RESEARCH LETTER

Impact of COVID-19 on Chronic Ambulatory-Care-Sensitive Condition Emergency Department Use Among Older Adults

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Background: **The COVID-19 pandemic social distancing requirements encouraged patients to avoid public spaces including in-office health care visits. Ambulatory-care-sensitive conditions (ACSCs) represent conditions that can be managed with quality primary care and when access is limited, these conditions can lead to avoidable emergency department (ED) visits.**

Methods: **Using national data on ED visits from 2019 to 2021 in the National Hospital Ambulatory Care Survey, we examined the impact of COVID-19 pandemic on ACSC ED visits among older adults (aged ≥65).**

Results: **The proportion of ED visits among older adults that were for ACSCs increased between 2019 (17.4%) and 2021 (18.5%). The trend in both rural (26.4%–28.6%) and urban areas (15.4%–16.8%) shows a significant jump from 2019 to 2021 (*P* < .001).**

Conclusions: **This rise in ACSC ED use is consistent with a delay in normal primary care during the pandemic. (J Am Board Fam Med 2024;37:792–795.)**

Keywords: **Access to Care, Ambulatory Care Sensitive Conditions, COVID-19, Emergency Departments, Pandemics, Primary Health Care**

Introduction

The COVID-19 pandemic, associated lockdowns, and social distancing requirements encouraged patients to stay away from public spaces including in-office health care visits. Many older adults with comorbid medical conditions worried about exposure to the COVID-19 and chose to delay normal episodes of health care.[1] Ambulatory-care-sensitive conditions (ACSCs) represent disease entities like congestive heart failure and diabetes that can be managed with quality primary care access.[2] When access is limited or curtailed, these conditions can worsen and lead to avoidable emergency department (ED) visits. For patients with decreased access to care before the COVID-19 pandemic, like those in rural areas, the impact of pandemic-related changes in primary care access on ACSCs may have been compounded. One study showed ACSC hospitalizations decreased in the first year of the pandemic (March 2020–February 2021).[3] It is unclear whether the COVID-19 pandemic, lockdowns, or fear of social interaction had a negative effect on ACSC ED visits, particularly after the initial disruption of care. Our objective was to examine the impact of COVID-19 pandemic on downstream ACSC ED visits among older adults (aged ≥65).

Methods

We conducted a natural experiment using data from the 2019, 2020 and 2021 National Hospital Ambulatory Medical Care Survey (NHAMCS), a national probability sample survey of visits to the emergency department. We are able to make US population estimates by accounting for the visit weights and the design effect. The design was based

This article was externally peer reviewed.
Submitted 23 October 2023; revised 19 December 2023; accepted 2 January 2024.
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Funding: None.
Conflict of interest: None.
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on the timing of the COVID-19 pandemic. The year 2019 provides a baseline before the lockdown, 2020 represents the implementation of the lockdown and possible decrease in accessing primary care, and 2021 is utilization of the ED post deferral of care. Older adults (≥65 years) were included (unweighted sample of n = 1,067 reflecting an estimated 140,575,952 ED visits in the US population). Our primary measures were visits related to chronic ACSCs (hypertension, diabetes, congestive heart failure, chronic obstructive pulmonary disease, and asthma). We use ICD-10-CM Diagnosis code(J44, J45,I10,I50,E08,E09,E10,E11,E12,E13) for those diseases/conditions. We were testing to see if emergency department use for ACSCs differs before and after COVID. We also evaluated the impact in Metropolitan Statistical Areas (MSA) (urban) and non-MSAs (rural) since there are fewer primary care physicians in rural areas. We conducted Chi-Square analyses comparing years. We used RStudio with R version 4.3.1 (Boston, Massachusetts, USA) for the analyses.

