

11-2-2023

The Relationship Between Cancer Screening Utilization and Racial Discrimination: A Systematic Review

Priya Small

Wright State University, priya.small@wright.edu

Amanda M. Hinson-Enslin

Wright State University - Main Campus, amanda.hinson-enslin@wright.edu

Timothy Crawford

timothy.crawford@wright.edu

Joanna Anderson

East Tennessee State University, joanna.anderson@wright.edu

Follow this and additional works at: <https://scholarcommons.sc.edu/ji>



Part of the [Community Health and Preventive Medicine Commons](#), and the [Other Social and Behavioral Sciences Commons](#)

Recommended Citation

Small, Priya; Hinson-Enslin, Amanda M.; Crawford, Timothy; and Anderson, Joanna (2023) "The Relationship Between Cancer Screening Utilization and Racial Discrimination: A Systematic Review," *Journal of Ideology*. Vol. 42: No. 1, Article 5.

Available at: <https://scholarcommons.sc.edu/ji/vol42/iss1/5>

This Article is brought to you by the USC Lancaster at Scholar Commons. It has been accepted for inclusion in *Journal of Ideology* by an authorized editor of Scholar Commons. For more information, please contact digres@mailbox.sc.edu.

The Relationship Between Cancer Screening Utilization and Racial Discrimination: A Systematic Review

Abstract

Objective. To assess literature about cancer screening and cancer screening adherence among people of color and how discrimination impacts cancer screening and cancer screening adherence outcomes among patients of color.

Methods. PRISMA guidelines were used for the systematic review. EBSCO/MEDLINE, Web of Science, and CINAHL were searched and articles were uploaded in to Rayyan Systematic Review software. Three independent reviewers identified additional articles by searching reference lists of relevant articles; they completed the screening process and reviewed the included articles.

Results. Nine eligible studies were included, among which two were qualitative and seven were quantitative. Studies included one cancer screening measure and some included multiple cancer screening measures. Five studies focused on a particular race such as Black or American Indian while four included a mixture of racial groups.

Conclusions. Eligible articles suggested discrimination was associated with poor uptake of screenings for most cancer types; however, findings were mixed with some studies indicating associations between discrimination and poor uptake of screenings while others indicated no association. Future research can focus on how discrimination impacts cancer prevention among marginalized populations.

Keywords

cancer screening, discrimination, race, ethnicity, PRISMA

Comments

Priya Small and Amanda M. Hinson-Enslin are both first authors.

The Relationship Between Cancer Screening Utilization and Racial Discrimination: A Systematic Review

Introduction

In 2020, over 19 million individuals were diagnosed with cancer and over 10 million individuals were estimated to die from cancer globally (Sung et al., 2021). In the United States, the National Cancer Institute (NCI) estimated in 2020 that 1.8 million Americans were diagnosed with cancer and over 600,000 died from the disease (National Cancer Institute, n.d.). Cancer remains one of the leading causes of death despite increased prevention initiatives (Ahmad & Anderson, 2021). Moreover, the burden of cancer impacts individuals economically, psychosocially, and psychologically (Caruso & Breitbart, 2020; Essue et al., 2020; Park & Look, 2019).

Despite improvements in cancer death rates over the past 20 years, racial and ethnic minorities are still disproportionately impacted by cancer (American Association for Cancer Research, 2020a, 2020b; DeSantis et al., 2019; White et al., 2017). Disparities among racial and ethnic minorities are based on type of cancer, stage of diagnosis, and survival rates (DeSantis et al., 2019; Zavala et al., 2021). Among race/ethnicity groups and sex, African American men experience the highest mortality rate and Asian Pacific Islander women experience the lowest mortality National Cancer Institute, n.d.). (DeSantis et al., 2019; Zavala et al., 2021) Also, DeSantis et al. (2019) noted Black women had a similar breast cancer incidence rate to white women; however, the death rate among Black women with breast cancer is disproportionately greater than white females and the 5-year survival rate among Black women was lower than white women. On the other hand, Black individuals had lower rates of non-Hodgkin lymphoma than white individuals but also had similar death rates because of non-Hodgkin lymphoma (DeSantis et al., 2019).

Even with the improved health outcomes of cancer over the past 20 years, there are still racial and ethnic disparities in minority racial and ethnic groups obtaining cancer screenings (American Association for Cancer Research, 2020a, 2020a; DeSantis et al., 2019; Miles-Richardson et al., 2017; Miller et al., 2018; White et al., 2017). In a *Morbidity and Mortality Weekly Report*, recent use of mammograms, Pap tests, and colorectal screenings are lowest among minority groups (Miles-Richardson et al., 2017; White et al., 2017). Furthermore, low rates of cancer screenings among minority groups may be a cause of higher incidence of cancer among minority groups (American Association for Cancer Research, 2020a, 2020b; Miller et al., 2018). Additionally, barriers may hinder individuals from obtaining cancer screenings during the recommended time schedule or ever.

