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### **Rural Hospital Closures Unraveling the Socioeconomic, Healthcare Access, and Community Impact on Local Communities**

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# RURAL HOSPITAL CLOSURES: UNRAVELING THE SOCIOECONOMIC, HEALTHCARE ACCESS, AND COMMUNITY IMPACT ON LOCAL COMMUNITIES

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## Introduction

Almost 60 million United States (U.S.) citizens lived in rural areas in 2020; since 2005, 162 rural hospitals have closed nationwide (Diaz & Pawlik, 2020). A 2018 congressional report found that the occupancy rates for urban hospitals were 66%, 40% for all rural hospitals, and 31% for rural hospitals with less than 50 beds (Corcoran & Waddell, 2019). It was also found that rural hospitals have smaller profit margins when compared to urban hospitals. On average, urban hospitals operate at a 5.5% profit margin, with rural hospitals operating anywhere from 2% to 2.6% (Corcoran & Waddell, 2019). Between 2010 and 2016, 75 rural hospitals closed, and 250+ were at risk of closure (Warden & Probst, 2017). In a 2,014 rural hospital service areas study, 3.8% experienced at least one hospital closure during the study period (Zahnd et al., 2023). Zero-point six percent of the hospitals experienced some closure, while 3.2% experienced full closure of all services (Zahnd et al., 2023). Over 100 rural hospitals have closed over the past decade, and

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more than 30% of the rural hospitals left in the country are at risk of closing (CHQPR 2023). Rural Health Information stated that in 2016, 673 hospitals in 42 states were at risk of closure. Among these hospitals, 68% were classified as critical access hospitals by CMS (Manlove & Whitacre, 2017).

## Literature Overview

It was estimated that if all 673 hospitals were to close, there would be a loss of 99,000 jobs and a loss of \$277 billion to the gross domestic profit (Manlove & Whitacre, 2017). Rural hospital closures have been linked to a percentage increase in the poverty level of their respective communities (Miller et al., 2021). Following hospital closures in a community, a 2% increase in the poverty level was seen (Miller et al., 2021). A study reported that after a rural hospital closure, the average time for a person to reach the nearest hospital was 20 minutes; some had to go across state lines to get to the nearest hospital post-closure (Wishner et al., 2016). Independent rural hospitals decreased from 68.9% in 2007 to 47% in 2019. Affiliated rural hospitals increased from 31.1% to 46.7% (Jiang et al., 2022). The number of rural hospitals that have experienced financial troubles increased by 5.2% from 2007 to 2019 (Jiang et al., 2022).

One study reported that 66% of rural hospital closures were in the southern part of the United States, while 22% of that was in the Appalachian Region; after the closure of the rural hospitals, the average E.R. visit increased by 10% in the respective communities (Ramedani et al., 2022). The average bystander admission in hospitals fell 5.7% before the hospital closure but rose 1.2% the year after (Ramedani et al., 2022). According to the National Rural Health Association Census 2015, 64% of hospital closures from 2010 to 2014 were in the Southern US, 19% in the Midwest, and 8.5% in the Northeast and Western regions (Kaufman et al., 2016). It was found that 66% of these closures resulted in states that neglected to participate in Medicaid expansion (Kaufman et al., 2016). A 2019 study conducted in Texas reported an 8.7% rise in inpatient mortality rates due to the increased transport times related to rural hospital closures (Falconnier & Hecht, 2022). Additionally, the community suffers a 4% decline in per-capita income and a 1.6% increase in the unemployment rate (Frakt, 2019).

Rural hospital closures have caused 1% of the population to travel 15 minutes or more to reach their nearest hospital. The most changes were located in the East South Central, which affected 178,478 residents, and the West South Central, which affected 197,660 residents (McCarthy et al., 2021). The healthcare sector supplied 10% of jobs in rural areas. One rural area reported a 14% reduction in jobs in the county after a hospital closure (Meline et al., 2022).

## Methodology

This study aimed to analyze the effects of rural hospital closures on employment level, economic indicators, and availability of care for communities. The intended methodology for this qualitative study was an extended literature review following a systematic approach. The research used EbscoHost, Marshall Digital Scholar, PubMed, SAGE Journals, and Google Scholar databases. Throughout these databases, keywords were used, such as "rural hospital closure" AND "communities" AND "employment level" OR "income status" OR "population size" AND "availability of care" to find relevant sources. Using a PRISMA diagram, articles were included (N=42) if they described rural hospital closure and its effects on the local community.

## Results

The research showed that rural hospital closures negatively impacted community economies and access to healthcare.

### *Employment and Economic Indicators*

A study of 1,759 nonmetro counties had 109 that experienced hospital closure during their study period (Malone et al., 2022). The closures resulted in a 1.4% decrease in the labor force size and a 1.1% decrease in the population of the counties mentioned (Malone et al., 2022). Rural areas that have suffered hospital closure experienced a community unemployment rate that was 0.2% higher two years later than before the closure (Vogler, 2020). One study estimated that for every 100 hospital jobs lost due to a closure in a rural community, the surrounding community loses an additional 35 jobs (Adhikari, 2020). Researchers discovered a significant annual decrease in the supply of rural primary care physicians following the closure of a rural hospital (Adhikari, 2020). The employment rate grew by 0.8% per year in rural areas during the study period, while urban areas increased by 1.9% per year (GAO, 2018). Following the closure of rural hospitals, 10-12% of workers were no longer employed in healthcare jobs in their community (Alexander & Richards, 2021). Private sector jobs decreased by 2% after a rural hospital closure and did not recover for at least three years (Alexander & Richards, 2021).

