Daily life in the United States and Utah has changed considerably since the global outbreak of the COVID-19 novel coronavirus. On 6 March 2020, Gary R. Herbert, Governor of the State of Utah, declared a “State of Emergency” in response to the pandemic. On 27 March, the Governor then issued the “Stay Safe, Stay Home” Directive, which was much less strict than the shelter in place orders seen in some other states as it simply urged residents to leave home infrequently, stay six feet away from others outside the home, and banned private gatherings larger than 20. At the end of April, the Utah COVID-19 Public Health Risk Status was moved from Red (High Risk) to Orange (Moderate Risk), meaning the Governor’s recent directive was no longer in place as of 1 May.

According to the Utah Department of Health, as of 8 October, the state of Utah had 81,947 confirmed COVID-19 cases, 4,167 hospitalizations, and 501 deaths. The majority of each have been concentrated in Salt Lake and Utah counties, the most populated counties in the state, yet rates are highest in rural San Juan County. (See Figure 1 on next page.)
While the curve of lab-confirmed positive COVID-19 cases started to flatten in Utah in April, they peaked again during July, and have remained at higher levels before noticeably increasing again starting in September. Rural counties across the country and in Utah are increasingly becoming hot spots for the virus. For instance, as of 3 October, a record-breaking number of rural counties made it on the White House “red-zone list,” indicating that their infection rates warrant that authorities in those places put further measures in place to control the virus (Murphy and Marena, 2020). In Utah, non-metro counties in the “red-zone” include Summit, Wasatch, Emery, Piute, and Kane.

Despite these trends, in a preliminary review of newspapers published across the state, we find that newspapers in more rural parts of the state appear to focus less on COVID-related issues. When they did focus on coronavirus issues they often focused on topics such as school closures in relation to COVID-19 and confirmed cases in their city or county. Urban or statewide newspapers seem to publish more articles related to COVID-19, with some dedicating a section to stories related to the virus, including a focus on school closures and case counts. In the newspapers from urban areas, many of the articles focused on the coronavirus related to mask mandates and county risk level changes. There were very few articles on these topics in the newspapers from more rural parts of the state.

Amidst these occurrences, little reliable and representative information has been available regarding how Utah residents are perceiving and behaving during the coronavirus epidemic, including how the experience varies along the rural-urban continuum. In this article, we focus on differences related to the pandemic in perceived personal impacts, behavior (e.g., mask wearing), views of government response, and views of science between Utah residents living in rural, transitional, and urban counties. Similar to the Utah Community Development Office (http://www.ruralplanning.org/assets/soru-report.pdf), we consider rural counties to be those with no city over 50,000 and not significantly affected by urban growth, transitional counties to be counties adjacent to urban counties with main interstate connections to urban counties or remote counties with city populations over 50,000, and urban counties to be those with populations over 150,000.

Results
Almost one-half of Utah residents said their overall life had been negatively impacted by COVID-19, with 38% saying their mental health has taken a downward turn. Nearly one in three Utah households have also experienced a negative impact on their finances and about one in four Utahns are part of households that know someone who has tested positive or been sick from the coronavirus. However, there were no differences between Utahns living in rural, urban, and transitioning counties in their perceived overall well-being since the pandemic started, perceived personal impacts from the virus (overall, financial, mental health, and physical...
health), views on whether the pandemic would get worse, worry about the coronavirus, or knowing someone who had died from the virus. Residents of rural counties in Utah were, however, significantly less likely than residents of urban and transitional counties to know someone who has tested positive for the coronavirus. Rural residents were also less likely to know someone who was sick with the coronavirus, but the difference was just under the threshold of statistical significance.

Most Utahns made major changes to their behavior during the stay-at-home advisory that lasted from mid-March to mid-May. Notably, rural county residents were significantly less likely to have made majors changes to their daily routine and more likely to have made no changes than residents of transitioning and urban counties (see Figure 2). Thirty percent made no changes in comparison to 16% in transitioning counties and 8% in urban counties.