Factors that hinder or prevent cancer screenings among minority groups are socioeconomically related (education level and income level) emotional (general fear, embarrassment, shame, and fear of pain), lack of access (time restraints, lack of access to healthcare, and lack of health insurance coverage), cognitive (low perceived risk and lack of cancer related symptoms), and provider-related (fear, mistrust, and discrimination) (Bynum et al., 2011; Lee et al., 2020; Marlow et al., 2015; Miles-Richardson et al., 2017; Stanley et al., 2013).

Individuals who experience racial discrimination experience poorer health outcomes (Williams et al., 2019). Furthermore, discrimination is a barrier to achieving health equity among populations (Braveman et al., 2018; Krieger, 2014). Individuals who experience discrimination are less likely to obtain prevention services, adhere to medical recommendations, and maintain appropriate regimens for prevention of chronic conditions (Gonzales et al., 2013; Jacobs et al., 2014; Shelton et al., 2010; Simonds et al., 2011). Moreover, minorities who experience discrimination and/or racism are less likely to participate in cancer prevention such as screenings (Gonzales et al., 2013; Rogers et al., 2015; Shelton et al., 2010; Simonds et al., 2011). The burden of not obtaining cancer screenings can lead to health complications, increased hospitalizations, higher economic costs, as well as excess morbidity and mortality. Patients perceiving discrimination in their healthcare also suffer critical health outcomes such as delayed cancer diagnosis (Pérez-Stable et al., 2013). The topic of perceived discrimination as it relates to cancer screenings is significant as it can help draw attention to underlying factors responsible for health disparities. This area of study bears implications for healthcare teams' care for patients—care that should strive to demonstrate cultural responsibility and cultural humility (Stubbe, 2020).

There is a paucity of research about cancer screenings and discrimination (Rogers et al., 2015, Ibekwe et al., 2021). Three systematic reviews, examine cancer screenings adherence and uptake (D'Onise et al., 2020; Lu et al., 2012; Rogers et al., 2015). D'Onise et al. (2020) examine the barriers and enablers of colorectal screenings and Lu et al. (2012) interventions to increase cancer screening participation. On the other hand, Rogers et al. (2015), examine masculinity, racism, social supports, and their impacts on colorectal screenings. Each of the aforementioned studies focuses on one specific racial/ethnic group and/or a specific cancer screening or intervention among individuals from different regions.

Therefore, there is a need to widen the scope to multiple minority groups and all cancer screening methods to gain a better understanding of how discrimination impacts adherence and uptake of cancer screening. Thus, the purpose of this systematic review is to examine published literature about cancer

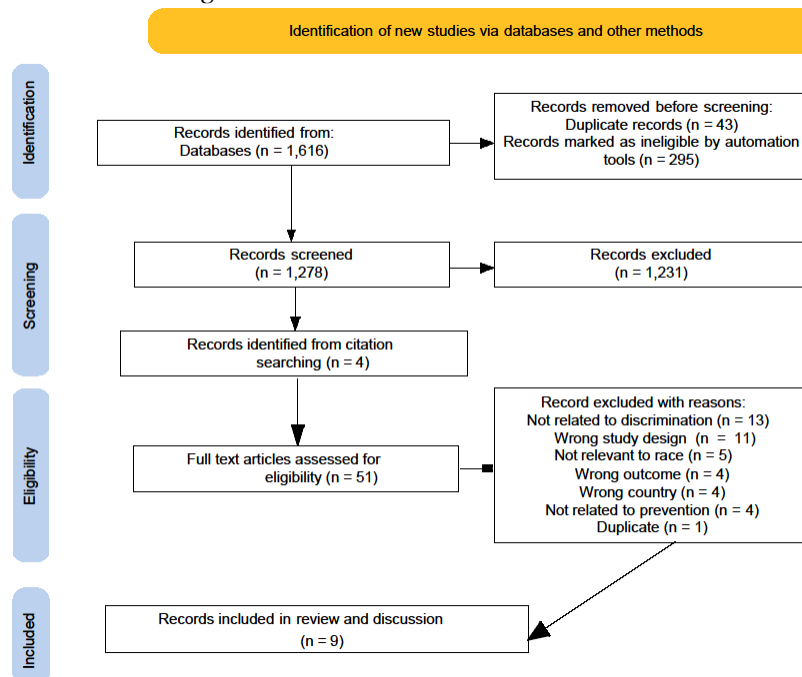
screening and cancer screening adherence among people of color and how racial/ethnic discrimination impacts cancer screening and cancer screening adherence outcomes among patients of color. Additionally, the aim of this systematic review is to bring attention to the level and/or degree of racial/ethnic discrimination experiences among individuals and how it impacts obtaining cancer prevention services. Furthermore, this systematic review explores how perceived racial and/or ethnic discrimination by healthcare and public health professionals impact screening and cancer screening adherence among minority patients.

Methods

Search Strategy

A systematic search of the databases was conducted following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) systematic review protocol. PRISMA was selected because it is used to evaluate health interventions (Page et al., 2021). The PRISMA protocol was selected and followed to ensure the quality of this systematic review (Moher et al., 2009). The search resulted in 1,616 records with 43 manually resolved duplicate records, and 295 marked as ineligible automatically through Rayyan, resulting in 1,278 unique records. All unique titles and abstracts were reviewed by the three reviewers, 47 records were identified for full text review and four additional articles were identified through citation searching. Overall, 51 studies were assessed for closer review, with only nine studies chosen to include in the review and analysis. A detailed map of the process is available in Figure 1.

