The Impact of COVID-19 on Psychosocial Distress and Quality of Life Among Rural Cancer Survivors

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BACKGROUND AND RELATION TO CANCER PREVENTION

- Cancer survivors and rural residents are two groups burdened with high risk of COVID-19 infection and mortality.
- During the COVID-19 pandemic, health behaviors and physical and mental wellbeing have declined, and cancer survivors and rural adults have reported disproportionately higher levels of psychosocial distress and poorer quality of life (QOL).
- Increased levels of psychosocial distress negatively impact lifestyle habits, but few studies have explored the impact of COVID-19 on psychosocial distress and QOL among rural cancer survivors.
- Understanding how COVID-19 impacted psychosocial distress can inform interventions (e.g. stress management, physical fitness) to improve lifestyle behaviors and QOL and reduce cancer health disparities among rural cancer survivors.

OBJECTIVES AND HYPOTHESES

Objective 1: To examine changes in psychosocial distress and QOL in rural cancer survivors from pre- to post-pandemic (2017-2020).

Hypothesis 1: Rural cancer survivors will report increases in psychosocial distress and decreases in QOL from 2017-2020.

Objective 2: To explore associations between changes in psychosocial distress and QOL and health behaviors among rural cancer survivors in central Pennsylvania.
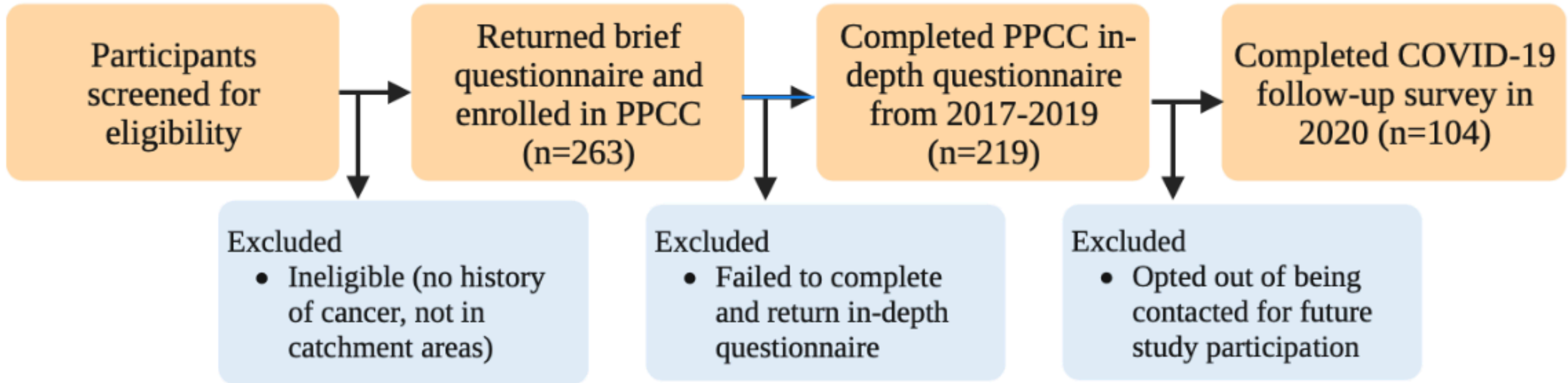
Hypothesis 2: Changes in psychosocial distress and QOL will negatively impact health behaviors (e.g., physical activity, diet, sleep).

