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# Unmet health-related needs of community-dwelling older adults during COVID-19 lockdown in a diverse urban cohort

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## Abstract

**Background:** Shelter-in-place orders during the COVID-19 pandemic created unmet health-related and access-related needs among older adults. We sought to understand the prevalence of these needs among community-dwelling older adults.

**Methods:** We performed a retrospective chart review of pandemic-related outreach calls to older adults between March and July 2020 at four urban, primary care clinics: a home-based practice, a safety net adult medicine clinic, an academic geriatrics practice, and a safety net clinic for adults living with HIV. Participants included those 60 or older at three sites, and those 65 or older with a chronic health condition at the fourth. We describe unmet health-related needs (the need for medication refills, medical supplies, or food) and access-related needs (ability to perform a telehealth visit, need for a call back from the primary care provider). We performed bivariate and multivariate analyses to examine the association between unmet needs and demographics, medical conditions, and healthcare utilization.

**Results:** Sixty-two percent of people had at least one unmet need. Twenty-six percent had at least one unmet health-related need; 14.0% needed medication refills, 12.5% needed medical supplies, and 3.0% had food insecurity. Among access-related needs, 33% were not ready for video visits, and 36.4% asked for a return call from their provider. Prevalence of any unmet health-related need was the highest among Asian versus White (36.4% vs. 19.1%) and in the highest versus lowest poverty zip codes (30.8% vs. 18.2%). Those with diabetes and COPD had higher unmet health-related needs than those without, and there was no change in healthcare utilization.

**Conclusions:** During COVID, we found that disruptions in access to services created unmet needs among older adults, particularly for those who self-identified as Asian. We must foreground the needs of this older population group in the response to future public health crises.

**KEYWORDS**

COVID-19, equity, geriatrics, shelter-in-place, unmet health needs

**INTRODUCTION**

The COVID-19 pandemic has profoundly impacted older adults, with severe illness and death being far more common in older persons than younger ones.<sup>1</sup> In the spring of 2020, many US municipalities enacted shelter-in-place orders to limit its spread. The shutdown of medical and social services that older adults rely on created a second set of challenges in the day-to-day lives of older adults as unmet health-related and social needs soared.<sup>2-6</sup> Medical practices stepped up to fill an unmet need and perform emergency triage of their patients' needs during the initial shutdown.

Healthcare providers offered telehealth and other remote communication solutions to maintain access for their people. However, technology has not been adapted to older adults, who as a result use technology less than younger adults at baseline and are more likely to have sensory and cognitive impairments that decrease their ability to use telehealth resources as currently designed.<sup>7</sup> Many were unable to navigate the push to telehealth and remote technology.<sup>8,9</sup>

Shortly after shelter-in-place orders were enacted, several primary care practices in our area identified that many older patients were lacking basic needs, and performed outreach calls to identify these needs and connect patients to resources when needed. Patients were specifically asked about missing medication refills, medical supplies, groceries, and caregivers, as these were needs that were identified as frequently being disrupted, potentially life-threatening, and areas in which providers or social services could likely intervene. During this time, practices prepared to change how care would be delivered, from almost exclusively in-person to primarily via phone or telehealth. In these same outreach calls, patients and families were asked about telehealth readiness and desire for a follow-up call from the provider, to triage when and how high-risk patients would be seen.

Although other studies have focused on social isolation,<sup>10</sup> well-being,<sup>11,12</sup> and falls,<sup>13</sup> few have described how lockdowns impacted the day-to-day care needs of vulnerable older adults. One study evaluated needs for assistance with activities of daily living and revealed gaps between needs for assistance and receipt of that assistance that widened during the COVID-19 pandemic in the United States.<sup>14</sup> To better describe this gap, we performed a retrospective chart review of the outreach calls performed by these primary care clinics. In this article,

**Key points**

- One quarter of community-dwelling older adults had an unmet health-related need (needing medicine, medical supplies, or food) when healthcare and social services were limited in the context of the pandemic.
- Asian older adults and those living in neighborhoods with higher poverty had the highest rates of unmet needs in this urban study.

