature points to the negative impacts of the pandemic on older adult health and wellbeing, other literature suggests that older adults have been less affected by the pandemic than other age groups. Further research is needed to assess the impact of the pandemic on older adults and whether this impact differs between subgroups (ex. age groups, sexes, those in various living conditions, etc.).

On the topic of social isolation and loneliness among older adults, there exist consequences beyond individual health and wellbeing. A study done by the American Association of Retired Persons (AARP) examined Medicare spending data and found that "a lack of social contacts among older adults is associated with an estimated $6.7 billion in additional federal spending annually." The

study goes on to talk about the increase in mortality for people that are socially isolated, stating "subsequent risk of death is about 50 percent higher for those who are socially isolated at baseline" (Flowers et. al, 2017). This study reveals that social isolation and poor mental health among older adults are not just issues of quality of life and mortality for these individuals, but also are a burden on society. There is reason to believe that any mental health issues and isolation exacerbated by the pandemic may be diminishing health and wellbeing for seniors overall and only increasing costs to the healthcare system.

ii. Added Challenges Faced by Low-socioeconomic Status (SES) Seniors

More specifically looking at low-SES seniors, these individuals face additional challenges unique to the intersection of age and socioeconomic status. For one, housing challenges are rampant and often overlooked in the low-SES senior population (Golant 2002, Salkin 2009). One study published in the Journal of Aging and Social Policy states that "adequate housing is critical for low-income older adults, who face affordability and accessibility challenges that affect their quality of life, health, and ability to live independently in their communities" (Stone, 2018).

Another issue faced by low-SES seniors is food insecurity. A 2018 analysis by the US Department of Agriculture reports that "more than 2.9 million food-insecure households included an adult age 65 or older," and that "households with older adults represent a considerable share of the food-insecure population: about 21 percent of all food-insecure households include an adult 65 or older." The study goes on to explain the consequences of food insecurity, citing a variety of health problems that arise as a result: "diabetes, fair or poor health status, depression, lower cognitive function, limitations in activities of daily living, hypertension, congestive heart failure," and much more (Hartline-Grafton, 2019). The association between food insecurity and physical and

mental health is significant and poses as a unique challenge faced by the low-SES senior population, which may have been further exacerbated by the pandemic and changing access to food.

Additionally, low-SES seniors face problems when it comes to adequate healthcare. A study published in the Health Care Financing Review discusses this: "Low-income elderly people are particularly vulnerable because they are more likely to be experiencing health problems that require medical services than those who are economically better off, but are less able to afford needed care because of their lower incomes" (Rowland & Lyons, 1996). Low-SES seniors are more likely to be worse off in many aspects of physical health and wellbeing than higher-SES seniors, which, when coupled with the pandemic's impact on health for all seniors, leads to a dangerous combination for health prospects among the low-SES elderly. Needed is an understanding of how the pandemic has worsened issues at the intersection of older age and low-SES.

iii. Importance

The following research examines how the pandemic has uniquely affected the particularly vulnerable low-SES senior community, with the aim of ultimately improving how this vulnerable population is supported. Mental health, physical health, and social wellbeing are all important tenets of human life, and more research is needed that explores how the various aspects of human health have changed during the unparalleled circumstances the pandemic has thrown at mankind. This study is one of the first to look at data from low-SES seniors approximately one year after the start of the pandemic, allowing for a better understanding of the impact of COVID-19 beyond the initial adjustment period. The results of this study can help guide care services and programming and initiatives for low-SES seniors based on the needs identified, and further research can be driven by the questions raised in this paper.

II. Objectives and Aims

With a focus on two Bay Area low-SES senior communities, the following research has three main aims.

Objective 1: Examine the impact of the COVID-19 pandemic on areas of general health and wellbeing, including physical health, sleep quality, mental health, and diet and nutritional patterns.

Objective 2: Examine the impact of the pandemic on connectedness and social wellbeing, specifically in areas like perceptions of social support, community connectedness, loneliness and isolation.

Objective 3: Examine differences between men and women and between age groups in terms of the impact of the pandemic on the aforementioned areas. Examine the relationship between the number of individuals in one's household and the impact of the pandemic.

The hypothesis for this study is that the COVID-19 pandemic has led to increased feelings of social isolation and a decline in areas of health and wellbeing among low-SES seniors, especially for women, the oldest of seniors, and individuals living alone. Any parts of this hypothesis found to be true will indicate a need for greater social support and services to improve health and wellbeing in low-SES seniors and perhaps in specific subgroups.

III. Methods

i. Overview and Recruitment

This mixed methods study consisted of two components- a paper-based survey portion, which all participants filled out, and a follow-up interview portion, which only a small subset of participants completed. White Pony Express (WPE), a food rescue organization that delivers food to low-SES Bay Area residents, was a partner in the study given the range of their contacts with low-SES senior communities through their food delivery program. The largest affordable housing

communities they deliver food to are the Community Heritage Senior Apartments in Richmond, CA and Plaza Towers Apartments in Concord, CA. Thus, these locations, housing a total of 300 low-SES senior residents all aged over 65, were chosen as the two sites of recruitment. During the study period, April 2021 to June 2021, both residences were under the same restricted conditions that had been in place since March 2020, with strict requirements on masking and social distancing despite most residents having been vaccinated at the time of data collection. Residents were allowed to leave their apartments during this time but not allowed to gather in any common spaces such as dining halls or gym facilities (all common areas were closed). Additionally, attaining food, which used to be a social market-style grocery experience for these residents hosted by WPE, became a doorstep delivery system during the pandemic in order to facilitate social distancing. However, while WPE typically provides food to residents in both the Plaza Towers and Heritage communities, WPE stopped food deliveries to Plaza Towers during the pandemic.