Results

The results indicated that the proportion of ED visits among older adults that were for ACSCs declined in 2020 but showed a substantial increase in 2021 (Figure 1) (p = 0.005). Earlier data (2015 was 17.6% and 2018 was 17.8%) shows relative consistency with 2019 data suggesting that the rise was in 2021. Comparing 2019 to 2021, the proportion of ACSC related visits that resulted in hospitalization rose from 39.0% to 41.7% (*P* = *.003*). The change over time in ACSC related ED visits in both rural (from 26.4% to 28.6%) and urban areas (from15.4% to16.8%) (Figure 2) shows a significant jump from 2019 to 2021 (*P* < *.001*).

Figure 1. Proportion of emergency department visits for ambulatory care sensitive visits among older adults from 2019 to 2021, United States.

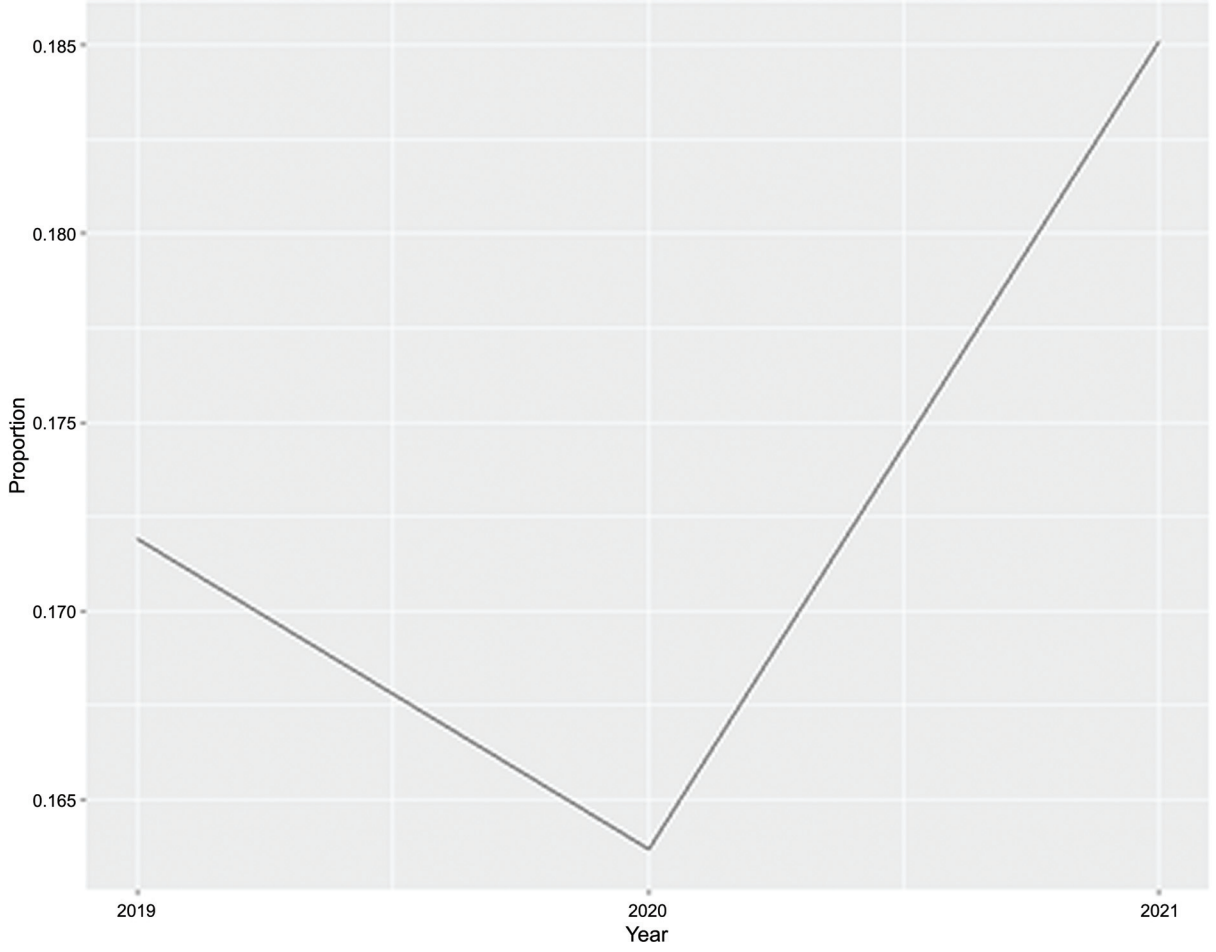
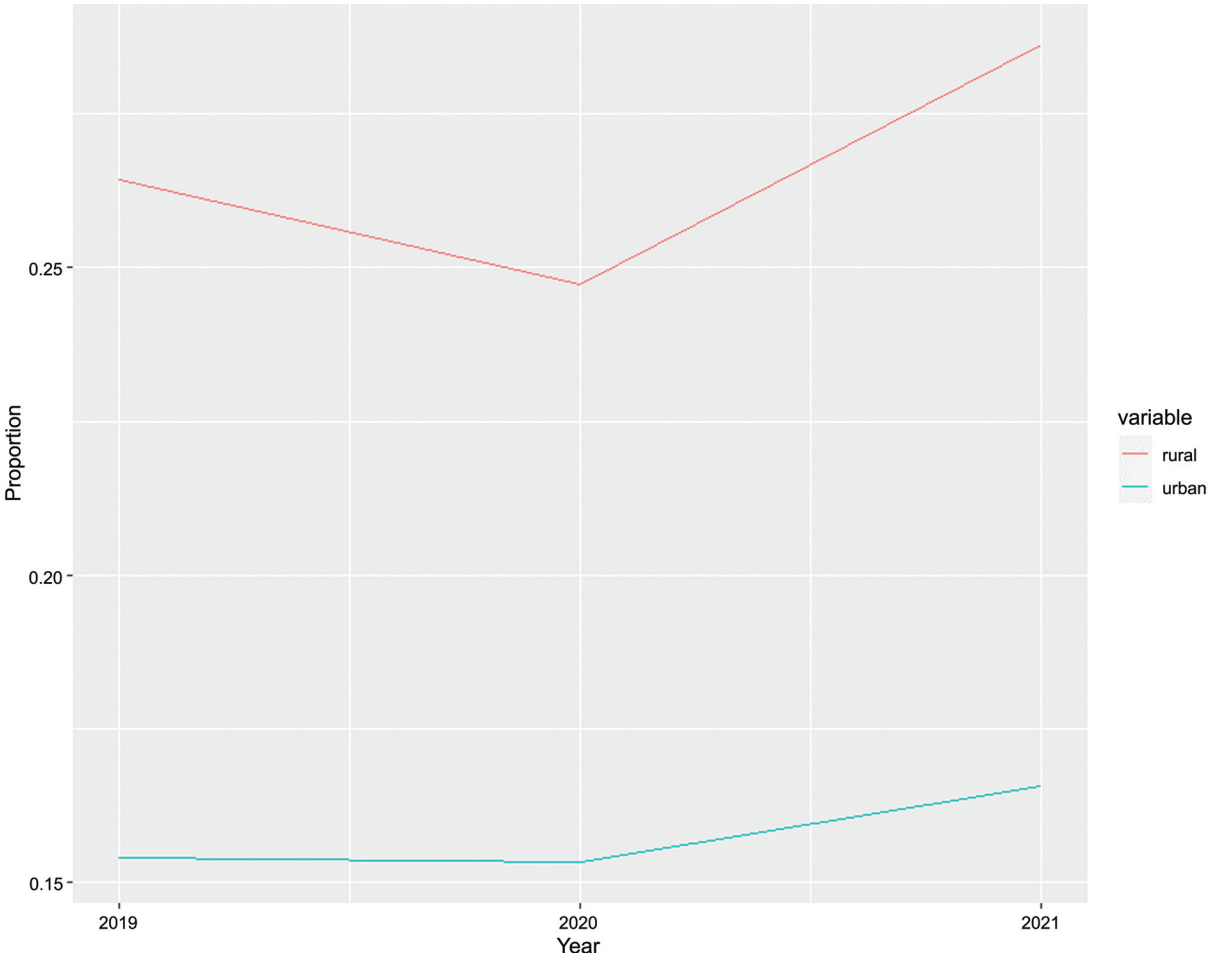


Figure 2. Proportion of emergency department visits for ambulatory care sensitive visits among older adults from 2019 to 2021 in rural and urban area, United States.