Figure 1.
Flowchart of PRISMA Systematic Review Process About Discrimination and Cancer Screening Utilization.



Protocol and Eligibility

Studies identified through the literature search were included if they: 1) addressed discrimination relating to discrimination ethnicity and race; 2) included cancer screening; 3) included cancer prevention strategies; 4) were published in academic journals or dissertations; 5) were conducted within the United States; 6) were published in English; and 7) were published between January 2010 and November 2021. Studies identified in the literature search were excluded if studies: 1) included the wrong outcome (n = 325); 2) were published before 2010 (all from Web of Science) (n = 245); 3) were not focused solely on the United States (n = 216); 4) were not related to cancer (n = 170); 5) were not related to discrimination (n = 108); 6) included the wrong study design (n = 82); 7) were not related to cancer prevention (n = 64); 8) were identified duplicates (n = 37); 9) were not relevant to race (n = 18); and 10) were unavailable in English (n = 3). Additionally, studies were excluded if the full text of the article was unavailable (n = 1). The medical librarian conducted a final search on August 4, 2022 and 74 articles were found. To verify the final search results, the abstracts were reviewed by authors, of which none of the results met the inclusion criteria of this review.

Information Sources

An electronic search was carried out using EBSCO/MEDLINE, Web of Science, and CINAHL by the medical librarian. These databases were selected because they are databases that focus on clinical and public health topics and they were the databases available to the authors. The search strategy utilized Boolean operators (AND/OR), incorporating the relevant terms: (discrimination OR prejudice OR stereotype OR bias OR stigma) AND cancer AND prevention AND (morbidity OR mortality OR death). The search was limited to January 2010 to September 2020, with a subsequent search performed in November 2021. All records were exported to Rayyan Systematic Review software for screening and all duplicates were removed. Rayyan Systematic Review software was selected by the research team because it allowed for remote collaboration and detailed organization of the systematic review (Ouzzani et al., 2016). Reference lists of the 47 included studies were also scanned to identify additional relevant papers.

Results

Of the nine studies included in this systematic review, two were qualitative studies (Adegboyega et al., 2019; Daley et al., 2012) and seven were quantitative (Benjamins, 2012; Gatchell, 2012; Gerry, 2011; Gonzales et al., 2013; Mayhand et al., 2021; Shelton et al., 2010; Simonds et al., 2011). The sample size for the quantitative studies ranged from 200 to 16,737. The number of research participants for the qualitative studies ranged from 39 to 84. All the studies included measures of cancer screening and some included screening measures for more than one type of cancer. Six studies focused on breast cancer screening, four studies on cervical cancer screening, three on colon cancer screenings, and one on prostate cancer screening. All the studies either included themes of racial discrimination in qualitative studies or included perceived racial discrimination as a measure in quantitative studies. Five studies focused on a particular race such as Black or American Indian while the rest included a mixture of racial groups. Table 1 includes information on the characteristics of the studies, the racial composition of study participants, and a brief evaluation of the risk of bias for each study.

Table 1.

Characteristics of Studies of Discrimination and Screening Outcomes Published between January 2010 and November 2021 (N = 9)

Study	Aim	Study Design	Setting	Sample size total	Participants of interest	Discrimination Definition	Type of Cancer Prevention	Risk of Bias
Adegboyega et al.,²⁸ (2019)	To identify perceptions, enabling and nurturing factors related to mammography.	Qualitative—semi-structured interviews	ED department at a public university hospital in an urban setting in southeastern United States.	39	English-speaking Black women, 40+ age	n/a--themes of perceived racial discrimination explored	Mammography	Social desirability bias; self-selection bias
Benjamins,³ (2012)	To study the association between measures of racial discrimination and utilization of 6 types of preventive services.	Cross sectional design; Stratified probability sampling, interviews	Community; Chicago.	1,699	White, African American, Mexican, Puerto Rican	Perceived discrimination (Acute—Experiences of Discrimination scale and Chronic—Everyday Discrimination Scale; perceived	Mammography, pap smear, colonoscopy, breast exam.	Social desirability bias; self-reported data

						discrimination in healthcare		
Daley et al.,²⁹ (2012)	To study breast cancer screening beliefs and practices among Native American women in Kansas and Missouri.	Qualitative —focus groups	Kansas and Missouri, community-based study	84 but qualitative study	Native American women	Perceived discrimination arose as a theme; mistrust of healthcare providers was a primary barrier	Mammography	Social desirability bias
Gatchell,³² (2012)	To examine the association between racial/ethnic discrimination in the patient-provider interaction and receipt of timely pap test. Also, to examine whether racial/ethnic discrimination mediated the	Cross-Sectional	California Health Interview Survey - 2005	16,737	Women aged 18-64 without a history of cervical cancer and without a hysterectomy	Racial/ethnic discrimination in the receipt of health care	Pap tests within the previous 3 years	Response bias; self-report