Given that staff at both locations identified residents as generally being healthy and living without cognitive impairments or nursing support, almost all residents were included in recruitment procedures. Since study materials could only be produced in English and Spanish, only English and Spanish speakers were included. A total of 293 surveys were sent out of which 117 participants completed the survey (survey response rate: 40%); however, 24 of the surveys were either largely blank, illegible, or the respondent had clearly not understood the instructions in each section. These surveys were not included in the final analysis, yielding a total of 93 final surveys. All but four surveys were completed in English. All participants were healthy volunteers who consented to participating in the study, and all study materials were approved by the IRB prior to distribution.

ii. Survey Design and Procedures

With the help of WPE, specifically Executive Director Eve Birge and Manager Ana Bostick, a 6-page printed survey was designed and disseminated to each resident's doorstep along with their regular weekly food deliveries. There were no prior recruitment procedures or advertising. Recognizing the importance of community-based participatory research (Israel et. all. 2001), the administrations of both residences were contacted to incorporate any areas of interest that their communities could benefit from learning about. Thus, the survey was a combination of research interests from the research team involving the impact of the pandemic on health and wellbeing among low-SES seniors, from WPE involving the impact of their food delivery program on increased food insecurity during the pandemic, and from the staff of Heritage and Plaza Towers involving opportunities for increased programming and services for their residents.

The survey was designed by the research team and loosely adapted from the UCLA Loneliness Scale (Russel et. al), the CSQ Acceptability Scale (Larsen, 1979), and the Geriatric Depression Scale (Sheikh & Yesavage, 1986). It was printed rather than online to avoid any technology issues and consisted of four main sections: WPE food deliveries, the impact of COVID-19 on general wellbeing, the impact of COVID-19 on health and nutrition, and the impact of COVID-19 on connectedness, support, and wellbeing. Each section was slightly different, but the basic format involved Likert scales from "Best to Worst" or "Never to Always" or "Poor to Excellent." Participants were asked to rate their experiences and emotions from prior to the onset of the pandemic and in the present day, almost a year after the pandemic's onset. There were a few open-ended questions as well in which participants could share their thoughts more freely. The cover page of the survey described the purpose of the research and informed participants of the anonymous, optional nature of the survey- completion of the survey indicated consent to participate. The final page of the survey contained a set of demographic questions and information on how

participants could contact the research team for a follow-up interview if they wanted to discuss their responses further. A sample page of the survey is shown in Figure 1, and the entire survey is included in the Appendix. Additionally, a summary of all relevant survey items and corresponding Likert scale values is included in Table 1 for ease of reference.

Table 1: Summary of Survey Items

Topic	Definition	Number of Items (Pre-COVID)	Number of Items (Current)	Scale Values	Cronbach's Alpha Values	Sample Item
Impact of COVID-19 on general wellbeing	Assessing diet and nutrition, physical health, sleep, mental health, and social networks	5	5	1: Worst 5: Best	Pre-COVID items: 0.791 Current Items: 0.787	"Rate your social and emotional support network."
Impact of COVID-19 on connectedness, support, and wellbeing	Assessing social wellbeing and isolation	7	7	1: Strongly Agree 5: Strongly Disagree	Pre-COVID items: 0.848 Current items: 0.871	"Rate the statement: I feel connected to my community"

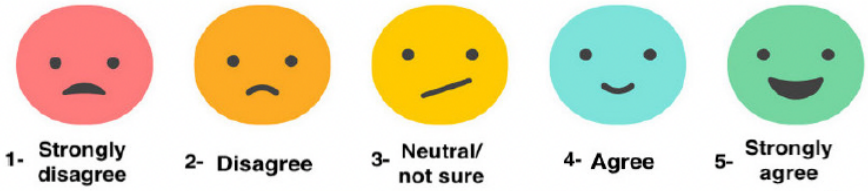
Pilot testing was conducted with seven individuals, some of whom were older adults and some of whom were directors from WPE. Pilot testing allowed for the identification of gaps and areas of the survey that needed revision for clearer understanding. After revising the survey based on the feedback received, the final version was translated into Spanish by the Stanford Hospital translation service and approved by the IRB.

Once participants completed their surveys, they placed and sealed them into manilla envelopes that were provided along with the deliveries. All participants placed their completed

SECTION 4: CONNECTEDNESS, SUPPORT AND WELLBEING

For this portion, consider how true the following statements are in your life. Please think about these statements **prior to the COVID-19 pandemic**, and then think about them **since the pandemic began.**

Rate how much you agree with the statements from 1 to 5 on the scale, 1 representing "strongly disagree", and 5 representing "strongly agree".



1) Rate each statement considering your life before and after COVID.	**PRE-COVID**	**NOW**
A) I feel connected to my community.	_____	_____
B) I feel support from those around me.	_____	_____
C) I feel lonely and isolated from others.	_____	_____
D) I have people who I can call or write to.	_____	_____
E) I know there are people who I can turn to for support.	_____	_____
F) I feel that there are people close to me who understand me.	_____	_____
G) I often eat in the company of others.	_____	_____

2) How has the COVID-19 pandemic affected your life? (eg. access to food, connection with others, general health and wellbeing).

3) Have you received the COVID-19 vaccine? Circle one. Yes No Declined

4) In the last 12 months, have you visited a healthcare provider? Circle one. Yes No

4

Figure 1: Sample page of the survey

surveys into their personal mailboxes, which were then collected by a trusted WPE volunteer and returned to the WPE headquarters for storage. Collection from resident mailboxes occurred weekly for one month, and a reminder one-page letter was delivered to all residents to encourage more responses halfway through the collection period. All respondents were compensated with a box of See's candies as an incentive for completing the survey, delivered to their mailboxes upon collection of their sealed envelope.

iii. Interview Procedures

A half-page informational sheet was included along with the survey encouraging participants to contact the research team for a follow-up conversation about their responses. A total of seven individuals contacted the research team, of whom five completed the interview. By the fifth interview, several repeated key themes had been identified and data saturation had been reached, reducing the necessity for further interviewing.

