America at a glance: COVID-19 and disability in rural areas

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SUMMARY:

• Rural respondents reported higher rates of COVID-19 health risk factors, but less adherence to public health recommendations.

• Overall, individuals with health risk factors reported adopting fewer public health recommendations than individuals without health risk factors.

• Service providers and Dr. Anthony Fauci were the most trusted sources of information about COVID-19 for both rural and urban respondents.

Introduction

Public health is shaped by community-level action. This is especially important during crises such as COVID-19, where widespread adoption of public health practices is necessary to manage community spread and prevent loss. Consistent information is important for fostering trust and adherence to recommended practices. Inconsistent and polarizing information can erode trust and hinder public health response.

For instance, during the current crisis, refusal or reluctance to wear masks has been ideologically driven in some communities, despite scientific evidence that wearing a mask reduces the spread of COVID-19. Health risks are not distributed evenly across people and place. This was evident early in the pandemic when disproportionately higher rates of Black Americans and Native Americans experienced COVID-19 complications and death relative to non-Hispanic whites. Viruses like COVID-19 often impact groups who experience disparities in health care access and who have preexisting conditions the most.

While early focus of news coverage and medical attention about COVID-19 was on urban areas with large case numbers, more attention should be focused on vulnerable individuals in rural areas. Rural populations tend to be older, report more chronic health conditions, and have higher rates of disability. Congregate living and large group facilities, such as nursing homes and prisons, tend to be concentrated in rural areas. Many major meatpacking plants are in rural areas. Further, rural health care infrastructure is insufficient for treating large numbers of COVID-19 patients, and individuals often must travel further for services, including acute care hospitalization.

To learn more about COVID-19 impacts on rural people with disabilities, we conducted a survey in late April/early May to explore rural and urban differences in COVID-19 health risks, adherence to public health recommendations, and trust in different information sources. We focused on people with disabilities because they often experience higher rates of secondary health conditions that place them at heightened risk of COVID-19 complications.
Methods

We used Amazon Mechanical Turk (MTurk) to conduct a rapid survey during the ongoing pandemic. MTurk is an online marketplace where “requestors” post small tasks for “workers” to complete. This could be anything from programming code, processing photos, or completing surveys. We used MTurk to screen and recruit people with disabilities into an online survey about their experiences with COVID-19. A total of 4,930 individuals were paid $0.25 for completing a short screening survey. Those who reported having a disability (n = 408) were paid $3.00 to participate in a COVID-19 survey. We conducted the survey from April 23, 2020 to May 10, 2020, after most state-wide stay-at-home orders were in place, but prior to when most phased re-openings began.

Respondents were predominantly women (55.9%), white non-Hispanic (76.7%), and aged 18-34 (47.1%), 35-64 (47.1%), and 65 and older (5.9%). Respondents had a high school degree or less (11.5%), some college or technical school (22.5%), associate’s or technical degree (11.8%) or bachelor’s degree or higher (54%). Respondents were employed full-time (41.4%), part-time (17.4%), laid-off due to COVID (14%), or not employed (27%).

Disability

We screened 408 people with disabilities aged 18 and over into the study. People were considered to have a disability if they answered yes to at least one of two screening questions. Approximately 95% of respondents answered yes to the question “Are you limited in any way in any activities because of a physical, mental or emotional problem?” and 26% answered yes to the question “Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?”

Rural

We used rural/urban classifications from the Office of Management and Budget (OMB). The OMB classifies urban counties as metropolitan (metro) and rural counties as non-metropolitan (non-metro). Non-metropolitan counties are further delineated into micropolitan (micro) and noncore counties. Metropolitan counties contain an urban core of 50,000 or more; micropolitan counties contain an urban core of 10,000-49,999; and noncore counties contain an urban core of less than 10,000. Our sample included 79% metro, 10% micro, and 12% noncore respondents.

Health Risks

We asked participants to indicate if they had any of the following health conditions that the CDC identified as increasing risk of complications from COVID-19: asthma, diabetes, heart conditions, immune deficiency, lung disease, severe obesity, kidney disease, liver disease, or cancer.

Preventative Practices

We asked respondents if they had done any of six CDC recommended practices for mitigating the spread of COVID-19 during the last 30 days: frequent handwashing and sanitizing, avoiding public and crowded spaces, social distancing, wearing a mask, avoiding contact with high risk people, and taking their temperature.