	relationship between poverty and pap tests.							
Gerry,³¹ (2013)	Examine whether ethnicity moderated the relationship between emergent typologies and cancer screening outcomes.	Cross-Sectional	California Health Interview Survey	15, 130	Women aged 40 to 75	Perceived racial discrimination	Breast Cancer Screening Behavior; Ever having a mammogram; mammogram in the past 2 years; mammogram over 2 years ago	Response bias; self-report
Gonzales et al.,²¹ (2013)	Examine the association of perceived discrimination with breast and cervical cancer screenings status and the related correlates of not being current on cancer	Cross-sectional	Northwest of 200 U.S. Indian reservation		American Indian Women with type 2 diabetes	Perceived discrimination	Clinical breast exam, mammography and Pap test	Provider bias may have influenced the behaviors of providers which may influenced patient perceptions and

	screenings among American Indian women with type 2 diabetes.						engagement with cancer screenings.	
Mayhand et al.,³⁰ (2021)	Effect of neighborhood socioeconomic status, individual socioeconomic status, and race/ethnicity on colorectal screening and colorectal screening adherence among disadvantaged individuals.	Cross sectional design	Philadelphia, Pennsylvania	526	Individuals 50-85 years of age, who use English or Spanish, and live in a medically underserved area within Philadelphia (57% black, 27% White, 13% Hispanic)	Perceived discrimination	Colorectal screenings: 50-85 years of age colonoscopy, 50-80 years of age sigmoidoscopy, 50-76 years of age guaiac-based fecal occult blood stool test	Selection bias, recall bias, inclusion of indicator for missing data.
Shelton et al.,²⁴ (2010)	Assess the validity and reliability of the Group-Based Medical Mistrust Scale	Psychometric analysis	New York City	201	Black men between 40-75 years of age	Racial discrimination	Prostate cancer screening and digital rectal examination	Potential sampling bias with the recruitment strategy

among Black males.

ma have excluded men with high levels of mistrust, which may have impacted the results.

Simonds et al.,²³ (2011)	Identify factors associated with cancer screening (mammogram, Pap test, and colorectal) adherence through a multifactorial which included self-report of discrimination in healthcare.	Cross-sectional	California	2,266	American Indians	Self-report of racial discrimination in healthcare	Mammogram, Pap test, fecal occult blood test, sigmoidoscopy, colonoscopy, or proctoscopy	Recall bias of participants about cancer screenings
--	--	-----------------	------------	-------	------------------	--	--	---

In the quantitative studies, results varied based on study populations, discrimination experience, and cancer screenings type and reported cancer screening adherence. For example, Black individuals were more likely to report experiences of discrimination than White or Mexican individuals (Benjamins, 2012). Perceived discrimination was positively correlated with avoidance of healthcare, and negatively correlated with healthcare access and healthcare satisfaction (Shelton et al., 2010). Participants who self-reported perceived discrimination were less likely to adhere to breast cancer screening (Gonzales et al., 2013; Simonds et al., 2011), and colorectal cancer screening recommendations (Mayhand et al., 2021), but not for cervical cancer screening (Gonzales et al., 2013; Simonds et al., 2011). After adjusting for confounding variables, Gonzales et al. (2013) found a significant association between perceived discrimination and receiving a timely Pap test. There was a weak correlation between reporting receipt of breast exams and perceived discrimination in healthcare (Benjamins, 2012). For studies not focused on a particular racial group, the majority of women surveyed reported no race-related discrimination (Gatchell, 2012; Gerry, 2011) and this variable was not a predictor of cervical cancer screening and did not mediate the relationship between poverty and Pap tests (Gatchell, 2012). Women in the severe and moderate stress classes (the stress domain included mental health, acculturation, and racial discrimination constructs) had lower odds of obtaining a mammogram in the past year compared to women in the minimal stress class (Gerry, 2011). The qualitative studies examined topics about barriers to breast cancer screening such as affordability of a mammogram and undesirable interpersonal healthcare experiences like perceived race-related discrimination (Adegboyega et al., 2019; Daley et al., 2012). Details of the key findings from the studies are in Table 2.

Table 2

Key Findings from Studies on Discrimination and Cancer Screening Outcomes Published between January 2010 and November 2021 (N = 9)

Primary Author and Date	Description	Key Findings
<i>Qualitative Studies</i>		
Adegboyega et al., ²⁸ (2019)	Semi-structured interviews with 39 black women; studied perceptions,	<ul style="list-style-type: none"> The authors identified the following themes related to the women's perceptions: beliefs that the screening was painful; fear of

enabling factors and nurturing factors related to mammography.

the unknown; fatalism; misinformation related to the screening.

- The following nurturing factors were listed: being influenced by others' experiences with cancer/screenings and inadequate social support related to cancer screenings.
- Enabling factors (including barriers) were cost, access to screening, previous undesirable interpersonal experiences related to healthcare and socioeconomic or race-related discrimination.

Daley et al.,²⁹ (2012)

Studied beliefs and behaviors related to breast cancer screening among 84 Native American women in Kansas and Missouri. They used focus groups stratified for whether women were up to date with screening recommendations.