Qualitative interviews were designed to be guided informal conversations lasting 30-40 minutes, and all data from the interviews were kept confidential. Prior to starting the interview, participants were educated on their rights in research and informed consent was obtained. The interviews were semi-structured- participants were asked a set of broad questions about the impact of COVID-19 on wellbeing, isolation and physical, nutritional and mental health. Interviewees could steer the conversation in any direction that was comfortable and of interest to them, often leading to many rich anecdotes and stories of personal experiences from the past year. Prior to the interview portion of the study, interviewers Komal Kumar and Dilanaz Unal were trained by Dr. Michaela Kiernan, a Stanford Professor in the Department of Medicine, in best practices and protocols in qualitative interviewing. All interviews were conducted over the phone and were recorded but not transcribed. While one person interviewed the subject, the other took detailed notes throughout the

conversation for ease of reference back to the recording. Once the interview had terminated, all identifying participant data, including names and phone numbers and contact information, were stripped of the recordings for confidentiality purposes. The script and full set of interview guiding questions are included in the Appendix for reference.

iv. Data Analysis

In analyzing the survey data, a series of statistical tests were conducted. The first set of tests focused on internal consistency to examine how closely items in each section were related to each other. Coefficients of reliability, also known as Cronbach's alpha values, were calculated. While in almost all survey items, a higher rating indicated a positive improvement in function, one item was phrased in the opposite direction where a higher rating indicated a decline in function. Prior to Cronbach's alpha calculations and scale formation, this item was reverse coded so that higher ratings could indicate an improvement in function to align with the remainder of the items. The next group of analyses were a set of paired-samples t-tests to explore the first and second objectives of the study: to examine the impact of the pandemic on areas of general health and wellbeing, including physical health, sleep quality, mental health, and diet and nutritional patterns; and to examine the impact of the pandemic on connectedness and social wellbeing, specifically in areas like perceptions of social support, community connectedness, loneliness and isolation. The final set of survey analyses consisted of linear regressions to explore any differences in the impact of the pandemic by gender, age, and the number of individuals in one's household. These analyses were conducted to explore the third objective of the study. In order to run the linear regressions, change scores for each variable were calculated as the difference in each individual's rating from prior to the onset of the pandemic and the present day. Change scores were then compared between groups. For all analyses, a threshold of $p<0.05$ was used to determine significance.

In analyzing the interview data, each interviewees responses were categorized based on mentions of key themes and notable quotes were pulled to support survey data and explore ideas around programming and social support. Using the notes recorded during the interview sessions, the research team was able to return to the recordings and transcribe selected parts of each interview based on key information or themes mentioned. These quotes were then adjusted for coherence and readability, with any changes or filler words included in brackets. All results and corresponding analyses are included in the following section.

IV. Results and Analysis

i. Sample Characteristics

While some participants did not answer some of the demographic questions, the following information was retrieved from the survey, summarized in Table 2. The sample was predominantly female (72%), non-Hispanic White (58%), between the ages of 70-80 years old (48%), and living alone (68%). Compliance with and attention to healthcare was high in the sample, with 90% of individuals having received the COVID-19 vaccine and 89% of individuals having seen a healthcare provider in the past year. The extent of missing data on participant characteristics ranged from 1% for COVID-19 vaccination status to 4% for race/ethnicity and sex.

Table 2: Demographic and Other Characteristics of the Sample (N=93)

Characteristic		N	%
Sex	Males	22	24
	Females	67	72
	Not Reported	4	4
Race/Ethnicity	White	54	58
	AAPI*	21	23
	Hispanic/Latino	12	13
	Other	6	6
Age	<60 years old	3	3
	60-70 years old	18	19
	70-80 years old	45	48
	80-90 years old	23	24
	90+ years old	3	3
	Not Reported	1	1
Individuals in Household	0 (alone)	63	68
	1 other individual	19	20
	2 other individuals	9	10
	Not Reported	2	2
Current Relationship Status	Married	12	13
	Separated	36	39
	Widowed	25	27
	Single	16	17

	Not Reported	3	3
COVID-19 Vaccine	Taken (Yes)	84	90
	Declined (No)	8	9
	Not Reported	1	1
Healthcare Provider Visit in Past Year	Yes	83	89
	No	8	9
	Not Reported	2	2

*AAPI: Asian American and Pacific Islander

ii. Internal Consistency

In terms of the impact of COVID-19 on general wellbeing, the scale used had Cronbach's alpha values of 0.791 and 0.787 for pre-COVID items and current items, respectively. This indicates a high internal reliability for the scale. In terms of the impact of COVID-19 on connectedness, support, and wellbeing, this scale had high Cronbach's alpha values as well, with 0.848 and 0.871 for pre-COVID items and current items, respectively. Thus, items in both sections were closely related to one another.

iii. Paired Samples t-tests

For all five questions addressing various aspects of general health and wellbeing, the sample's mean ratings indicated a statistically significant decrease in their wellbeing from pre-COVID to present day. The change in average scale scores between pre-COVID and present day was also significant. Test results, along with the mean ratings for each question, are included in Table 3. The mean ratings for each item were between 3 to 4, which for this scale indicated values between "neutral (3)" and "good (4)."

Table 3: Paired Samples Analyses on the Impact of COVID-19 on General Wellbeing

Item	Pre-COVID Mean Rating	Present Day Mean Rating	T-statistic value	Degrees of Freedom	P-value
"Your health status in terms of diet and nutrition."	3.84	3.54	2.69	81	0.009
"Your physical health."	3.62	3.22	3.28	81	0.002
"Your sleep quality."	3.48	3.23	2.21	81	0.030
"Your mental health."	3.83	3.52	2.57	81	0.012
"Your social and emotional support network."	3.94	3.58	2.72	80	0.008
Average Wellbeing Scale Score	3.71	3.42	3.42	82	0.001

Paired-samples t-tests to examine social connectedness and isolation showed significant declines in four of the seven items. Test results, along with the mean ratings for each question, are included in Table 4. Mean ratings of 2 to 4 for this scale indicated values between "disagree (2)" and "agree (4)." Significant were declines in connection to one's community, having people to call or write, and frequency of eating with people, while feelings of loneliness and isolation increased. The change in average scale scores between pre-COVID and present day was also significant. Nonsignificant were changes in feeling understood by close others, support from surrounding individuals and confidence in people to turn to for support.