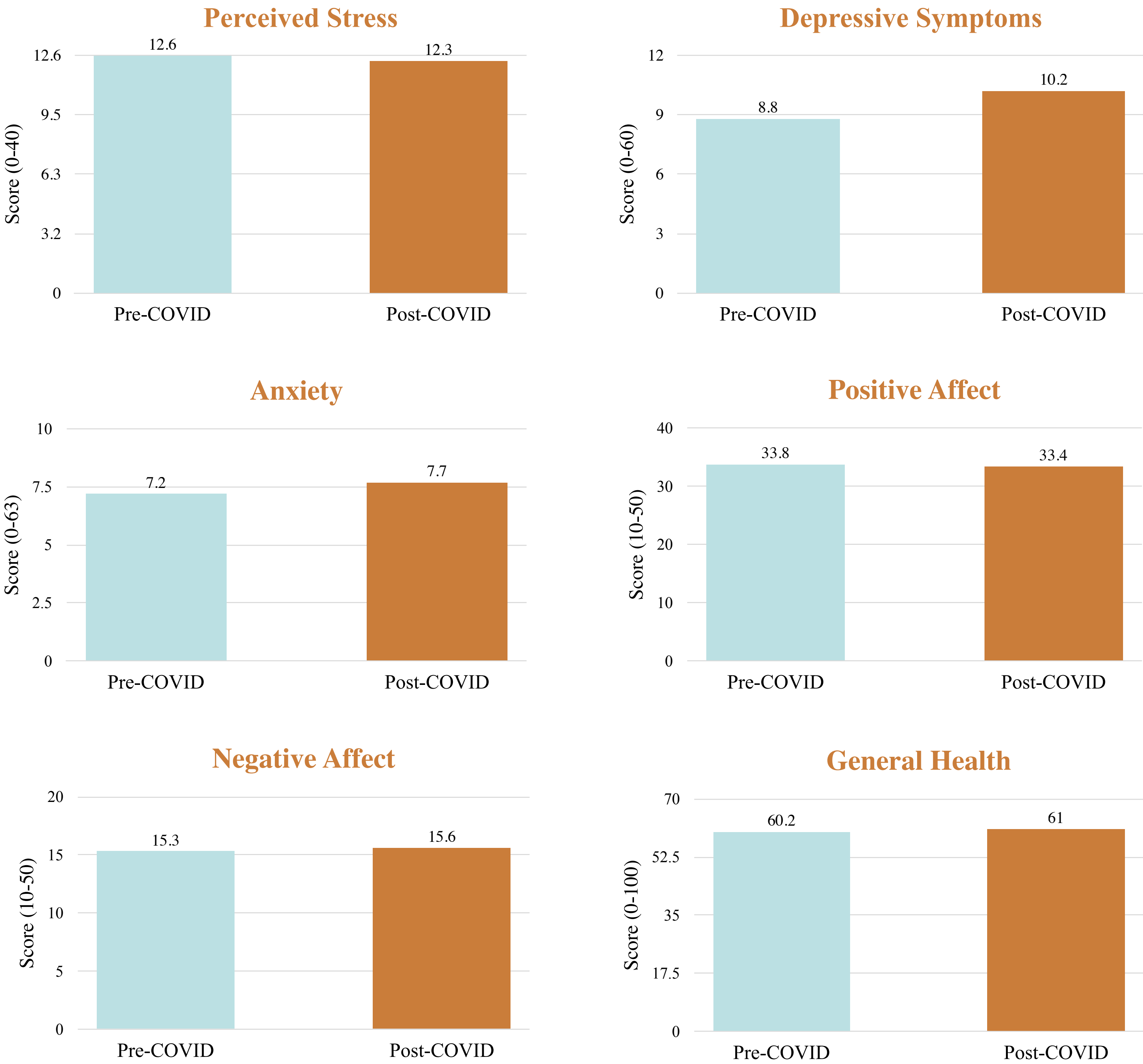### RURAL COUNTIES IN PENNSYLVANIA
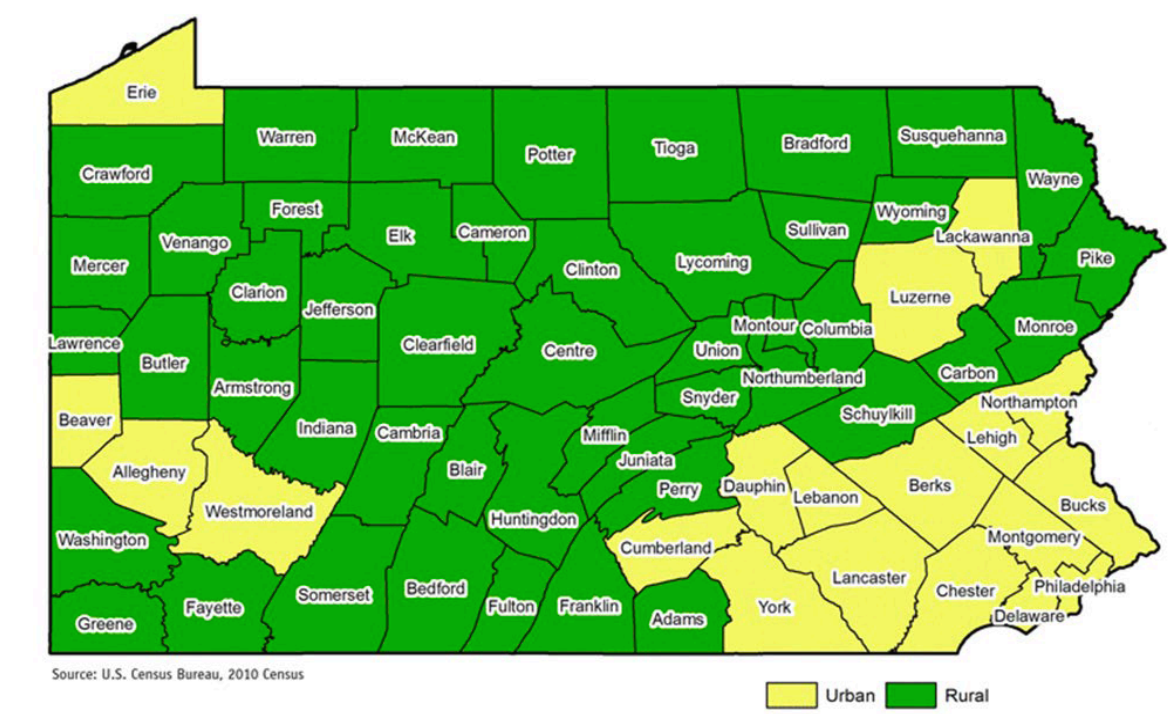
METHODS