- Key themes among women who were up to date with screening recommendations included (n=66): 1) knowing someone with cancer or prior experience with cancer, 2) knowledge of cancer symptoms, treatment, and preventive measures, 3) breast cancer screening not considered a priority among Native American women and not being discussed 4) barriers such as costs, no time, no insurance, anxiety, modesty concerns, and prior negative healthcare experiences related to mammography. 5) getting a mammogram after a healthcare professional recommendation yet lack of education about mammography 6) recommendations for home visits to educate women regarding breast cancer screening.
 - Themes among women who were not up to date with breast
-

cancer screening (n=18) included:
 1) some knowledge related to breast cancer and screening but need for more education; few personal experiences with breast cancer
 2) barriers such as cost, transportation, anxiety, competing priorities, negative experiences with the healthcare system in general, including mistrust and perceived discrimination or lack of cultural sensitivity, particularly the need to avoid stereotyping; distrust of providers and Western medicine was a main barrier
 3) recommendations included a buddy system to address mistrust of healthcare providers and cultural tailoring to address the lack of cultural sensitivity or discrimination.

Quantitative Studies

Benjamins, ³³ (2012)	Studied the relationship between measures of discrimination and utilization of mammography, pap smears, colonoscopy, blood pressure screening and the diabetes test among 1699 research participants in Chicago communities.	<ul style="list-style-type: none"> • There was a weak correlation between reporting receipt of breast exams and perceived discrimination in healthcare • Reported a significant, increased odds of receiving a breast exam for black and Puerto Rican women reporting everyday discrimination • Experiences of discrimination were not associated with utilization of preventive services (breast exams, pap smears, sigmoidoscopy/colonoscopy) by black and Mexican individuals. • Black race was more strongly correlated to reporting
---------------------------------	--	--

		<p>experiences of discrimination than White race or Mexican.</p> <ul style="list-style-type: none"> • The author explained the inconsistent findings using the concept of reverse causation: individuals who used healthcare and preventive services more often were more likely to experience discrimination.
Gatchell, ³² (2013)	<p>Examination of disparities in cervical cancer screenings among economically disadvantaged women in California via a survey.</p>	<ul style="list-style-type: none"> • A large proportion of the participants did not experience healthcare discrimination. • Discrimination was not a predictor of receiving a Pap test. • Discrimination did not mediate the relationship between poverty and Pap test. • Discrimination did not explain the disparity of receiving Pap tests.
Gerry, ³¹ (2013)	<p>Examination of whether ethnicity of women moderated the relationship between emergent typologies and breast cancer screening outcomes via the California Health Interview Survey.</p>	<ul style="list-style-type: none"> • Over 70% of participants were non-Hispanic white. • Over 60% of the participants reported never experienced being treated badly because of race/ethnicity. • The Stress domain which included mental health, acculturation, and racial discrimination constructs indicated that women reported more breast cancer screening in the minimal and mild stress classes than women reported

		<p>moderate and severe classes.</p> <ul style="list-style-type: none"> • Participants in the severe and moderate stress classes were less likely to obtain a breast exam and mammograms.
Gonzales et al., ²¹ (2013)	<p>Cross-sectional survey among American Indian Women with type 2 diabetes about clinical breast exams, mammograms, and Pap tests, health-seeking behaviors, their perceived healthcare discrimination.</p>	<ul style="list-style-type: none"> • Majority of participants were not current for clinical breast exams. • High proportion experience discrimination in healthcare • Participants who experienced discrimination were more likely to not be current on clinical breast examination and Pap test. • Participants with highest perceived discrimination had higher number of suboptimal healthcare seeking behaviors to prevent or treat conditions.
Mayhand et al., ³⁰ (2021)	<p>Cross sectional study examining individual level and neighborhood level factors related to adherence to colorectal cancer screening among participants (n=526) between the ages of 50 and 85 in the Philadelphia area.</p>	<ul style="list-style-type: none"> • Individuals who perceived that they were treated better or worse than individuals of other races were less likely to adhere to colorectal screening guidelines. • Non-Hispanic black individuals had higher rates of colorectal cancer screening than non-Hispanic white individuals. • Not obtaining colorectal cancer screening was significantly associated with living in an area of lower socioeconomic status (SES) among other variables such as home ownership.
Shelton et al., ²⁴ (2010)	<p>Psychometric analysis of Group-Based Medical Mistrust Scale and prostate cancer screening among</p>	<ul style="list-style-type: none"> • Factor analysis indicated that the model, minus one survey item, was a good fit. • Internal consistency was high. • Construct validity revealed

urban black men.

that healthcare access was negatively associated with Discrimination and Lack of Support subscales; healthcare satisfaction was negatively associated with Discrimination and Lack of Support subscales.

- Discrimination and Lack of Support subscales were positively related to racial identity.
- Reliability of the subscales was strong.

