

Avoidance of Emergency Care in the Southeastern United States During the COVID-19 Pandemic

Erin Gettler,¹ Rebecca Stern,² Bin Ni,² Heather M. Munro,³ Mark Steinwandel,³ David M. Aronoff,⁴ Deepak K. Gupta,^{5,6} Maureen Sanderson,⁷ Martha J. Shrubsole,⁸ and Loren Lipworth^{6,8}

¹Division of Infectious Diseases, Department of Medicine, Duke University Medical Center, Durham, North Carolina, USA, ²Division of Infectious Diseases, Department of Medicine, Vanderbilt University Medical Center, Nashville, Tennessee, USA, ³Vanderbilt Institute for Clinical and Translational Research, Vanderbilt University Medical Center, Nashville, Tennessee, USA, ⁴Department of Medicine, Indiana University School of Medicine, Indianapolis, Indiana, USA, ⁵Division of Cardiovascular Medicine, Department of Medicine, Vanderbilt University Medical Center, Nashville, Tennessee, USA, ⁶Vanderbilt Translational and Clinical Cardiovascular Research Center, Vanderbilt University Medical Center, Nashville, Tennessee, USA, ⁷Department of Family and Community Medicine, Meharry Medical College, Nashville, Tennessee, USA, and ⁸Division of Epidemiology, Department of Medicine, Vanderbilt University Medical Center, Nashville, Tennessee, USA

In a low-income cohort in the Southeastern United States, 5% of participants avoided emergency medical care during the coronavirus disease 2019 pandemic, primarily due to fear and visitor restrictions. Younger age, self-perceived lower health status, lack of a personal doctor, and decreased income were associated with greater likelihood of deferring emergency care.

Keywords. COVID-19; disruption; emergency care; low income.

Disruptions in medical care have occurred during the coronavirus disease 2019 (COVID-19) pandemic, especially during periods of high community transmission [1–3]. Delays in seeking care for critical or acute non-COVID-19 conditions likely contribute to excess deaths directly or indirectly attributable to COVID-19 [1, 4, 5]. We examined the association between sociodemographic, health-related, and COVID-19-related characteristics and avoidance of emergency medical care during the pandemic among participants in the Southern Community Cohort Study (SCCS), a prospective cohort of primarily low-income individuals in the Southeastern United States.

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Correspondence: Loren Lipworth, ScD, Division of Epidemiology, 2525 West End Ave, Suite 800, Nashville, TN 37203 (loren.lipworth@vumc.org).

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METHODS

The SCCS enrolled ~86 000 English-speaking adults aged 40–79 from 2002 to 2009 in 12 Southeastern states [6]. Institutional review boards at Vanderbilt University Medical Center and Meharry Medical College approved the study protocols. Participants completed surveys at enrollment and up to 4 follow-ups to collect information on sociodemographic, lifestyle, medical, and other variables. This analysis incorporated responses from prior surveys and a new survey with questions on SARS-CoV-2 infection, physical and emotional health, COVID-19-related behaviors and beliefs, and household and health care impacts (<https://www.southerncommunitystudy.org/questionnaires.html>). The COVID-19 survey was fielded from 10/7/2020 to 12/14/2020 (Supplementary Figure 1). A total of 4512 participants completed the survey.

Participants were asked the following question: “Since March 1, 2020, did you ever think you needed urgent or emergency medical care but avoided or did not get it? For example, you thought you were having a heart attack, stroke, asthma attack, uncontrolled pain, etc., but decided not to get urgent or emergency care.” Individuals who responded “Yes” were asked to select reasons for avoidance from the following list of prespecified responses: “I was afraid of getting COVID-19,” “I was too sick to go to it,” “I did not have a way to get there (I had no transportation),” “I was worried or thought that I could not pay for it,” “I was worried that I would be at the hospital or urgent care alone because visitors were not allowed,” or “Another reason.” Multiple responses were allowed.

Analyses were based on 4500 participants who provided complete information on the survey question related to missed emergency care. Kruskal-Wallis and Pearson chi-square tests were used to compare continuous and categorical patient characteristics, respectively, between those who avoided emergency medical care and those who did not delay or need emergency care. Multivariable logistic regression was performed to estimate odds ratios (ORs) and 95% CIs for associations between participant characteristics and emergency care avoidance. We hypothesized that there may be differential predictors of delayed emergency care in the lowest earning group. We observed significant effect modification by prepandemic annual household income of the association between several socioeconomic and health-related variables and emergency care avoidance; thus, models were stratified by prepandemic annual household income. Analyses were performed using SAS 9.4.