Table 4: Paired Samples Analyses on the Impact of COVID-19 on Connectedness and Social Wellbeing

Item	Pre-COVID Mean Rating	Present Day Mean Rating	T-statistic	Degrees of Freedom	P-value
"I feel connected to my community."	3.69	3.20	3.10	80	0.003
"I feel support from those around me."	3.74	3.62	0.90	80	0.372
"I feel lonely and isolated from others."	2.28	2.61	2.06	78	0.043
"I have people who I can call or write to."	4.10	3.90	2.32	79	0.023
"I know there are people who I can turn to for support."	3.98	3.89	0.90	79	0.373
"I feel that there are people close to me who understand me."	3.82	3.68	1.44	78	0.153
"I often eat in the company of others."	3.09	2.49	3.60	79	0.001
Average Connectedness & Social Wellbeing Scale Score	3.74	3.47	2.67	80	0.009

iv. Linear Regression Analyses

In comparing responses between males and females, none of the comparisons were significant. In addition, none of the comparisons by age group reached statistical significance. However, in terms of the relationship between the number of individuals in one's household and the impact of the pandemic, two main areas were significant- social networks and feelings of loneliness and isolation. The more individuals a person had in their household, the less they experienced a decline in their social networks during the pandemic ($B=0.446$, $p=0.015$). An increasing number of individuals in the household also meant significantly less feelings of loneliness and isolation during the pandemic ($B=0.450$, $p=0.05$).

v. Interview Themes

The five interviews conducted generally supported results from the surveys. Two of the interviewees were male, and three were female.

Fear and Worry

One theme identified was a newfound sense of fear and worry associated with the pandemic, especially surrounding access to food and the potential of catching the virus. When asked about how the pandemic had personally impacted participant 1 (male), they stated: *"I didn't have any food, no contact with friends, worrying will I get sick?..."* They also cited key words such as "anxiety" and "irritation," stating *"the anxiety factor is higher and different for me."* Participant 4 (female) shared a similar sentiment in response to the question, stating: *"Anxiety was the first time I experienced. At first, I was very nervous about the virus since it was announced that people who catch it will die…And I was nervous about things like rent and finances and expenses and food. I rely on outside sources so when everything shut down I didn't know if I was going to get that [help]."*

Loneliness and Isolation

The next major theme was a sense of loneliness and isolation from friends, and for two individuals, even the loss of partners during the pandemic. Participant 1 stated: *"I used to go out and suddenly I don't. Isolation has been my biggest barrier. I like to do work and run small businesses and socialize at other people's homes. So [because of the pandemic] everyone was just home and on the phone or Zoom."* Participant 3 shared: *"A week before the COVID lockdown started, my husband's health started to decline. His condition got worse, and he had to go to a nursing facility.. You can normally go visit them but because of the restrictions I couldn't go see him unless through a window which was very disturbing."* Their partner passed soon after, and she now *"is home alone a lot, missing him a lot."* She indicated that *"living with something new was difficult especially since*

I had nobody to talk to…I am tired of it all, I want to be out with friends. My whole life has changed and I am living differently. I am living alone now." Participant 4 shared a bit about the atmosphere at their residential community: *"The quietness around everything was hard, everything was closed. I had to adjust my lifestyle since I couldn't go out anymore…Most people I know got depressed and unhappy, they started drinking or taking pain killers. TV became our best friend. I watch Netflix and foreign movies to pass the time."* Though it wasn't a major topic in the conversation, this individual also mentioned that their partner had passed during the pandemic, which *"got [her] depressed. [They] started taking a pill."*

Lack of Information and Support

Another theme identified was a lack of transparent information or support resources, which were cited by several of the participants. In response to a question about any resources or support the participants wished they had received during the pandemic, Participant 1 shared: "*I had to look for recourses for counselling and food and medical help by myself. However, not just for food or psychotherapy, you just need help. Worship services via Zoom have been helpful to me…[but] more social, psychological, and spiritual help and support are needed. You can have food, but if you don't have spiritual services and help it is not whole and complete."* They stated that they were *"a regular at church and now can't go at all. Doing church at home is different, there are a lot of distractions at home."* Participant 3 (female) indicated a similar need for support, stating *"It would have been easier if there was someone to go to for answers when I needed it. We pretty much just had information on what we were and weren't allowed to do, we couldn't go outside and were inside mostly. Having a point person to go to for support and questions would have helped…[like] a reliable source of information in the building to get resources from."* This participant also pointed to logistical barriers due to the pandemic: *"My daughter lives far away, a couple hours, so it was hard to go to her. If someone in the building could have driven me places or gone to get groceries that would've helped since I couldn't do it myself anymore."* Participant 4, when asked if they wanted to add anything to their responses at the end of the interview, made the point

that *"something this serious [in reference to information on the pandemic] should have been translated into many languages and blasted around. There are many people of many languages living here. They all had secondhand information that might be misinformation. The CDC should have educated people much better, or the president."* Participant 2 (male) added to this sentiment on the lack of cohesive information available to their community, stating *"The unknowns was the biggest problem…we couldn't get any decent information about the pandemic. [Our building] did a good job and complied with the legal rules and stuff but they weren't paying much attention to anything else."* However, this participant shared that one service, the ability to shop for groceries where *"some stores had senior shopping times early in the morning for us to avoid the public"* was helpful.

Lifestyle Changes

A final theme identified was significant changes to each participant's daily lifestyle. Participant 2 stated *"My physical activity was limited so I gained a lot of weight. This made me have sleep issues and I can't sleep as well anymore."* They also stated that they *"ate a lot more and cooked at home a lot more than before."* Participant 3 agreed with this sentiment, sharing that *"Before COVID I would go out a lot more and would go to the exercise room in Heritage's building. I need to exercise my legs for strength since the doctor recommended a bike for me, but now I can't go to the gym."* However, this participant stated that the increase in cooking at home has *"helped me eat a lot healthier since I used to eat out a lot before the pandemic."* Participant 4 echoed that *"the lack of activity was a big problem…I gained weight during COVID because I wasn't able to go to the gym. There was a mini-gym, but it wasn't any good, so I didn't go."* Finally, Participant 1 stated that their routine had changed heavily, since *"I normally am an early riser and have activities to do like go out go to my friends' houses and socialize and run my businesses but now after COVID I have been waking up at 6:30am in the morning and I have nothing to do the whole day. I watch movies a lot."*