<p>Simonds et al.,²³ (2011)</p>	<p>Cross-sectional study of cancer screening adherence among American Indian/Alaska Natives living in California.</p>	<ul style="list-style-type: none"> • Less than half of participants were up-to-date on cancer screenings. • Older participants were more likely to obtain cancer screening. • Women were less likely to obtain cancer screening. • Those with a high school education were more likely to obtain a screening. • Discrimination, poverty-level, insurance status, self-reported health status, previous cancer diagnosis, and marital status were not associated with colorectal cancer screening. • Perceived healthcare discrimination was significantly associated with not receiving regular mammograms. • Discrimination was not associated with cervical cancer screening adherence.
--	---	--

Breast Cancer Screenings (n=6)

In the analysis, there were quantitative (n=4) and qualitative (n=2) studies that examined the relationship between discrimination and breast cancer

screenings (Adegboyega et al., 2019; Benjamins, 2012; Daley et al., 2012; Gerry, 2011; Gonzales et al., 2013; Simonds et al., 2011). Four studies examined the relationship between discrimination and mammograms (Adegboyega et al., 2019; Daley et al., 2012; Gerry, 2013; Simonds et al., 2011) and two focused on the relationship between discrimination and clinical breast exams (Gonzales et al., 2013; Benjamins, 2012). Three of the quantitative studies used discrimination as a variable and reported discrimination hindering participants from obtaining breast cancer screenings or adhering to recommended regimens of breast cancer screenings (Benjamins, 2012; Gonzales et al., 2013; Simonds et al., 2011). However, one quantitative study used a discrimination variable as a construct of a Stress domain and indicated more reports of breast cancer screening among women with minimal and mild stress than women who reported moderate and severe classes (Gerry, 2011). Also, participants with severe and moderate stress were less likely to obtain a breast exam and mammograms (Gerry, 2011).

The two qualitative studies that focused on breast cancer screening and discrimination examined beliefs, perceptions, enabling, and nurturing factors related to screening practices. A qualitative study on factors related to mammogram uptake reported on themes of socioeconomic and race related discrimination in addition to other themes such as fear of the discomfort associated with mammograms, being able to afford the screening and previous off-putting healthcare encounters and need for social support; exemplars about the socioeconomic or race-related discrimination included complaints about disrespect from healthcare professionals and the use of older equipment to screen patients who had a lower ability to pay high prices (Adegboyega et al., 2019). Adegboyega et al. (2019) found that 61% of their sample of Black women had complied with mammography guidelines. Among American Indian women, distrust of healthcare providers and of Western medicine was a primary barrier to screening uptake and recommendations from research participants included cultural tailoring to address lack of cultural sensitivity and using a buddy system to address mistrust of providers (Daley et al., 2012). There appears to be a reluctance to discuss breast cancer screening in Black and Native American communities (Adegboyega et al., 2019; Daley et al., 2012).

However, the populations for the quantitative studies were of different races and ethnicities. Two studies had samples with mixed racial groups, whereas two had samples from one racial group. Benjamins (2012) indicated that 75% of their racially mixed sample reported receiving a mammogram or a breast exam. There was a significant, increased odds of receiving a breast exam for Black and Puerto Rican women reporting everyday discrimination (Benjamins, 2012). White women reporting discrimination in healthcare had a much lower odds of reporting receiving a breast examination (Benjamins, 2012). Gerry (2011) examined

whether ethnicity moderated the relationship between emergent typologies and screening outcomes and the majority of the participants were non-Hispanic white women. For the studies that included participants from only one racial group two were quantitative and two were qualitative. The two quantitative studies had participants from Native Indians (Gonzales et al., 2013; Simonds et al., 2011). Participants in Gonzales et al.'s (2013) study were American Indian Women with type 2 diabetes who lived in Northwestern U.S., and Simonds et al.'s (2011) study included American Indians who resided in California. The two qualitative studies had Black participants who lived in an urban setting in the southeastern U.S. (Adegboyega et al., 2019) and Native American participants in Kansas and Missouri (Daley et al., 2012).

Cervical Cancer Screening (n=4)

The literature search found four quantitative studies examining the relationship between discrimination and cervical cancer screening (Benjamins, 2012; Gonzales et al., 2013; Simonds et al., 2011; Gatchell, 2012). Two studies' results identified discrimination influencing cervical cancer screenings and two studies found that discrimination did not influence cervical cancer screenings. Benjamins (2012) reported that 86% of their mixed-race sample, who lived in Chicago, obtained a Pap smear; White and Mexican women had a lower odds of reporting receipt of a Pap test if they had experienced discrimination. Additionally, participants in Gonzales et al.'s (2013) study were American Indian Women with type 2 diabetes and those who self-reported perceived discrimination were more likely to be behind on obtaining Pap tests (Gonzales et al., 2013). Of the studies that did not find an association between discrimination and cervical cancer screenings, one study's participants were American Indians whereas the other contained a mixed-race sample with a majority being non-Hispanic Whites (Gatchell, 2012; Simonds et al., 2011).