Trust in Sources

We used a 5-point Likert-type scale, where 1 = total distrust and 5 = total trust, to measure trust of different sources of information about COVID-19. Respondents rated their level of trust of information from: personal contacts, service providers, local news, national news, local/county/state agencies, federal agencies, and visible federal government spokespeople: Dr. Anthony Fauci and President Trump.
Findings
Risk Factors
Figure 1 compares the prevalence of COVID-19 health risk factors for metro, micro, and noncore counties. Asthma was the most common condition (18% in metro, 28% in micro, and 23% in noncore), while cancer was the least common (2% in metro, 13% in micro, and 4% in noncore). Micro and noncore respondents reported higher rates of all health conditions, and significantly higher rates of diabetes, lung disease, kidney disease, liver disease, and cancer relative to metro respondents (p ≤ .05).

Recommended Practices
Figure 2 compares adherence rates between metro, micro, and noncore respondents in terms of six CDC recommended COVID-19 prevention practices. Handwashing was the most common practice (85% in metro, 80% in micro, and 60% in noncore) and taking temperature was the least common (31% in metro, 23% in micro, and 13% in noncore). Rates of adherence were not significantly different in metro and micro counties. Respondents from noncore counties reported lower rates of all practices, and significantly lower rates of handwashing/sanitizing, avoiding crowds, social distancing, and avoiding at-risk individuals (p ≤ .05).
Trusted Sources

Table 1 shows average trust ratings for each information source across metro, micro, and non-core counties. In general, service providers and Dr. Fauci were the most trusted sources of information and President Trump was the least trusted. Noncore respondents reported significantly lower trust ratings than metro respondents for most information sources including service providers, local news, local/county/state agencies, federal agencies, and Dr. Fauci.

Table 1: Trust in information about COVID-19 by metro status

<table>
<thead>
<tr>
<th></th>
<th>Personal Contacts</th>
<th>Service Providers</th>
<th>Local News</th>
<th>National News</th>
<th>Local, County, State Agencies</th>
<th>Federal Agencies</th>
<th>Dr. Fauci</th>
<th>President Trump</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro</td>
<td>3.54</td>
<td>4.11</td>
<td>3.37</td>
<td>3.27</td>
<td>3.73</td>
<td>3.73</td>
<td>3.85</td>
<td>2.19</td>
</tr>
<tr>
<td>Micro</td>
<td>3.50</td>
<td>4.13</td>
<td>3.31</td>
<td>3.00</td>
<td>3.47</td>
<td>3.68</td>
<td>3.54</td>
<td>2.47</td>
</tr>
<tr>
<td>Noncore</td>
<td>3.23</td>
<td>3.19</td>
<td>2.87</td>
<td>2.90</td>
<td>3.08</td>
<td>3.17</td>
<td>3.38</td>
<td>2.61</td>
</tr>
</tbody>
</table>

Note: Asterisks denote statistically significant differences between groups. * p ≤ .05; ** p ≤ .01; *** p ≤ .001.

Recommended Practices by Risk

We added the number of CDC preventative practices each respondent endorsed to create a score from 0 = did not do any practices to 6 = did all six recommended practices. Table 2 shows the mean number of preventative practices for health risk factors identified by the CDC. On average, those without any listed risk factors adopted slightly more practices than those with risk factors. However, there were some exceptions. Individuals with asthma, immune deficiency, and severe obesity reported adopting more preventative practices, while those with lung disease reported the fewest.

Table 2: Mean number of recommended practices by risk factors

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>No risk factors (n = 204)</td>
<td>4.17</td>
</tr>
<tr>
<td>Any risk factors (n = 204)</td>
<td>3.88</td>
</tr>
<tr>
<td>Asthma (n = 81)</td>
<td>4.16</td>
</tr>
<tr>
<td>Diabetes (n = 63)</td>
<td>3.71</td>
</tr>
<tr>
<td>Heart condition (n = 48)</td>
<td>4.06</td>
</tr>
<tr>
<td>Immune deficiency (n = 41)</td>
<td>4.21</td>
</tr>
<tr>
<td>Lung disease (n = 26)</td>
<td>2.84</td>
</tr>
<tr>
<td>Severe obesity (n = 39)</td>
<td>4.46</td>
</tr>
<tr>
<td>Kidney disease (n = 16)</td>
<td>3.31</td>
</tr>
<tr>
<td>Liver disease (n = 13)</td>
<td>3.46</td>
</tr>
<tr>
<td>Cancer (n = 13)</td>
<td>3.92</td>
</tr>
</tbody>
</table>
**Recommended Practices by Trust**

Table 3 shows bi-variate correlations between trust of information sources and adherence to CDC recommended practices. Trust in service providers was the most highly correlated with adherence to recommended practices, followed by trust in government agencies and Dr. Fauci. Trust in President Trump was the only source negatively correlated with adherence to recommended practices.