**Why does this paper matter?**

The results of this study demonstrate the real-world impacts of shelter-in-place orders on vulnerable older adults living in the community. It provides evidence that specific populations had greater needs, specifically those who were non-English speakers, those who lived in zip codes with higher poverty levels, and those with both Medicare and Medicaid. We intend that readers of this article can cite these data when having discussions with local governments, particularly public health and social service agencies, about the need to create contingency plans to meet the needs of older adults should future epidemics or other crises necessitate shelter-in-place orders.

we describe the prevalence of unmet health-related needs during shelter-in-place among a cohort of older adult patients in primary care and their relationship to demographic factors, health conditions, and healthcare utilization.

**METHODS****Setting**

Shelter-in-place orders took effect on March 16, 2020. Due to the disruption in services, four adult or geriatrics-focused primary care practices affiliated with the University of California at San Francisco and the San Francisco Health Network performed outreach phone calls using volunteers and staff after the implementation of shelter-in-place orders. The four clinics included were as follows:

(1) an academic home-based primary care practice; (2) an academic geriatric outpatient clinic; (3) a safety net adult medicine clinic; and (4) a safety net clinic for adults living with HIV. Clinical leaders of each practice guided callers how to respond to identified needs, for example, creating a medication refill request if needed; clinical leaders were also available to assist callers if questions arose.

## Participants

The cohort included those patients that were actively empaneled at their respective clinics and successfully received an outreach call. At the home-based primary care practice and academic geriatrics practice, all community-dwelling people 60 years and older were called. At the adult medicine clinic, which had a larger patient population and slightly less staff capacity to make calls, people 65 and older without a recent visit (within March 2020) and with a serious condition (chronic obstructive pulmonary disease, diabetes, or congestive heart failure) were called. In the clinic for those living with HIV clinic, they included all adults 60 years and older. All clinics called until they reached their patients, except for the adult medicine clinic, which called a maximum of two times. We excluded patients who were not reached.

## Measurements

Calls were made between March 26, 2020, and July 28, 2020 and documented in the electronic medical record (EMR). We abstracted outreach call responses from the EMR retrospectively. Because the scripts and protocols varied slightly between sites, we report data from questions that were shared between sites.

First, patients were asked about health-related needs: whether they had (1) adequate medication refills, (2) adequate medical supplies for their needs (e.g., wound care dressings, oxygen, etc.), and (3) access to food. Second, two additional access-related needs were assessed: (1) their ability to perform future telehealth visits with their clinicians, and (2) whether they wanted a follow-up call from their primary care provider. A question about caregiver availability was included in the initial outreach phone call, but due to variability in how the question was asked between sites, that data were unable to be abstracted from the EMR and thus are not reported. Additionally, the adult safety net clinic did not ask about telehealth visits, as

this clinic did not implement telehealth protocols at the time.

## Data collection

Via chart review of the EMR, we abstracted data on factors that might affect unmet needs including demographics (age calculated from date of birth, self-identified gender, self-identified race and ethnicity, ZIP code, insurance type, and primary language); we used AskCHIS to obtain zip code-level data on the percentage of adults living under the federal poverty level, and stratified zip codes into four quartiles based into those with higher and lower local rates of poverty (<7.5% of adults in the zip code living under the federal poverty level, 7.5%–10%, 10.1%–12.5%, and >12.5%).<sup>15</sup> We abstracted information about medical conditions that we believed might affect the prevalence of unmet needs or determine the severity of its impact as present or not (hypertension, HIV, diabetes, heart failure, coronary artery disease, valvular disease, COPD, asthma, other lung diseases, cirrhosis, dementia, depression, history of falls, and urinary incontinence) using the ICD-10 codes listed in Table S1; acute care use in the 3 months before and after the outreach phone calls (defined as urgent care visits, emergency room visits, and hospitalizations); and deaths 3 months after the outreach phone call.

We abstracted responses to the outreach questions about health-related needs for medication refills (yes/no), for medication supplies (yes/no), or for food (yes/no) at the time of the call. We also abstracted responses to the questions about access-related needs for telehealth visits (there was a need if the patient was unable to switch from scheduled in-person visits to telehealth visits, for any reason) and wanted a follow-up phone call from their provider (yes/no).