V. Discussion

The survey and interview results mostly aligned with the hypothesis that the COVID-19 pandemic has resulted in a significant decline in the health and wellbeing of low-SES seniors. An increase in isolation and loneliness and a decline in general health and wellbeing were indicated by the survey results. Interview findings revealed four major themes that largely supported the survey data, where participants indicated a lack of social support and an increase in feelings of isolation and time spent alone. However, the interviews helped identify new themes that were not accessible in the survey, such as gaps in programming and services and details on how daily routines have changed as a result of the pandemic. Thus, the interviews revealed in-depth information and stories that the survey could not provide, and the information gained from interviews paired well with the survey data to provide a more complete picture.

i. Pandemic Impact on General Health and Wellbeing

In terms of the first objective, to examine the impact of the pandemic on general health and wellbeing, it was found that the pandemic resulted in a decline in diet, nutrition, physical health, mental health, and social wellbeing. This finding was consistent with the first hypothesis. Survey data showed significant declines in each of these areas, and interviewees pointed to major changes in their daily routines, including changes to their sleep quality, physical activity, diet patterns, and sources of entertainment. This information supports a previous study published in JMIR Aging, which points to disruptions to sleep patterns and a reduction of physical activity for seniors during the pandemic (Lebrasseur et. al, 2021).

A major theme regarding mental health arose surrounding anxiety and fear of the unknowns in the pandemic, which may have been mitigated by better information and more easily accessible resources for support. Interview data pointed to a lack of transparency from residential staff and

agencies like the CDC and the office of the President, and a lack of proper information resources. This finding is supported by a recent study on the necessity of ensuring access to information during COVID-19 for older adults, who are "less likely to obtain high quality information or services online" given that their "adoption and use of technology lags that of younger cohorts" (Xie et. al. 2020). The findings in this study that many seniors experience low technology literacy, coupled with the lack of access to technology that many low-income individuals face (Voelker, 2005), indicate a severe digital divide and resulting barrier to information retrieval for low-SES seniors. During periods of crisis like the pandemic, this lack of access to information can be scary and alienating.

ii. Pandemic Impact on Social Connectedness and Isolation

In terms of the second objective, to examine the impact of the pandemic specifically on social connectedness and isolation, it was found that generally, isolation and loneliness increased in this sample during the pandemic. This finding is supported by a similar study on the effect of COVID-19 on loneliness among Austrian community-dwelling elderly, where it was found that as compared to pre-COVID-19, "loneliness in the elderly population had in fact risen slightly during the COVID-19 pandemic and its associated safety measures" (Heidinger & Richter 2020). Perhaps more frequent virtual or distanced social programming and novel avenues for seniors to connect with one another would have helped mitigate feelings of isolation during this time. A review study on the impact of social isolation due to COVID-19 in older people makes several recommendations for maintaining mental health and social wellbeing in older people during periods of quarantine: increasing the use of digital resources, online tools, and social media; reducing boredom and improving communication through telephone support lines and support groups; and providing practical social connection strategies to seniors (Sepulveda-Loyola et. al. 2020).

According to a policy brief by the University of California, San Francisco on the impact of COVID-19 in multiethnic older adults, community-based organizations are helpful for older adults in the community "seeking basic resources, information, and social interactions." The brief reports on social isolation and mental health more specifically, indicating that individual telephone check-ins for those without online capability to join community-based activities, as well as paired wellness checks with meal delivery services (such as WPE's delivery program), may be useful to "have eyes on our older adults." In addition, to address the technology issues faced by low-income seniors, the brief recommends "IT education and support for clients: tutorials, virtual volunteers, phone support, family assistance, and in-person computer labs when permitted" (Karliner 2021). The detail on providing for those without online capability supports the need for reducing the digital divide, as also mentioned by both Xie and Voelker's studies, as well as the National Council on Aging's findings that "the digital divide means less than half of older adults have what they need to stay connected virtually. Only 38% are comfortable using the internet, and 49% have broadband access" (NCOA 2021). Better technology access could mean more access to information on the pandemic, which several participants in the present study indicated was lacking.

The mention by one participant of an increase in drug usage and depression in the residential community was concerning and presumably not unique to the sample studied- it is reasonable to assume that other communities of older adults may be similarly suffering from quietness and solitude and turning to drugs or medications to cope. In a similar vein, several recent studies have pointed to a potential increased risk in suicide among older adults (Troutman-Jordan & Kazemi, 2020, Wand et. al. 2020). One study states that "in a pandemic environment of social lockdown, older people may be especially vulnerable to suicide through a heightened sense of disconnectedness from society, physical distancing, and loss of usual social opportunities, as well as greater risk of anxiety and depression" (Wand et. al. 2020). This increase in suicide risk may also be attributed to

the increasing frequency of older adults losing partners during the pandemic: two of the five interviewees in the present research indicated distress caused by the loss of a partner in the past year. Perhaps more hands-on counselling or therapy services for such individuals undergoing loss, especially during periods of intense social isolation, could be helpful- community-based organizations focused on therapy and counselling may be able to help (NCOA, 2021).

It was interesting to see in the survey that the statements "I know there are people who I can turn to for support" and "I feel support from those around me" did not show significant declines in ratings during the pandemic. This finding is promising, indicating that individuals generally still felt supported by their closest circles despite the lack of communication avenues and perceptions of support from surrounding community members.

iii. Subgroup Analyses- Living with Others Decreases Impact of Pandemic

The finding that participants living with more individuals in their household experienced less of a decline in the quality of their social networks is logical given the inherent sense of company that living with others brings. In the same vein, these individuals also were more likely to eat in the company of others. These findings are supported by Heidinger and Richter's study on isolation among the elderly during the pandemic, where "participants living with at least one person reported to be less lonely than participants who were living alone" (Heidinger & Richter 2020). Perhaps living groups or assigned living pods may be helpful to decrease the sense of isolation felt by seniors during periods of social restriction, such as future pandemics or natural disasters.