Colorectal Rectal Cancer Screenings (n=3)

In the analysis, three quantitative studies examined the relationship between colorectal cancer screenings and discrimination (Mayhand et al., 2021; Benjamins, 2012; Simonds et al., 2011). The results of the studies varied on whether discrimination influenced colorectal screenings. Mayhand et al. (2021) found that 71% of their mostly Black (57% of the sample) research participants in Philadelphia reported receiving colorectal cancer screening--sigmoidoscopy, colonoscopy, and fecal occult blood stool test, depending on age category. Black individuals were more likely to indicate adherence to colorectal cancer screening recommendations than White individuals (Mayhand et al., 2021) Benjamins (2012) reported that only 41% of their mixed-race sample received a

sigmoidoscopy or a colonoscopy; there were no significant findings for sigmoidoscopy/colonoscopy receipt and discrimination for all research participants of color: Black, Mexican, and Puerto Rican. Mayhand et al. (2021) also identified socioeconomic factors such as being of a low income, living in an area of concentrated poverty, and being unable to afford healthcare as associated with lower colorectal cancer screening adherence, in addition to the factor of discrimination: perceiving that they were treated worse than people of other races. A multivariable analysis revealed individuals who perceived that they were treated better or worse than those of other races were less likely to adhere to colorectal cancer screening recommendations than those who perceived being treated the same (Mayhand et al., 2021). Simonds et al. (2011) found no association between discrimination and colorectal screenings among American Indian/Alaska Natives that lived in California. However, participants were more likely to be up to date on their colorectal cancer screenings if they visited a physician within the last 12 months, had routine care, had a comorbidity, and greater than a high school education (Simonds et al., 2011).

Prostate Cancer Screenings (n=1)

The review revealed one quantitative study that focused on the relationship between discrimination and prostate cancer screenings. Shelton et al. (2010) conducted a psychometric analysis that examined the psychometric properties of the Group-Based Medical Mistrust Scale (GBMMS) along with the participation in obtaining prostate cancer screenings among Black men who lived in New York City. With the GBMMS there were three subscales, of which one was Discrimination. The Discrimination subscale was significantly negatively correlated to health care access, avoidance of health care, and health care satisfaction. Also, the Discrimination subscale was positively associated with avoidance of health care. The Discrimination subscale was not correlated with attitudes about prostate-specific antigen test and digital rectal exam.

Discussion

We conducted a systematic review of published literature to examine studies that focused on cancer screenings, adherence to cancer screenings, and discrimination. The purpose was to further understand how discrimination impacts cancer screenings and adherence to cancer screenings. Our review is unique since it attempted to retrieve studies that focused on screenings for a range of cancer types as most reviews have focused mostly on singular cancer types. Nine studies were included in the review, of which, the majority (n=6) of the studies focused on breast cancer screenings. The results of the review suggested

that discrimination was associated with poor uptake of screenings for most cancer types.

Ben and colleagues (2017) found that racism was associated with delays in getting healthcare and low adherence to treatment uptake. However, the authors did not find any associations between racism and healthcare service utilizations like examinations or healthcare visits. Furthermore, the review did not tease out the type of examinations or healthcare related visits (e.g., cancer screening). In the review, we were able to include studies that focused on screenings for specific types of cancers. Similar to Ben et al.'s (2017) review, studies included in the review were not consistent in showing an association between cancer screenings and discrimination, particularly for breast and cervical cancer. Although uptake of cancer screenings is on the rise, there are still racial/ethnic differences in the uptake of screenings for certain cancers, with Black, Latinx, and Native American populations having lower screening rates compared to their White counterparts (Lee et al., 2020). The low rate in cancer screenings among marginalized populations can explain the disparities in cancer mortality – Black individuals are more likely to have inadequate screening and be diagnosed at later stages (Smith-Bindman et al., 2006). Understanding what contributes to poor screening of cancers and other prevention strategies is key. The purpose of this review was to understand how discrimination as a factor contributes to poor uptake of screenings. Depending on the cancer type, the findings were mixed with some studies showing associations between discrimination and poor uptake of screenings while others showing little to no association or associations going in a different hypothesized direction. For example, when looking at cancer screenings among women, Benjamins (2012) found that Black and Latinx women experienced higher levels of perceived discrimination, however, for Black and Latinx women, everyday discrimination was not associated with receipt of mammograms or pap smears. Additionally, among Black and Puerto Rican women, everyday discrimination was associated with an increased odds of breast examination uptake. There could be several explanations for these findings. For one, studies that did not find any associations between cancers screenings and discrimination adjusted for socioeconomic variables in their statistical models. A number of researchers have suggested that socioeconomic variables play more of a mediator role as opposed to a confounding variable (Meghani & Chittams, 2015; VanderWeele & Robinson, 2014). Consequently, adjusting for socioeconomic variables could attenuate the impact of discrimination on uptake of cancer screenings. Additionally, the majority of studies were quantitative and did not include qualitative data to better understand why discrimination was either not associated or associated with uptake of screenings. For example, understanding how factors like coping and resilience buffer the effects of discrimination on uptake of screenings.

