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**Corresponding author:**

Anuli Njoku

njokua3@southernct.edu

**Author Affiliation:**

Southern Connecticut State University.

Njoku, A; Sawadogo, W; Frimpong, P.

**ADMINISTRATIVE INFORMATION****Support** - None.**Review Stage at time of this submission** - Completed but not published.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202450041**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 09 May 2024 and was last updated on 09 May 2024.**INTRODUCTION**

**Review question / Objective** To comprehensively review the literature and summarize the current knowledge on racial and ethnic disparities in cancer occurrence and outcomes in rural United States.

**Background** Cancer, or the collection of diseases caused by the body's uncontrolled division of cells, is the second-leading cause of death in the United States (U.S.), exceeded only by heart disease. In 2023, there were an estimated 2 million cancer diagnoses and over 609,000 cancer deaths in the U.S. According to the 2022 U.S. Census Bureau, more than 46 million, or about 15% of the U.S. population, live in rural areas. United States Department of Agriculture (USDA), Economic Research Service (ERS) researchers develop "rural" classifications on the basis of counties, with nonmetro countries including some combination of

open countryside and a fewer number of people and housing units. While cancer death rates have decreased nationwide, there is a slower reduction in cancer death rates in U.S. rural areas, driven partly by high death rates from colorectal, prostate, lung, and cervical cancers.

**Rationale** Most cancer research highlighted either rural vs urban disparities or racial disparities separately. When rural underrepresented populations are included, they are compared with urban underrepresented minorities while rural Whites are compared with urban Whites. In general, rural populations experienced a higher burden of cancer than urban populations, and underrepresented racial and ethnic groups more than their White counterparts. Those individual disparities could result in racial and ethnic disparities in rural areas with an additional burden on underrepresented populations living in the rural United States. Few studies, however, focused on

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racial disparities related to the intersection of race and rurality.

## METHODS

**Strategy of data synthesis** A narrative synthesis will be used to summarize qualitative studies. Depending on the number of included quantitative studies, a meta-analysis may or may not be used. If applicable, Effect sizes will be calculated by summarizing the ORs and their corresponding 95% CIs. Heterogeneity will be assessed with the  $I^2$  statistics for each analysis with the significance level set at  $P < 0.05$ . If there is significant heterogeneity between studies, random effects models will be used to combine OR estimates, if not fixed effect model will be used.

**Eligibility criteria** Inclusion criteria: We will include (1) qualitative and quantitative studies, (2) conducted in rural areas of the U.S. and comparing race and/or ethnicity groups, involving (3) adult population (age >18 years), (4) published in English, (5) in a peer-reviewed journal. Exclusion criteria: We will exclude (1) articles that were a review, commentary, expert opinion, (2) duplicate studies or overlapping data, (3) articles without full-text or abstract-only papers.

**Source of evidence screening and selection** Medline (PubMed), Embase(Ovid) and manual search.

**Data management** Three reviewers will independently screen the articles and extract the relevant information according to the PRISMA guidelines. Any disagreements were resolved via discussion to reach a consensus. The following information was extracted: the study details (title, location, publication journal, and year); study characteristics (design, participants, sample size, type of analysis); type of cancer and outcome, covariate-adjusted for, measures of effect, findings, and limitations.

**Reporting results / Analysis of the evidence** A narrative synthesis will be used to summarize qualitative studies. Depending on the number of included quantitative studies, a meta-analysis may or may not be used.

If applicable, Effect sizes will be calculated by summarizing the ORs and their corresponding 95% CIs. Heterogeneity will be assessed with the  $I^2$  statistics for each analysis with the significance level set at  $P < 0.05$ . If there is significant heterogeneity between studies, random effects models will be used to combine OR estimates, if not fixed effect model will be used.

**Presentation of the results** Table, figure, and narrative review.

**Language restriction** English.

**Country(ies) involved** USA.

**Other relevant information** None.

**Keywords** cancer, health disparities, rural, race, ethnicity.

**Dissemination plans** peer-reviewed publication and conference presentations.

### Contributions of each author

Author 1 - Anuli Njoku.

Email: njokua3@southernct.edu

Author 2 - Wendemi Sawadogo.

Email: sawadogow1@southernct.edu

Author 3 - Princess Frimpong.

Email: frimpong1@southernct.edu