In terms of the comparisons of sex and age groups, none of the analyses met the criteria for statistical significance, including regression tests using average scale change scores for both the general wellbeing and social connectedness scales. However, several comparisons warrant future examination in larger samples. For example, though the power for sex comparisons was limited in

this study given the small number of men in the sample compared to women, recent research suggests that COVID-19 has disproportionately affected women. A review examining such sex differences in all ages reports an increase in intimate partner and gender-based violence during the pandemic and a heavier burden of caretaking roles for women, all of which have resulted in negative health effects (Connor et. al. 2020). Further research encompassing more participants with a more balanced distribution of male and female respondents could examine whether the sex-differences found in Connor's study hold true for the low-SES senior population.

iv. Strengths and Limitations

This research was not free of limitations. Though the research team worked hard to identify ways to ask people about the impact of COVID-19 over time, given the nature of the study being cross-sectional rather than longitudinal, people's wellbeing prior to COVID was only assessed through recall. This means the study may inherently suffer from recall bias. A related limitation is that the nature of the questions could be considered leading. When asking a participant about how they felt prior to the pandemic compared to one year later, they may cite their present state of being as worse than prior to the pandemic as a result of the expectation that COVID-19 has necessarily worsened health. This response bias may have played a role in the findings that all areas of general wellbeing were significantly lower than prior to the pandemic, though this did not hold true for the section asking more specifically about social connectedness. Another limitation regarding the nature of the study, both the survey and interview portions, was that it was all self-report based. Outside metrics or measures of things like physical activity or lifestyle changes were not used in this study.

A strength of this study lies in the survey design, which was rigorous and effective for the sample studied: pilot testing and the high Cronbach's alpha values on each scale support the inter-item consistency and reliability of the survey. The sample size of 93 participants was sufficient to

detect meaningful effects in the sample; however, subgroup analyses were restricted to smaller numbers and gender and age groups were unbalanced. The survey response rate was fair at 40%, calculated as the total number of surveys returned divided by the total number of surveys distributed. Perhaps a wider array of recruitment strategies such as fliers or announcements sent out prior to survey distribution may have increased participation. In terms of the qualitative interview component, a larger sample size may have revealed alternate themes. However, based on the fourth and fifth interviewees largely reiterating the same points that the first few interviewees discussed, data saturation had likely been reached.

In terms of generalizability, it is important to note that all respondents were healthy volunteers who did not require cognitive or nursing support of any kind. Respondents were required to complete the survey by hand and independently, necessitating the motor skills involved in handwriting and literacy skills involved in comprehension. The results may have been different had the sample been sicker or suffering from impairments of any kind, as is not uncommon of the older adult population. In addition, only English and Spanish speakers were studied due to a limitation on the range of languages available for study materials- results may have been different if individuals speaking other primary languages were included. Finally, since only low-SES seniors were studied, the findings may be specific to individuals who are low-SES and the unique challenges that they face- this study's results may not be applicable to older adults in other SES brackets.

v. Future Research and Implications

Given the number of limitations in this study, a number of directions are intriguing for future research. For example, an interesting question in terms of policy arises in considering whether the source of the effects seen in this study are primarily caused by the pandemic itself (for example, fear of the virus, fear of health consequences from the virus or the vaccine, etc.) or by the social

isolation restrictions placed on older adults in community living settings. While the present research found that isolation increased and mental health declined during the pandemic, only individuals living under the same restrictions were studied. Further research could perhaps compare the experience of individuals living in different communities with differing pandemic restrictions to examine any differences in the pandemic's impact related specifically to social restrictions.

In addition, while this research shed light on some of the services that are currently lacking and the initiatives and recommendations some organizations have put forward, it did not examine the impact of any programming or services already in place. Further research could explore existing initiatives in terms of their effectiveness on mitigating the effects of the pandemic. Dilanaz Unal's thesis, for example, explores the impact of WPE's established food rescue program on various aspects of health in low-SES seniors during the pandemic. Future students working with WPE may be interested in studying the impact that WPE's food rescue program had on food insecurity in other low-SES age groups during the pandemic, or the impact that food insecurity has had in general on health and wellbeing during this period of forced social isolation.

Finally, due to the timing of this study being conducted approximately one year following the start of the pandemic's restrictions, the long-term impacts of the pandemic could not be studied. It is currently unknown how temporary the impacts of the pandemic have been in all areas of wellbeing. A logical next step based on the findings of this study could be to examine the impacts of COVID-19 on aspects of human health several years from now.

Overall, the results support the need for more support and better outlets for low-SES seniors in terms of their physical activity, social connectedness, and mental health under conditions of required social isolation. Several models for supportive care for low-SES seniors can be suggested based on the findings of this study and recommendations from existing literature. First, seniors indicated a lack of reliable information and trusted individuals as a major barrier to their wellbeing

during the pandemic, pointing to the need for better information beyond the required information that was distributed regarding restrictions. Services in technology support (as mentioned by several previous studies) as well as counselling, spiritual and holistic health, and personalized services such as grocery shoppers, may be helpful to support the low-SES senior population. Second, since many respondents indicated anxiety surrounding resources they rely on and access to food, designated individuals (perhaps case managers or social workers) could be assigned to individuals who require extra support and reassurance. Third, information on physical activity options in the home, such as pamphlets or fliers teaching at-home exercises could be helpful given the restrictions on outdoor or gym-based activities, since many seniors indicated a significant decline in their physical activity and corresponding physical health. Finally, more programming targeted loneliness and isolation could be helpful: for example, perhaps frequent virtual activities geared towards community bonding, or frequent wellness checks by community-based organizations (as suggested by existing literature). Social isolation and feelings of disconnectedness can have significant long-term impacts on health, as shown in previous research, so any way that these feelings can be mitigated to improve mental health in the already vulnerable population of low-SES seniors is of great importance.

Several care initiatives that may address the concerns revealed this study were developed during the pandemic. An example of a mental health initiative is the World Health Organization's stress management guide developed during COVID-19, titled "*Doing what matters in times of stress: an illustrated guide*" (Kola et. al. 2021). This guide presents self-help techniques and audio exercises that can be practiced for several minutes each day. Another example is the *Socios en Salud* organization in Peru which developed a chatbot that engages with people to provide free automated depression screenings and referrals (Kola et. al. 2021). While neither of these initiatives were specific to the low-SES senior population, further research could identify similar solutions geared towards improving mental health in low-SES seniors.