## Statistical analysis

Descriptive statistics were used to characterize the sample and assess frequencies of unmet needs. Bivariate analysis was performed to report on differences between clinic sites with regard to patient demographic and medical conditions. Bivariate analyses were also performed to examine the association between demographic characteristics and unmet needs. We set statistical significance at  $p < 0.05$  (two-sided). Multivariate analysis was performed in mixed-effects models, adjusting for age, gender, clinical site, and insurance status. Analyses were performed using SAS 9.4 (SAS Institute, Inc.). All study procedures were approved by the UCSF IRB.

## RESULTS

### Sample characteristics

Among the four clinic sites, 546 people received an outreach call and were reached successfully, of which 136 (24.9%) were from home-based primary care, 199 (36.5%) from geriatric primary care, 143 (26.2%) from the adult medicine clinic in the safety net, and 68 (12.5%) from the clinic for adults with HIV. Of all sites, only the adult medicine clinic in the safety net did not reach all their patients; of 702 patients who met criteria for outreach, 326 (46.4%) were reached at all and only 143 (20.4%) completed the full outreach call.

Participant characteristics are shown in Table 1. A third (32.1%) were between 71 and 80 years old, over half (56.7%) were male, and three quarters (75.8%) were English-speaking. Regarding self-identified race, 46.9% were White, 27.7% were Asian, and 12.3% were Black. Nearly half (46.9%) were dual eligible, insured by both Medicare and MediCal (California's Medicaid program). The most prevalent conditions were hypertension (67.2%), lung disease (35.9%), any heart disease (31.3%), depression (30.6%), and diabetes (30.0%).

### Unmet needs

During shelter-in-place, 142 (26.0%) people called had at least one unmet health-related need, of which 76 (14.0%) needed medication refills, 66 (12.5%) needed medical supplies, and 16 (3.0%) needed access to food. Of all people who were asked ( $n = 403$ ), 128 (32.9%) were not ready for telehealth visits, and 192 (36.4%) asked for a return call from their primary care provider. In total, 340 (62.3%) people had at least one unmet need. People who received their care from the safety net adult medicine clinic had higher rates of unmet needs than other sites; 47.6% had one or more health-related unmet need. All findings are shown in Figure 1.

### Unmet needs by demographics

In the bivariate analyses shown in Table 2, there were differences in the prevalence of unmet health-related needs between age groups, insurance types, self-identified race, primary language, and poverty at the level of zip code (at statistical significance of  $p < 0.05$ ), seen across all clinic sites.

Unmet health-related needs were the highest among self-identified Asian people (36.4%) compared with other racial groups, except for American Indian/Alaska Native

(50.0%) for which there were only two people in the cohort. Among those identifying as Asian, there was a different prevalence of unmet health-related needs among speakers by Asian languages: Cantonese (57.5%), Vietnamese (50.0%,  $n = 4$ ), Tagalog (44.4%), and Mandarin (36.8%). Among those who identified as Asian and their preferred language was an Asian language, 46.9% (38 of 81) reported an unmet health-related need, versus 24.3% (17 of 70) of those who identified as Asian but who preferred English ( $p < 0.01$ , data not shown in tables).

Among different age groups, the youngest, 61–70, had the highest unmet health-related needs (37.8%). For health-related and access-related needs combined, those between 61 and 70 years old and 100+ had more unmet needs (71.9% and 75.0%,  $n = 3$  for 100+) than those between 71 and 80 (61.1%), 81–90 (53.4%) and 91–100 years old (64.0%) ( $p < 0.05$ , data not shown).

Among people with both Medicare and MediCal, 33.6% had unmet health-related needs, compared with 12.6% of people with Medicare and private insurance. Those with private insurance only and people without insurance also had high rates of unmet health-related needs (44.4% and 40.0%, respectively), but there were only 9 and 5 people in these cohorts, respectively.

There were also differences by quartile of zip code-level poverty, with more people in each group of increasing quartile of zip code poverty having more unmet health-related needs: 30.8% in those living in zip codes with the highest rates of poverty versus 18.2% in those living in zip codes with the lowest rates of poverty.