In addition to employment, it was found that rural hospital closure affected other economic factors for the community. These closures resulted in a 2.7% decrease in per capita income and a 1.3% decrease in rent prices (Vogler, 2020). Closures of the only hospital in a rural area reduced the per-capita income by 4% and increased the unemployment rate by 1.6% (Rhoades et al., 2023). There were 116 hospital closures between 2010 and 2019, and 76% of those hospitals were rural hospitals. A study from 2015 on the community effects of rural hospital closure found an average of 73 lost jobs and roughly \$4.4 million in income, and another rural hospital closure resulted in the loss of 124 jobs and \$3.3 million in labor income (Eilrich et al., 2015).

### *Healthcare Access*

Access to care changed following a rural hospital closure. After a rural hospital closure, the number of patients forced to drive longer than 90 minutes increased 72 times, and the number of patients with commute times longer than 60 minutes increased seven times (Matsumoto et al., 2012). Rural hospital closures increased EMS transport times by 2.6 minutes on average and total activation time by 7.2 minutes (Miller et al., 2020). Another study showed a 76% increase in ambulance transportation times and Length of Stay (LOS) by 5.2% due to rural hospital closures (Gujral & Basu, 2019). Patients over the age of 64 who lived in rural areas had ambulance times increase from 13.9 minutes to 27.6 minutes, a 97.9% increase (Troske & Davis, 2019). Another study analyzed five rural hospital closures; one of the five hospital closures reported that patients had to drive an additional 13 minutes to reach the following emergency department (Smith et al., 2022). After the closure of a hospital pediatric unit, those under 18 in rural areas had to travel more than 40 minutes to reach the nearest pediatric care hospital (Tischler et al., 2023). The average distance traveled for inpatients before closures was 3.4 miles and 23.9 miles after closures; the average distance traveled for patients with alcohol or drug abuse treatment was 5.5 miles before closures and 44.6 miles after closures (GAO, 2020).

There were 4 million annual births in 2014, and 15% were in rural hospitals (Daymude et al., 2022). Despite the pressure of closure, many rural hospitals that remained open discontinued their obstetric care, leaving 54% of rural counties in the United States with no obstetric services (Daymude et al., 2022). Nine percent of rural counties closed their obstetric services during the study period; an additional 45% of rural United States counties had no obstetric services at any point during the study period (Hung et al., 2017). The most isolated counties within the study had 59% of hospitals with no obstetric services. By the end of the study period, 10% of hospitals had lost obstetric services (Hung et al., 2017). Rural counties not adjacent to urban areas experienced significant increases in out-of-hospital births (0.7 percentage points), preterm births (0.67 percentage points), and births in a hospital with no obstetric unit (3.06 percentage points) the year after losing hospital-based obstetric services (Kozhimannil et al., 2018). In a study, 7.2 % of rural hospitals closed their obstetric units; it forced women to travel an additional 29 miles to access intrapartum care (Hung et al., 2016).

Closures also impacted other access to care. It was calculated that for an average rural county experiencing at least one closure during the study period, there were 88 physicians per 100,000 residents and an average number of 31,000 residents; the study calculated there was a 9% average annual decrease, which translated to losing three physicians per year after a closure (Germack et al., 2019). Closing rural hospitals resulted in a 3% rise in 30-day mortality of patients overall and a 5% rise in 1-year mortality in patients with sensitive conditions (Vaughan & Edwards, 2020). When studying the differential impact that hospital closures leave behind, a research group found that rural closures increase inpatient mortality by 8.7% (Gujral & Basu, 2019).

## Conclusion

The research showed that rural hospital closures negatively affect community employment, the local economy, and care availability. Following the closure of rural hospitals, 10-12% of workers were no longer employed in healthcare jobs in their community (Alexander & Richards, 2021). A rural hospital closure resulted in a decrease in per-capita income by 4% and an increase in unemployment by 1.6% (Adhikari, 2020). Additionally, a rural hospital closure resulted in an immediate 0.5% decrease in population size but steadily decreased over time (Vogler, 2020).

Rural patients had an average additional 11 minutes in an ambulance the year following a hospital closure, a 76% increase in travel time compared to before the closure (Troske & Davis, 2019). One of the main benefits of rural hospitals was the ease of access for rural communities. The research indicated that closing rural hospitals forces patients to travel farther distances and decreases the ease of access to care. Unemployment increased, non-healthcare job rates declined, and per capita income declined. In addition, rural residents experienced longer travel times for necessary care and higher mortality and morbidity. Given the adverse economic effects and healthcare access for rural residents, policymakers should consider this information to determine strategies to support rural hospitals in financial distress.

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