The findings of this mixed methods study can drive the development of more initiatives to care for low-SES seniors who clearly need more support than they have received during the pandemic thus far. The unprecedented nature of the pandemic calls for innovation and more research into initiatives that low-SES seniors can benefit from during times of distress, including the present pandemic and any future pandemics that may arise.

VII. Appendix

Full English Survey

IRB Use Only
Approval Date: April 15, 2021
Expiration Date: Does not Expire

STANFORD UNIVERSITY Research Consent Form

Protocol Director: Komal Kumar

Protocol Title: Low-Income Senior Wellness Study

CAN YOU TAKE 8-10 MINUTES TO FILL OUT THIS SURVEY?

DESCRIPTION: Hello there! Our names are Naz and Komal, and we are two graduate students from Stanford University. We are conducting a research study to understand what health and wellbeing looks like in your community, especially during this challenging time with the ongoing pandemic. The survey includes questions related to physical health, mental health, diet and overall wellbeing in the light of COVID-19. If you choose to participate, a volunteer will come and collect your sealed, completed survey. This volunteer is unaffiliated with Plaza Towers.

TIME INVOLVEMENT: Your participation will take approximately 8-10 minutes.

RISKS AND BENEFITS: There are no foreseeable risks or benefits associated with the study. We cannot and do not guarantee that you will receive any benefits from this study. Your decision of whether or not to participate in this study will not in any way affect your care from Plaza Towers.

PAYMENTS: You will not receive a payment for your participation- however, **See's Candies chocolate boxes will be given to all residents who complete the survey.**

PARTICIPANT'S RIGHTS: If you have read this form and have decided to participate in this project, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled. The alternative is not to participate. You have the right to refuse to answer particular questions. This study is completely anonymous, meaning your names or other identifying information will not be asked or associated with the information you provide on the survey. The results of this research study may be presented at scientific or professional meetings or published in scientific journals. Your individual privacy will be maintained in all published and written data resulting from the study.

CONTACT INFORMATION: If you have any questions, concerns or complaints about this research, its procedures, risks and benefits, contact the research team at (415)-813-1008.

If you are not satisfied with how this study is being conducted, or if you have any concerns, complaints, or general questions about the research or your rights as a participant, please contact the Stanford Institutional Review Board (IRB) to speak to someone independent of the research team at (650)-723-5244.

Due to the coronavirus public health emergency, the federal government has issued a Declaration that may limit your right to sue if you are injured or harmed while participating in this COVID-19 study. If the Declaration applies, it limits your right to sue researchers, healthcare providers, any study sponsor, manufacturer, distributor or any other official involved with the study. However, the federal government has a program that may provide compensation to you or your family if you experience serious physical injuries or death. To find out more about this "Countermeasures Injury Compensation Program" please go to https://www.hrsa.gov/cicp/about/index.html or call 1-855-266-2427.

This copy of the consent form is for you to keep. If you agree to participate in this research, please complete the following survey.

SECTION 1: WHITE PONY EXPRESS

This first section asks about the White Pony Express food delivery program (delivered weekly on Mondays). Again, your responses will have no effect on your deliveries or relationship with White Pony Express, so please answer as honestly as possible.

1  2  3  4  5 

Using the above scale, please **circle one response per item.**

1. Rate the quality of the food you receive from White Pony Express.

1-Poor *2-Fair* *3-Average* *4-Good* *5-Excellent*

2. Rate the variety of the food you receive from White Pony Express.

1-Poor *2-Fair* *3-Average* *4-Good* *5-Excellent*

3. Rate your overall experience with the White Pony Express food program.

1-Poor *2-Fair* *3-Average* *4-Good* *5-Excellent*

4. Rate the quantity of food you receive from White Pony Express.

Too Little *Barely Too Little* *Exactly right* *Too Much*

For the following questions, please write whatever comes to mind.

5. How has your experience with White Pony Express been? What would you tell your family and friends?

6. If you would be interested in receiving inserts along with your food deliveries from White Pony Express, what would you like to see? (e.g. recipes, word search, comic strips, health newsletter, exercise ideas, etc.)

7. Prior to COVID-19, the White Pony Express food program was set up as a pantry-style shopping experience, where residents could select foods themselves. Due to COVID-19 restrictions, staff members now select groceries for you and deliver them to your doorstep. Which experience do you prefer? Circle one.

Pantry-style Shopping *Grocery Delivery*

Please elaborate on your choice here:

SECTION 2: IMPACT OF COVID-19

For this next part, please imagine a scale from 1 to 5, 1 being the worst possible outcome for you, 5 being the best possible outcome for you. Please give a rating from 1 to 5 to the questions, **first thinking about your life before the COVID-19 pandemic, and then thinking about your life since the COVID-19 pandemic began.**

1 **2** **3** **4** **5**

Worst **Best**

Using the scale above, rate each statement from 1 to 5.	**PRE-COVID**	**NOW**
A) Your health status in terms of diet and nutrition.	_____	_____
B) Your physical health.	_____	_____
C) Your sleep quality.	_____	_____
D) Your mental health.	_____	_____
E) Your social and emotional support network.	_____	_____

SECTION 3: HEALTH AND NUTRITION

For this section, please indicate how often each of the following questions is true. Imagine a scale from 1 to 5, 1 being "Never" and 5 being "Always", as shown below:

1	2	3	4	5
Never	**Rarely**	**Sometimes**	**Often**	**Always**

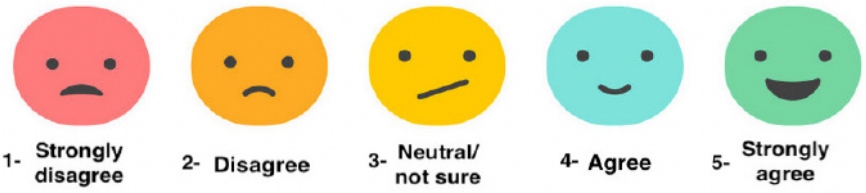
For each question, please answer **considering only the past 12 months.**
Place a check mark in the appropriate box.