### Unmet needs by medical conditions

Of the medical conditions assessed, only for those with the diagnoses of diabetes and COPD was there an association of more unmet health-related needs for people with the condition compared with people without it. Of those with diabetes, 33.5% had an unmet health-related need compared with 22.8% of those without diabetes; 39.3% of those with COPD had unmet health-related needs compared with 22.2% of those who did not have COPD (comparison data shown in Table S2).

### Unmet needs and health care utilization

There was a modest decrease in the number of people with an ER visit between the 3 months before the outreach call (10.3%) and the 3 months after the outreach call (7.7%), as shown in Table S3. Of note, this decrease was most pronounced among the people receiving care from the home-based primary care practice (22.1% pre

TABLE 1 Participant characteristics

	Total (N = 546)
Age, n (%)	
61–70 years old	135 (24.7)
71–80 years old	175 (32.1)
81–90 years old	146 (26.7)
91–100 years old	86 (15.8)
100+ years old	4 (0.7)
Race, n (%)	
American Indian or Alaska native	2 (0.4)
Asian	151 (27.7)
Black	67 (12.3)
White	256 (46.9)
Native Hawaiian/Pacific Islander	5 (0.9)
Other	62 (11.4)
Declined to answer	1 (0.2)
Ethnicity, n (%)	
Non-Hispanic	467 (87.1)
Hispanic	69 (12.9)
Primary language, n (%)	
English	413 (75.8)
Spanish	42 (7.7)
Mandarin	19 (3.5)
Cantonese	40 (7.3)
Vietnamese	4 (0.7)
Tagalog	9 (1.7)
Russian	3 (0.6)
Other	15 (2.8)
Gender, n (%)	
Female	233 (42.9)
Male	308 (56.7)
Transgender	2 (0.4)
Insurance status, n (%)	
Medicare only	82 (15.0)
Medicare and MediCal	256 (46.9)
Medicare and private	175 (32.1)
MediCal only	18 (3.3)
Private only	9 (1.7)
Uninsured	5 (0.9)
Adults (%) in poverty within zip code, n (%) <sup>a</sup>	
<7.5%	143 (26.2)
7.5%–10%	183 (33.5)
10.1%–12.5%	100 (18.3)
>12.5%	120 (21.9)

TABLE 1 (Continued)

	Total (N = 546)
Medical conditions, n (%)	
Hypertension	367 (67.2)
Diabetes	164 (30.0)
Heart failure	103 (18.9)
Coronary artery disease	99 (18.1)
Valvular disease	40 (7.3)
COPD	122 (22.3)
Asthma	61 (11.2)
Another lung disease	36 (6.6)
Cirrhosis	20 (3.7)
HIV	68 (12.5)
Dementia	96 (17.6)
Depression	167 (30.6)
History of falls	112 (20.5)
Urinary incontinence	99 (18.1)

<sup>a</sup>Divided into four roughly equal quartiles by the authors.

vs. 8.8% post). Rates of hospitalizations and urgent care visits stayed the same. Three people (0.6%) died within 3 months of the outreach call. There were no differences seen in the rates of acute care utilization based on the presence or absence of unmet needs (data not shown).