On the other hand, 38% of rural residents made major changes in comparison to 64% in transitioning counties, and 69% in urban counties. Similarly, since the stay at home order was lifted, rural county residents were the most likely to have no changes in their daily lives, while the same is true for 23% of those in transitioning counties and only 13% in urban counties. Mask wearing also varies significantly by county rurality. About one in three (36%) rural county residents say they never wear a face mask when they are in public in comparison to 19% of those in transitioning counties and 12% in urban counties. They are also the least likely to say they always wear them (27%, 28%, and 33%, respectively).

Rurality of the county of residence appears to make little difference in views on how various levels of government are responding to the pandemic. There were no differences in views on the appropriateness of how swiftly various levels of government responded by county type, how they view the President as doing his job generally and in regards to the coronavirus, how they view Governor Herbert generally and in regards to the coronavirus, how Congress has responded to the coronavirus, and local government response to the virus. Notably, however, in Utah as a whole, views on President Trump’s handling of the coronavirus were much more polarized than views of Governor Herbert and local government officials. Utahns expressed the most disapproval for Congress.

The majority of Utahns thought their communities came together to respond to the pandemic and that they knew people they could turn to for help. Many also would like to see the pandemic used to create social change. There were no differences by county type except for on belief in keeping businesses closed to help slow the spread of the virus. Rural residents had much more polarized views than other residents, with a high percentage strongly agreeing and strongly disagreeing.

By county type, Utahns do use different sources for their news (e.g., non-rural residents more often read national and state-level newspapers, while rural residents are more likely to read local newspapers) and there are important differences in how much they trust a variety of possible sources for information about the coronavirus. While there were no differences in trust in information on the coronavirus from President Trump, the state government, or local government, rural residents were significantly less likely to trust scientists and researchers, the Centers for Disease Control (CDC), and the World Health Organization (WHO). (See Figure 3 on next page.)

While there is some skepticism of scientific findings in general, most Utahns are concerned about issues like climate change and see it as human caused. There were no significant differences in whether residents
believe scientists adjust their findings to get the responses they want, although rural residents were less likely to strongly disagree with this statement.

Discussion
While the state of Utah has been slower to reach the high case and death counts experienced by some states from COVID-19, it has not escaped the widespread social and economic impacts of the pandemic as our survey results show. Overall, we find that there are some key differences between Utah residents living in rural versus urban and transitional counties with regards to their behavior and attitudes regarding the pandemic.

While we find that perceived impacts do not differ much based on what type of county Utahns live in, we do find that their behavior varies considerably. Rural Utahns were less likely to change their daily routines and wear masks in public. Place of residence also did not play a role in how Utahns viewed the responses of various levels of government to the pandemic, yet it did matter regarding how much they trust some sources of information regarding the coronavirus.

As the virus increasingly spreads to rural areas, understanding the ways rural people have experienced and reacted to the virus, and what sources of information they trust about the virus, will be increasingly important to develop strategies to address rural population health and well-being. Our research indicates that such strategies may not be “one size fits all” and may need to differ based on population contexts, such as rurality. Future research should continue to examine how Utahns are impacted by the virus over time and how their views on government response and behavior shift. Such information can be used by policymakers to better address the changing circumstances during the pandemic. *

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Methods
The data in this article are based on an online panel survey of 634 adult residents of Utah conducted from 12 June to 29 June, just as the virus was trending upwards in the state mid-summer. We use weights with our data (by sex, age, education, party registration, and region), to adjust the results somewhat to be more representative of Utahn adults. With weights, about half are female, 40% have a college degree, and 35% are registered Republicans. In order to take the survey, respondents had to be 18 years or older, live in Utah year-round, or be a seasonal resident who was also currently registered to vote in the state. Based on the county typology described above, 69% of respondents lived in urban counties, 24% lived in transitional counties, and 7% lived in rural counties. Any differences between location of residence we term as “significant” are large enough that they are not due to chance, and at minimum have a 95% chance of being true (p<.05).

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