Discussion

This study found that the proportion of ED visits for ACSCs increased substantially among older patients after an initial decrease during the first year of pandemic-related lockdown. Our data also showed a rise in the ACSC associated ED visits that resulted in hospitalizations. This suggests that the impact of the lockdowns and corresponding disruption of care has a lag before seeing the increase in ACSC utilization. Avoiding primary care during the height of the pandemic parallels the expectation that the lack of access for ACSCs would lead to downstream increased ED visits.[4]

Although COVID-19 was still prevalent in 2021 the current data showed an impact on ACSCs and emergency department use. This trend was inflated in rural areas where patients already have reduced access to primary care. Rural ED visits for ACSCs were particularly high in 2021. This finding reinforces the problem of the maldistribution of physicians in the US with a lack of access in rural areas leading to worse outcomes for those vulnerable patients.[5] Certainly, this trend warrants further exploration to identify actionable characteristics of primary care access to build a more robust health care system in light of potential future COVID-19 surges or other natural emergencies.

While our study has provided valuable insights into the changes over time, it is crucial to acknowledge the limitations associated with the granularity of our data. The observed "lag" in care may be influenced by various factors, including patients' willingness to return to using the ED and the potential escalation of health care needs.

This study is limited by focusing on visits as the unit of analysis and not patients. We therefore do not have an understanding of the health care utilization of these patients before COVID-19 or of

those who chose not to seek care. The COVID-19 policies and concerns decreased access to care with negative consequences. Improved primary care access during pandemics and other national health emergencies needs to be a priority. We understand that various factors beyond the scope of our analysis could influence the observed trends in ACSC-related ED visits. These may include individual-level factors such as socioeconomic status, individual health behaviors, and preexisting health conditions, as well as community-level factors such as regional health care infrastructure and public health policies. By acknowledging the limitations of our study design and the potential influence of unmeasured confounders, we aim to provide a more nuanced interpretation of our findings.

For patients with decreased access to care before the COVID-19 pandemic, like those in rural areas, the impact of pandemic-related changes in primary care access on ACSCs may have been compounded. Our results will contribute to a more robust understanding of the complexities surrounding the relationship between the COVID-19 pandemic, lockdown measures, and ED visits for ACSCs among older adults.

To see this article online, please go to: http://jabfm.org/content/37/4/792.full.

References

1. Zhong S, Huisingh-Scheetz M, Huang ES. Delayed medical care and its perceived health impact among US older adults during the COVID-19 pandemic. J American Geriatrics Society 2022;70:1620–8.
2. AHRQ quality indicators—guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions. Rockville, MD: Agency for Healthcare Research and Quality, 2001. AHRQ Pub. No. 02-R0203.
3. Becker NV, Karmakar M, Tipirneni R, Ayanian JZ. Trends in hospitalizations for ambulatory care-sensitive conditions during the COVID-19 pandemic. JAMA Netw Open 2022;5:e222933.
4. Tu K, Sarkadi Kristiansson R, Gronsbell J, INTRePID, et al Changes in primary care visits arising from the COVID-19 pandemic: an international comparative study by the International Consortium of Primary Care Big Data Researchers (INTRePID). BMJ Open 2022;12:e059130.
5. Jaret P. Attracting the next generation of physicians to rural medicine. AAMC News. Association of American Medical Colleges. Accessed September 6, 2023.