- Participants were invited to the initial Partnering to Prevent and Control Cancer (PPCC) study by mail in 2017-2019 and completed a questionnaire.
- In April 2020, a subset of PPCC participants were invited to complete the COVID-19 follow-up survey.

Participants screened for eligibility → Returned brief questionnaire and enrolled in PPCC (n=263) → Completed PPCC in-depth questionnaire from 2017-2019 (n=219) → Completed COVID-19 follow-up survey in 2020 (n=104)

Excluded
- Ineligible (no history of cancer, not in catchment areas)

Excluded
- Failed to complete and return in-depth questionnaire

Excluded
- Opted out of being contacted for future study participation

Construct	Measure
Psychosocial Wellbeing	
Perceived Stress	10-Item Perceived Stress Scale (PSS-10)
Depressive Symptoms	Center for Epidemiological Studies Depression Scale (CESD-10)
Anxiety	Beck Anxiety Inventory (BAI)
Affect	Positive and Negative Affect Scale (PANAS)

Construct	Measure
Health Behaviors	
Physical Activity	International Physical Activity Questionnaire (IPAQ)
Sleep Quality	Pittsburgh Sleep Quality Index (PSQI)
Fruit and Vegetable Intake	NIH Fruit and Vegetable Screener
Alcohol Use	Alcohol Quantity and Frequency Survey

RESULTS

Perceived Stress — Pre-COVID: 12.6, Post-COVID: 12.3

Depressive Symptoms — Pre-COVID: 8.8, Post-COVID: 10.2

Anxiety — Pre-COVID: 7.2, Post-COVID: 7.7

Positive Affect — Pre-COVID: 33.8, Post-COVID: 33.4

Negative Affect — Pre-COVID: 15.3, Post-COVID: 15.6

General Health — Pre-COVID: 60.2, Post-COVID: 61

Note: All figures are adjusted for gender, age, BMI (kg/m^2), and education.

- Paired samples t-tests were used to explore changes in psychosocial wellbeing and QOL pre- and post-COVID. Trends suggest depressive symptoms, anxiety, positive affect, negative affect, and general health-related QOL slightly increased over time and perceived stress decreased. However, there were no statistically significant changes in psychosocial wellbeing or QOL variables pre- and post-pandemic.
- Multiple regression models were used to explore the association between changes in psychosocial distress and QOL and post-COVID health behaviors individually (physical activity, sleep quality, fruit and vegetable intake, and alcohol use). However, associations were not statistically significant after controlling for age, gender, BMI, and pre-COVID health behaviors.

PARTICIPANT CHARACTERISTICS

Characteristic	N (Percent)
Gender	
Male	36 (34.6)
Female	68 (65.4)
Age [mean ± SD years]	61.86 ± 13.9
BMI [mean ± SD kg/m^2]	29.09 ± 7.5
Education	
< Bachelor's Degree	38 (36.5)
≥ Bachelor's Degree	66 (63.4)
Cancer Type	
Breast	27 (26.0)
Colorectal	12 (11.5)
Gynecological	17 (16.3)
Prostate	21 (20.2)
Other	27 (26.0)
Treatment Status	
Currently undergoing Tx	8 (7.8)
≥ 12 weeks post-surgery or Tx	98 (95.1)
> 5 years post-surgery or Tx	6 (6.2)

	Pre-COVID Mean (SD)	Post-COVID Mean (SD)
Psychosocial Wellbeing		
Perceived Stress (Scale: 0-40)	12.6 (6.8)	12.3 (6.9)
Depressive Symptoms (Scale: 0-60)	8.8 (8.7)	10.2 (9.4)
Anxiety (Scale: 0-63)	7.2 (8.2)	7.7 (9.0)
Positive Affect (Scale: 10-50)	33.8 (7.6)	33.4 (7.7)
Negative Affect (Scale: 10-50)	15.3 (5.6)	15.6 (5.5)
Quality of Life		
General Health (Scale: 0-100)	60.2 (21.9)	61.0 (24.3)

CONCLUSION

Community-based interventions are needed that address mind-body relaxation and sleep quality to enhance survivorship and improve QOL among rural cancer survivors. Future research is needed to compare findings from this study with those in nonrural groups to further understand the impact of the pandemic on psychosocial wellbeing and health behaviors and to address health disparities.

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