## Multivariate analysis

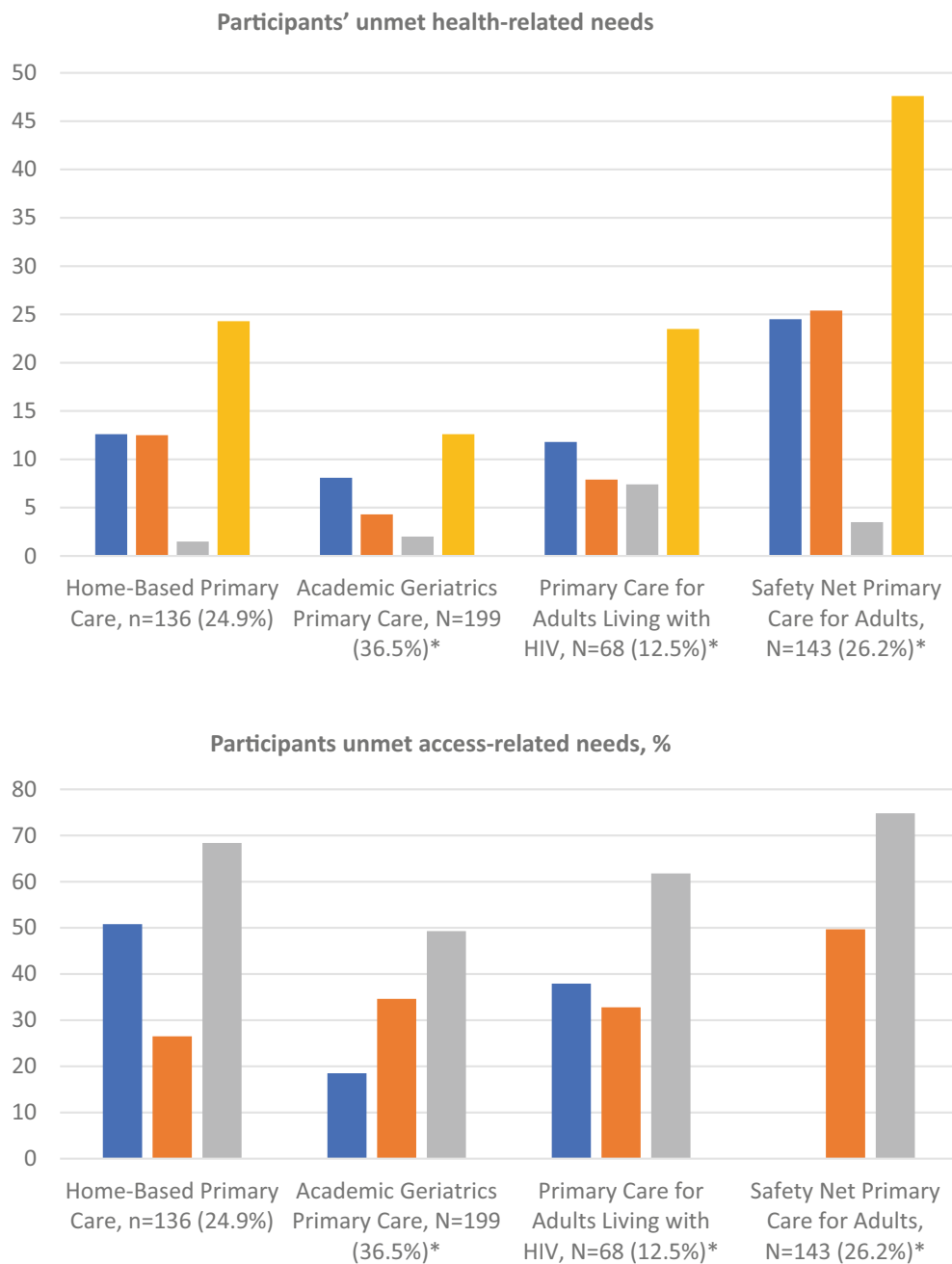
After adjustment for age, gender, clinical site, and insurance status, primary Cantonese speakers had an odds ratio of 4.37 (95% CI 2.01–9.51) of having an unmet need, compared with primary English speakers. This was the only statistically significant association that persisted under multivariate analysis.

## DISCUSSION

The ripple effects of the COVID pandemic have been wide-reaching throughout all aspects of older adults' lives. San Francisco was relatively spared during the initial surge of COVID pandemic compared with most other comparable-sized cities in the United States; cases and deaths remained overall quite low.<sup>16,17</sup> However, our study presents data on a second, shadow pandemic of unmet needs in the setting of strict stay-at-home orders. In an urban setting with a diverse cohort of patients, about two-thirds (62.3%) reported any unmet need. These unmet needs were most pronounced among older adults who were already underserved by virtue of their



**FIGURE 1** Participants' unmet needs by clinic site. Two bar graphs are given. From left to right on the first bar graph: Needs medication refills, Needs medical supplies, Food insecurity, Any unmet need. From left to right on the second bar graph: Not ready for telehealth, Would like another call, Any ( $\geq 1$ ) above-mentioned need identified.



demographics: those living in zip codes with higher rates of poverty, those with both Medicare and MediCal, and those who received care in the safety net. Additionally, Asian older adults, particularly those whose primary language was Cantonese, reported higher rates of unmet health-related needs than their White counterparts. Finally, people with COPD or diabetes reported higher rates of unmet needs, which we attribute to the unique needs of these conditions that require additional equipment and medications; of note, this was not significant in multivariate analysis.