RESULTS

A total of 225 (5%) respondents reported avoiding emergency care (Supplementary Table 1). Compared with those who did

not delay or need emergency care, those who avoided care were younger (median age, 63 vs 66 years; $P < .0001$), more likely to be female (81% vs 65%; $P < .0001$) and non-Hispanic Black (51% vs 38%; $P = .0001$), and had lower prepandemic household income and education. Among the 225 respondents who reported avoiding emergency care, 43% viewed their health status as fair or poor, compared with 16% of those who did not delay or need care, and had a higher burden of medical comorbidities. The proportion of respondents who reported decreased income during the pandemic was higher in those who avoided emergency care relative to those who did not (45% vs 22%). Participants who deferred emergency care were more likely to have greater perceived risk of acquiring COVID-19 infection and perceived likelihood of dying from COVID-19. The most common reasons for avoiding emergency care were fear of COVID-19 (63%) and concern about restricted visitor policies within health care institutions (38%) (Supplementary Table 2).

In multivariable regression models stratified by prepandemic household income, age was inversely associated with odds of emergency care avoidance among those earning $\geq \$15\,000$ (OR for 5-year increase in age, 0.77; 95% CI, 0.65–0.91) (Figure 1A) and $< \$15\,000$ (OR, 0.75; 95% CI, 0.61–0.94) (Figure 1B). Women in the higher income group were significantly more likely than men to avoid seeking emergency care (OR, 2.28; 95% CI, 1.36–3.80), while race, insurance, and rural residence were not associated with avoiding emergency care regardless of income.

In both income categories, respondents who perceived their health status to be fair or poor were significantly more likely to avoid emergency care compared with those who considered their health very good or excellent (OR, 2.68; 95% CI, 1.38–5.19; for income $\geq \$15\,000$; OR, 2.14; 95% CI, 1.07–6.17; for income $< \$15\,000$), as were those who reported not having a personal doctor (OR, 2.14; 95% CI, 1.12–4.09; and OR, 2.62; 95% CI, 1.17–5.85, respectively). Having at least 2 chronic diseases was strongly associated with avoiding emergency care in the lower income group (OR, 4.98; 95% CI, 1.06–23.44). Current smoking was significantly associated with avoiding care only in the group earning $\geq \$15\,000$ (OR, 1.87; 95% CI, 1.07–3.27).

Loss of income during the pandemic was associated with >2 -fold increased odds of avoiding emergency care (OR, 2.17; 95% CI, 1.39–3.38; for income $\geq \$15\,000$; OR, 2.43; 95% CI, 1.37–4.30; for income $< \$15\,000$). For other pandemic-related variables, odds of delaying emergency care were increased among respondents who perceived their risk of acquiring SARS-CoV-2 to be high (OR, 2.68; 95% CI, 1.59–4.50; for income $\geq \$15\,000$; OR, 2.36; 95% CI, 1.15–4.83; for income $< \$15\,000$) or their likelihood of survival if they contracted COVID-19 to be low, the latter of which was only significant for those with an annual income $\geq \$15\,000$ (OR, 3.02; 95% CI, 1.85–4.94).