<table>
<thead>
<tr>
<th>Info Source</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal contacts</td>
<td>0.081</td>
</tr>
<tr>
<td>Service providers</td>
<td>0.325**</td>
</tr>
<tr>
<td>Local news</td>
<td>0.125*</td>
</tr>
<tr>
<td>National news</td>
<td>0.009</td>
</tr>
<tr>
<td>Local, county, state agencies</td>
<td>0.268**</td>
</tr>
<tr>
<td>Federal agencies</td>
<td>0.226**</td>
</tr>
<tr>
<td>Dr. Fauci</td>
<td>0.254**</td>
</tr>
<tr>
<td>President Trump</td>
<td>-0.262**</td>
</tr>
</tbody>
</table>

Note: Asterisks denote statistically significant correlations between trust in information sources and number of CDC recommended practices. * p ≤ .05; ** p ≤ .01; *** p ≤ .001.

**Discussion**

Overall, noncore respondents with disabilities reported higher prevalence of all risk factors, less adherence to public health recommendations for preventing the spread of COVID-19, and less trust of information sources except for President Trump, relative to metro respondents with disabilities. Interestingly, noncore and micro counties appear more similar in terms of health risk factors, while micro and metro counties were more similar in terms of adherence to public health recommendations and trust in information sources.

There are several possible explanations for these findings. First, very rural counties had not experienced large numbers of COVID-19 cases when these data were collected. This could contribute to a perception of low risk among rural residents that explains why they may not adopt as many preventative practices, despite higher rates of health risks. Second, health literacy rates tend to be lower in rural areas, which can make it harder to understand public health information during a crisis. This may hinder the adoption of recommended practices and impact trust. Third, what appear to be geographic differences may actually be driven by ideological differences. President Trump’s messaging about COVID-19 has often conflicted with information from other sources such as service providers and Dr. Fauci. Inconsistent and contradicting messages could contribute to ideologically polarized reactions to the pandemic. Finally, inaccessible health information may also play a role. Information can be inaccessible because it’s not provided in alternate formats for individuals who are deaf, blind, or speak another language, or it could be too complicated for those with intellectual or developmental disabilities. As a result, inaccessible information may contribute to misunderstandings of COVID-19 and hinder public health responses to it.

**Limitations**

In general, MTurk respondents tend to be younger, more educated, less racially diverse, and report higher rates of psychological disability compared to the general population of individuals with disabilities. This appeared to hold true for our
sample. Further, participants must have access to the internet and ability to use MTurk, which may shape how they consume information. These findings also are strictly cross-sectional, which limits our ability to determine causal relationships. There may also be explanatory variables we did not capture such as perceived risk (i.e. local prevalence of cases), personal exposure (i.e. knows someone who has had COVID-19), and social pressures which may impact individual behaviors. For example, someone could be more or less inclined to adhere to recommended practices based on what individuals around them are doing, or if they regularly interact with other individuals (such as close family members) who may be at higher risk. Some of these limitations could be addressed with a larger and more diverse sample and a more comprehensive survey. Future work should seek to understand how these trends are shifting longitudinally as states begin to re-open and case numbers increase in rural areas.

Recommendations

Despite limitations, these findings are useful for understanding how to better serve at-risk populations, such as individuals with disabilities living in rural areas.

First, health messaging should be consistent and based on the best scientific evidence available, and highlight risk factors that contribute to COVID-19 complications to better inform individuals with these conditions.

Second, because service providers are a highly trusted information source, they should be utilized as conduits for emerging public health recommendations.

Third, health messaging should be tailored to specific populations and geographies. For example, warnings against avoiding large crowds may not be relatable to people living in more sparsely populated areas. An alternative approach could be to highlight specific populations such as older residents, those living in institutions, or those working in large facilities such as factories or meat processing facilities.

Finally, health information should be accessible to everyone. This means using plain language that everyone can understand, and ensuring that the information is shared in formats that are accessible.

Information also needs to be available to folks who may not have access to the internet.

Overall, these findings support the relationship between trust in information and adherence to public health practices. As the pandemic continues to ravage the US and penetrate even the most sparsely populated communities, providing clear, consistent, and up-to-date health recommendations will become increasingly vital.

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References


Images

Unless otherwise noted, all photos are from Healthy Community Living (www.HealthyCommunityLiving.org) under which people from around the country have sent in photos of “Real People, Real Places” that have to do with living with disability in America. Icons are from The Noun Project (www.thenounproject.com).

Suggested Citation


For Additional Information

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