These unmet needs were a predictable consequence of rapid disruption of regular services for a vulnerable

population, and reflect a lack of prior adequate planning to address the fragility of these services.<sup>8,18</sup> Clapp and colleagues evaluated the shadow pandemic of unmet social needs in New York City residents but did not include needs for medications or medical supplies,<sup>19</sup> which older adults are more likely to need than younger ones. San Francisco is often characterized as a city with a robust safety net, but our data show that older adults had critical needs that were not met by this safety net during shelter-in-place.

Although younger, more robust adults are often able to find alternate solutions during times of crisis, older adults who rely on community programs and

TABLE 2 Association between unmet health-related needs and demographics

Demographics total N = 546 (100%)	Had any health-related unmet need <sup>a</sup> N = 142	Had no health-related unmet needs <sup>a</sup> N = 404	p-value <sup>b</sup>
Age, n (%) <sup>c</sup>			<0.001
61–70 years old	51 (37.8)	84 (62.2)	
71–80 years old	48 (27.4)	127 (72.6)	
81–90 years old	19 (13.0)	127 (87.0)	
91–100 years old	23 (26.7)	63 (73.3)	
100+ years old	1 (25.0)	3 (75.0)	
Race, n (%) <sup>c</sup>			0.002
American Indian or Alaska native	1 (50.0)	1 (50.0)	
Asian	55 (36.4)	96 (63.6)	
Black	16 (23.9)	51 (76.1)	
White	49 (19.1)	208 (80.9)	
Native Hawaiian /Pacific Islander	0 (0.0)	5 (100.0)	
Other	20 (31.3)	44 (68.8)	
Ethnicity, n (%) <sup>c</sup>			0.77
Hispanic	19 (27.5)	50 (72.5)	
Non-Hispanic	119 (25.5)	348 (74.5)	
Primary language, n (%) <sup>c</sup>			<0.001
English	87 (21.1)	326 (78.9)	
Spanish	12 (28.6)	30 (71.4)	
Mandarin	7 (36.8)	12 (63.2)	
Cantonese	23 (57.5)	17 (42.5)	
Vietnamese	2 (50.0)	2 (50.0)	
Tagalog	4 (44.4)	5 (55.6)	
Russian	1 (33.3)	2 (66.7)	
Other	5 (33.3)	10 (66.7)	
Gender, n (%) <sup>c</sup>			0.96
Female	62 (26.6)	171 (73.4)	
Male	80 (26.0)	228 (74.0)	
Transgender	0 (0.0)	2 (100.0)	
Insurance status, n (%) <sup>c</sup>			<0.001
Medicare only	22 (26.8)	60 (73.2)	
Medicare and MediCal	86 (33.6)	170 (66.4)	
Medicare and private	22 (12.6)	153 (87.4)	
MediCal only	6 (33.3)	12 (66.7)	
Private only	4 (44.4)	5 (55.6)	
Uninsured	2 (40.0)	3 (60.0)	
Percent of adults in zip code living in poverty, n (%) <sup>c</sup>			0.04
<7.5%	26 (18.2)	117 (81.8)	
7.5%–10%	46 (25.1)	137 (74.9)	
10.1%–12.5%	33 (33.0)	67 (67.0)	
>12.5%	37 (30.8)	83 (69.2)	

<sup>a</sup>Unmet health-related needs included medication refills, medical supplies, and food.

<sup>b</sup>Chi-square test of Independence results or Fisher's Test, significance level set at 0.05; Data on gender, race, and ethnicity were all self-reported, collected at the time of registration with the clinical practice. These were existing categories in the EMR. *p*-values represent difference between subgroups by demographic.