DISCUSSION

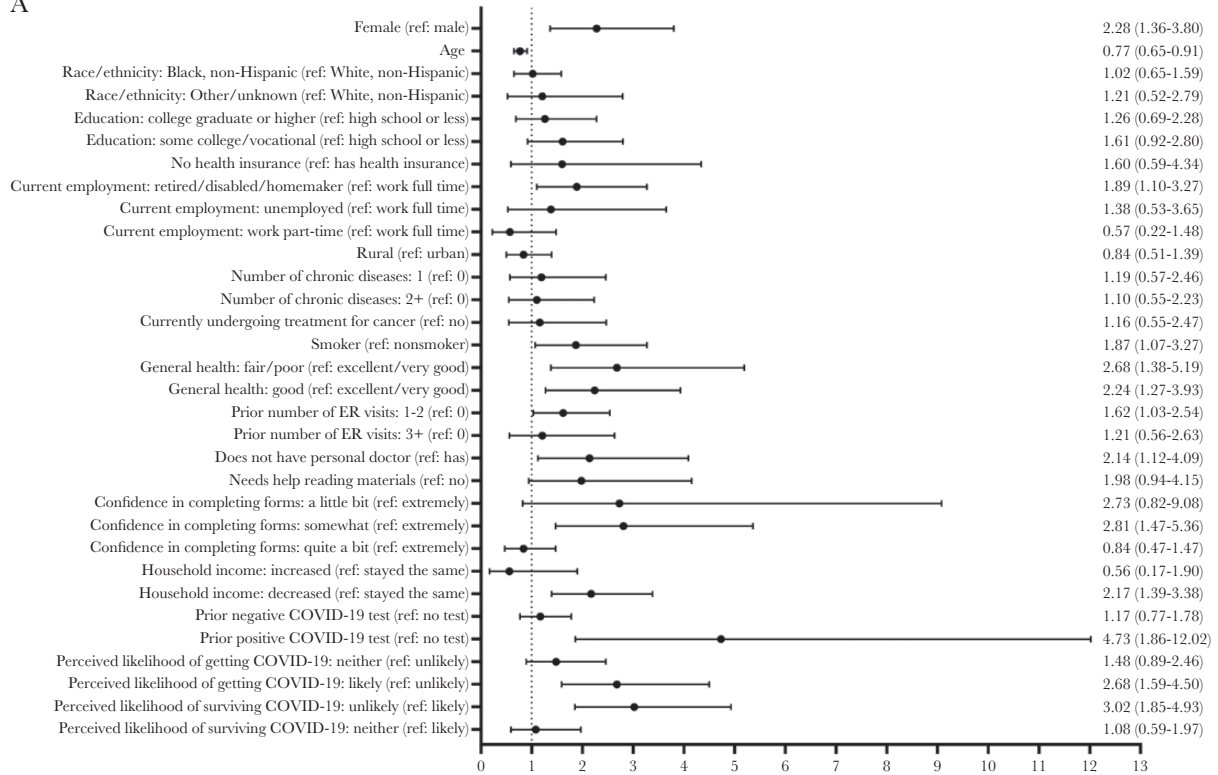
By mid-December 2020, 5% of survey respondents reported avoiding emergency medical care. While prevalence estimates vary, our finding is consistent with the overall decline in emergency department visits observed since the start of the COVID-19 pandemic [1, 2, 7–9]. Lack of a personal doctor, worse perceived health status, and a high burden of comorbidities were strongly related to avoiding time-sensitive emergency care among the lowest income individuals, who are already medically vulnerable and socioeconomically disadvantaged. A review of emergency medical services activations revealed a significant increase in calls related to cardiac arrest, opioid overdose, and on-scene death following the start of the pandemic [5], potentially as a consequence of deferred care. Prior studies have hypothesized that observed declines in emergency department visits during the pandemic may reflect overutilization of emergency departments for nonemergency care before the pandemic [2]. However, in our study, $>70\%$ of respondents reported no visits to an emergency department in the preceding 12 months, supporting a relatively low baseline utilization of emergency services before the pandemic. It is possible that the increased odds of avoiding emergency care among those with no personal doctor may be due, in part, to less care avoidance among those with personal providers because of urging by those providers to seek appropriate emergency care despite stay-at-home orders.

Decreased emergency care utilization among women was observed for the higher income group in our study and has been previously reported [9]. Czeisler et al. [8] found a higher prevalence of emergency care avoidance among unpaid caregivers for adults compared with noncaregivers. Disproportionate caregiving burdens in formal and unpaid roles during the pandemic may partially explain the higher odds of emergency health care avoidance among women [10]. However, we were unable to specifically identify whether women were more likely to serve as adult caregivers or experience a change in caregiving responsibilities during the pandemic.

The theory of conservation of resources suggests an interdependence and structuring of resources in which access to one resource gives rise to another [11], and as a corollary, any major crisis will more greatly impact those with fewer resources. Thus, in this study population that was already financially disadvantaged before the pandemic, loss of income may be one component of a complex, intertwined resource loss spiral that ultimately led to delaying medical care.

Unique among other studies, our surveyed population within the SCCS included many individuals already connected to health care for those recruited through community health centers and for whom extensive longitudinal data, including patterns of health care utilization, were collected before the pandemic. We presented results separately for those earning $< \$15\,000$ or $\geq \$15\,000$ annually; while both groups include individuals