	1	2	3	4	5
A) How often do you feel anxious about your food supply?					
B) How often do you feel hungry after eating a meal?					
C) How often do you feel hungry, without enough money to buy more food?					
D) How often do you feel anxious about running out of food?					
E) How often do you notice unintentional weight loss as a result of not having enough food?					
F) How often do you have trouble with unintentional weight gain related to your diet?					
G) How often do you eat less or skip meals because there isn't enough money for food?					
H) How often do you feel fatigue or have low energy due to lack of food?					
I) How often do you feel dizzy or light-headed due to lack of food?					
J) How often do you have issues with hair loss or brittle nails?					
K) How often do you notice white marks on your nails?					
L) How often do you have trouble staying full between meals?					

SECTION 4: CONNECTEDNESS, SUPPORT AND WELLBEING

For this portion, consider how true the following statements are in your life. Please think about these statements **prior to the COVID-19 pandemic**, and then think about them **since the pandemic began.**

Rate how much you agree with the statements from 1 to 5 on the scale, 1 representing "strongly disagree", and 5 representing "strongly agree".



1) Rate each statement considering your life before and after COVID.	**PRE-COVID**	**NOW**
A) I feel connected to my community.	_____	_____
B) I feel support from those around me.	_____	_____
C) I feel lonely and isolated from others.	_____	_____
D) I have people who I can call or write to.	_____	_____
E) I know there are people who I can turn to for support.	_____	_____
F) I feel that there are people close to me who understand me.	_____	_____
G) I often eat in the company of others.	_____	_____

2) How has the COVID-19 pandemic affected your life? (eg. access to food, connection with others, general health and wellbeing).

3) Have you received the COVID-19 vaccine? Circle one. Yes No Declined

4) In the last 12 months, have you visited a healthcare provider? Circle one. Yes No

4

SECTION 5: DEMOGRAPHICS

Please fill out the following demographic information by circling the answer.

1) What is your age? <60 60-70 70-80 80-90 90+

2) How do you identify? Man Woman Another Gender

3) How do you identify? You may circle more than one.

White African American/Black American Indian/Native American

Asian/Pacific Islander Hispanic/Latino Other _____

4) How frequently are you in contact with family and/or friends?

Daily Weekly Monthly Annually Never

5) How long have you been receiving food from White Pony Express?:

_____ years _____ months

6) How many individuals do you live with in your household?

0 (just you) 1 2 3+

7) What is your current relationship status? Single (never married) In a relationship/not living with partner

Married/living with partner Divorced/Separated Widowed

---------- **End of Survey** ----------

THANK YOU!!

Once you are finished, please place your completed survey into the Manilla envelope, seal the envelope, and drop it into the mailbox in front of your door.

Thank you for taking the time to participate in this survey. A White Pony Express volunteer will pick up your **sealed** envelope and drop off a box of See's Candies chocolates in your mailbox. Your responses will help us better understand wellbeing in senior communities and how we can better serve you during this challenging time.

CAN WE LEARN MORE FROM YOU OVER THE PHONE?

We would appreciate your participation in a separate interview following your completion of this survey. This interview is completely **optional** and **confidential**. It will be an informal conversation to explore topics such as resiliency, mental health, the impacts of COVID-19, and more. We want to learn from you and open the door to discussion. **Your interview will not be linked to your survey responses.**

If you are interested in speaking with us for 10-20 minutes, please give us a call at the following number and leave a voicemail stating your phone number, your general availability, and whether you would prefer a phone-call or video-based conversation. We will give you a call back at the number you provide. We are looking forward to speaking with you soon!

(415) 813-1008

For questions about participant rights, feel free to contact 1-866-680-2906.

Interview Script and Questions

Interview Guiding Questions & Script

Start off with verbal consent and the following information: Interviews will be kept confidential. They will be informal and semi-structured, giving participants the option to steer the conversation in the direction that is most comfortable to them. They will last around 10-20 minutes. If they agree, we will follow with the guiding questions listed below.

General Topics (from the survey):

- Impact of COVID-19
- Physical health
- Mental health
- Social wellbeing, connectedness, isolation
- White Pony Express food deliveries
- Food insecurity

Script for the Interview

"Hi, thank you so much for contacting us for this interview. First, we wanted to start off with a consent agreement if you do choose to participate, and then we will explain the structure and purpose of the interview. Does that sound okay?"

"Feel free to focus and dig deeper on any subject(s) or theme(s) that you wish to discuss, and how these topics have been of particular importance to you during the past year with the pandemic. By better understanding your perspective and experience, we hope to better serve the senior community and improve physical and mental health for all."

"The format of this conversation is up to you- we have a set of guiding questions that we can ask, or if there is something you already know you want to discuss we can also start there. Which do you prefer?"

If participants choose guiding questions, here are the questions we will follow. At the beginning of each section, we will ask: "We have some questions regarding _____, is this a significant topic you might like to discuss?" before proceeding with the questions, to ensure maximum participant comfort and relevance of the questions.

- **Impact of COVID-19:**
  - Can you talk a little bit about how the pandemic has affected you, whether physically, mentally, socially or other means? We wanted to open the floor to better understand your personal experience with COVID-19.
  - Has there been a particularly significant challenge or barrier that you experienced?
  - Has your daily life routine changed (meals, sleep, physical activity) as a result of the pandemic? How so?
  - Are there any resources or support that you wish you had received during this time?

- **Mental health:**
  - What are your thoughts on the impact of COVID-19 on your mental health?
  - Are there any specific words or phrases that come up when thinking about your mental health and wellbeing?
  - Have there been any stressful challenges or barriers you have had to experience in terms of your mental health and social wellbeing?
  - Have you experienced any anxiety surrounding changes in your life and daily routine due to the pandemic? This could be in terms of your diet, exercise, sleeping patterns, or overall wellbeing.

- **White Pony Express and the food delivery program:**
  - One area we are trying to study is the impact of the White Pony Express food delivery program. What are your thoughts about the White Pony Express food program?
  - In terms of your physical health, would you say your food provides adequate nutrition and fuel for your body? If there anything you would like to change regarding your food supply?
  - Has anything regarding your diet or meal schedule changed during the pandemic?
  - Has anything regarding your physical activity changed during the pandemic?
  - During a typical day, are you physically active? Going on walks? If not, what are some of the challenges and reasons why?
    - Has the pandemic affected this?

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