<sup>c</sup>Percentages listed are row percentages.



social services to meet their basic needs are often more vulnerable during times of communal crisis.<sup>8,18</sup> Going forward, pandemic preparedness could better anticipate the needs of vulnerable older adults when addressing the disruption of usual services to mitigate the impact of this crisis on our communities, cities, and counties.

Although telehealth increased in primary health care throughout the county, our data suggest limitations of this solution, as more than one third of older patients who were called indicated they could not perform a telehealth visit. This is consistent with research showing similar unreadiness of older adults for telehealth visits and research on the gender and racial disparities in access to telehealth among older adults in the United States.<sup>7,20,21</sup>

We did not find that unmet needs were associated with increased healthcare utilization. We hope that our outreach calls and interventions mitigated some of the unmet needs and thus prevented an increase in utilization. It also could be due to care avoidance due to the severe disruption in services, public health messaging to stay away if possible, and patients and caregivers reporting a fear of going to the hospital due to the perceived risk of contracting COVID, as occurred in other parts of California.<sup>22</sup>

## Strengths and limitations

This study represents EMR data that were obtained during a time of crisis for clinical purposes. There are limitations to this type of data collection. First, we do not have data on the prevalence of unmet needs before shelter-in-place, and thus cannot determine what proportion of these unmet needs were due to the crisis of the moment. Second, not all people at the adult medicine clinic were reached by phone. Thus, our data may not fully represent unmet needs; it is possible that those most at risk may not have been reached by phone. Third, our study was limited to a single city and to academic-affiliated clinics. San Francisco had earlier and some of the more stringent lockdown restrictions in the country during the time of this study, and thus results may have been different in other parts of the country. However, strengths include the diversity of our patient population, which mirrors the diversity of the city of San Francisco. Asian Americans have often been overlooked in studies describing disparities during the COVID-19 pandemic; and this study contributes to the literature demonstrating that disparities do exist.<sup>23,24</sup> Another strength is that our data are unique and show health- and access-related unmet needs in an older adult

population during lockdown, findings that have not been described elsewhere.

Finally, a significant strength was the outreach calls themselves, which represented a tremendous effort by the practices involved to quickly adapt to meet the needs of their vulnerable patients in a time of crisis. We do not know how our patients would have fared if not for these efforts; we hope that these data demonstrate the glaring need that our practices stepped up to meet. We also hope that these data will be considered by decision makers who shape municipalities' pandemic preparedness plans, as older adults' needs are complex and require more thorough consideration than previously given.

## CONCLUSION

The four primary care practices in this article acted as first and essential responders to vulnerable older adults in a time of need, stepping outside of the usual scope of practice. In doing so, they identified profound needs that should be a call to action for public health and community safety entities. Older adults commonly experience functional, sensory, and cognitive disabilities that impact the ability to connect to resources during times of crisis; this study demonstrates the vulnerability of older adults as a group and the need for additional attention and planning to prevent similar crises. COVID-19 has unmasked many areas of vulnerability in the social safety net and proved that prior methods of crisis preparedness have been inadequate. Future crises will come, and planning will need to occur to meet the needs of older adults as much as for any other vulnerable group. We call on community leaders to build proactive crisis response plans that prioritize older adults for more targeted assistance.

## AUTHOR CONTRIBUTIONS

Laura Perry, Meredith Greene, Charlotte Scheerens, Rachel J Stern, Joni Gilissen, and Anna H. Chodos had a role in conceptualizing and designing the study. Laura Perry, Charlotte Scheerens, and Ying Shi conducted all data analysis. Author Zoe Onion created the data collection database. Evamae Bayudan and Zoe Onion performed data collection. Laura Perry and Evamae Bayudan performed data quality assurance. All authors contributed to the interpretation of the data and preparation of the manuscript.

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## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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**SUPPORTING INFORMATION**

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**Table S1.** ICD-10 codes used by medical condition.

**Table S2.** Participants' unmet needs stratified by presence or absence of medical conditions.

**Table S3.** Participants' health care utilization before and after outreach call by clinic site.

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