A



B

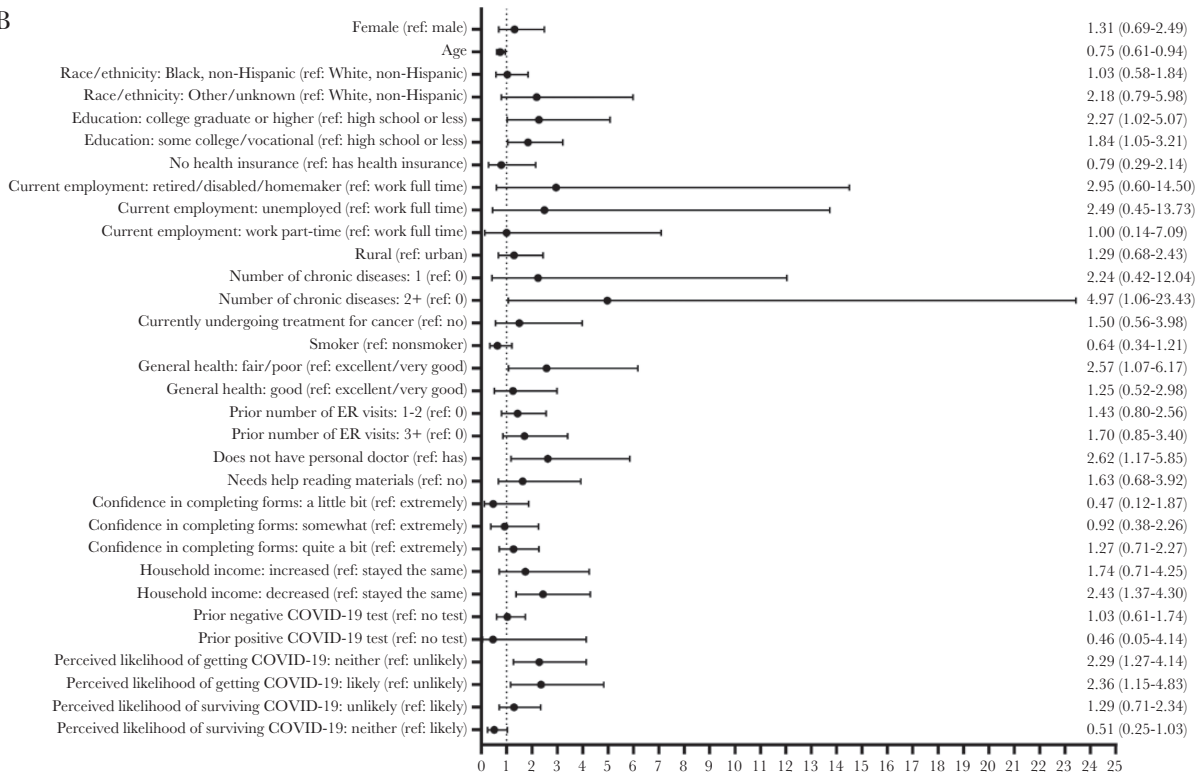


Figure 1. Multivariable logistic regression was performed to estimate odds ratios and 95% CIs for associations between participant characteristics and avoidance of emergency medical care separately for those with annual household incomes >\$15 000 (A) and <\$15 000 (B). We first assessed the association of each individual variable with disruption of emergency care by adjusting for age (years, continuous), self-reported race/ethnicity (non-Hispanic Black, non-Hispanic White, other/unknown), and sex in logistic regression models. The variables we tested are shown in [Supplementary Table 1](#). Those factors with a *P* value <.05 in the age-, race/ethnicity-, and sex-adjusted models were then included together as covariates in the full multivariable model. Although location of residence (urban or rural) was not significant in the individual model, it was selected a priori and retained in the full model as a potential risk factor for disruption of emergency care. The age estimate corresponds to a 5-year change in age. Abbreviations: COVID-19, coronavirus disease 2019; ER, emergency room.

living below the national poverty line who have greater health risks due to limited economic opportunities, higher rates of stress and depression, and limited access to health care [12], we hypothesized that there may be differential predictors of delayed medical care in the lowest earning group.

Our study has some limitations. The survey response rate was low, and respondents were more likely to be White and of higher education and income than the parent SCCS cohort; however, this survey population still captured a substantial proportion of low-income, older (69% aged ≥ 65 years), Black individuals (38%) and women in the Southeastern United States, who are often underrepresented in other cohorts. We were unable to separate out from the comparison group those who did not need emergency care from those who required emergency care and experienced no delay. Additionally, perceptions of conditions requiring emergency medical care vary between individuals. Health outcomes related to missed emergency care were not assessed and will be examined through a follow-up survey that is currently underway.

Our findings illustrate the linked medical and socioeconomic risks and consequences experienced disproportionately by vulnerable populations during the COVID-19 pandemic, underscoring the need to more effectively and expeditiously identify these patients to minimize delay in care for potentially severe or life-threatening conditions. As SARS-CoV-2 variants emerge and vaccination rates remain variable, identifying barriers for persons needing emergency care, particularly for those with chronic conditions that increase the risk for severe COVID-19, and improving messaging about seeking emergency medical care are critical public health priorities.

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Patient consent. All study protocols were approved by institutional review boards at Vanderbilt University Medical Center and Meharry Medical College. Written informed consent was obtained from participants.

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