Our review has several limitations. The studies included in this review were mostly studies that focused on cancers that impact women (i.e., breast and cervical cancer). There were only a few studies that explored the impact of discrimination on cancer screenings among men or among a sample of both men and women. This suggests the need for more studies to explore how discrimination impacts cancer prevention for cancers that affect both men and women. More studies that include both men and women will allow researchers and healthcare providers to understand how discrimination impacts uptake of cancer prevention services and whether the impact is different for men and women. The quantitative studies included in the review had mixed findings regarding the association between discrimination and uptake of cancer screenings, while the qualitative studies suggested a negative relationship. The inconsistency may be due to the different ways in which discrimination was observed and reported, which makes it difficult to compare studies. More studies need to incorporate both quantitative and qualitative methods to better understand how discrimination impacts uptake of cancer screenings. Additionally, the samples included in each study were not all similar with some studies focusing on a single population (e.g., Black) and some including multiple racial/ethnic populations.

Discrimination, whether perceived or not, can have a negative impact on health and health care utilization. Discrimination is perceived as a type of stressor that may lead to poor health through triggering negative emotional reactions that can lead to altered physiological reactions as well as changes in health behaviors (Williams et al., 2019). Discrimination can lead to mistrust of health care providers, lack of communication with providers, as well as delays in health care service utilization. Ben et al. (2017) conducted a systematic review and meta-analysis to explore the quantitative associations between self-reported racism, which included perceived discrimination, and measures of healthcare service utilization. The authors found that racism was associated with lower levels of healthcare related trust, satisfaction, and communication. Sheppard et al., (2014) also reported that effective communication was associated with lower levels of perceived discrimination and concluded that health care teams should refrain from practices such as talking down to patients and should treat patients with respect in order to prevent low utilization of services. Relationship Management Theory concludes that although communication helps with relationships, the focus should be on building relationships, not merely on communication (Ledingham, 2003). This theory has been applied to healthcare settings to study relationships between healthcare providers and patients from marginalized communities (Stanley et al., 2019). These works provide important implications for strengthening physician-patient relationships with the goal of increasing utilization of health services, such as cancer screenings. Our study also bears implications for public health and medical education and the training of physicians, nurses, other members of the

healthcare team and public health professionals. Educators should instill in students and trainees the desire to harness opportunities to build relationships with future patients by 1) cultivating self-awareness of biases, 2) refraining from blaming patients for unhealthy behaviors, and instead understanding the challenges that marginalized patients face due to systemic racism and 3) addressing biases through deeper reflection and robust discussion (Johnson et al., 2022). Yet, the suggestion of incorporating evidence-based cultural competence into curriculum and the impact on improving health outcomes of individuals and reducing health disparities is limited (Vella et al., 2022). Others suggest rather than training professionals in cultural competence, training them in cultural humility (Lekas et al., 2020). Cultural humility is a provider taking a stance of lifelong learning about each patient's social and cultural experiences and expertise into the continuum of healthcare (Lekas et al., 2020). However, more research is needed on the effect of cultural humility training on the health outcomes of individuals in addition to incorporating the appropriate training for professionals.

Discrimination is a known structural factor that can lead to poor health outcomes among people of color and other marginalized populations. This systematic literature review included studies that focused on cancer screenings and the impact of discrimination. Our review suggests that discrimination has a negative impact on receiving most cancer screenings. More research is needed to understand how discrimination impacts cancer prevention efforts among marginalized populations. Specifically, research that addresses how to intervene and reduce the negative impact of discrimination is needed.

Conflicts of Interest

The authors have no conflicts of interest to report.

Human Participant Protection

Institutional review board approval was not needed because human participants were not used.

References

- Adegboyega, A., Aroh, A., Voigts, K., & Jennifer, H. (2019). Regular mammography screening among African American (AA) women: Qualitative application of the PEN-3 framework. *Journal of Transcultural Nursing; Official Journal of the Transcultural Nursing Society*, 30(5), 444–452. <https://doi.org/10.1177/1043659618803146>
- Ahmad, F. B., & Anderson, R. N. (2021). The leading causes of death in the US for 2020. *JAMA*, 325(18), 1829–1830. doi:10.1001/jama.2021.5469
- American Association for Cancer Research. (2020a). *AACR cancer disparities progress report 2020*. https://cancerprogressreport.aacr.org/wp-content/uploads/sites/2/2020/09/AACR_CDPR_2020.pdf
- American Association for Cancer Research. (2020b). *AACR cancer progress report*. <https://cancerprogressreport.aacr.org/progress/cpr20-contents/cpr20-cancer-in-2020/>
- Benjamins, M. R. (2012). Race/ethnic discrimination and preventive service utilization in a sample of Whites, Blacks, Mexicans, and Puerto Ricans. *Medical Care*, 50(10), 870–876. <https://doi.org/10.1097/MLR.0b013e31825a8c63>
- Braveman, P., Arkin, E., Orleans, T., Proctor, D., Acker, J., & Plough, A. (2018). What is health equity? *Behavioral Science & Policy*, 4(1), 1–14.
- Bynum, S. A., Davis, J. L., Green, B. L., & Katz, R. V. (2011). *Screening: Examining Fears, Attitudes, and of Adults 50 Years and Older*. 26(5), 295–301.
- Caruso, R., & Breitbart, W. (2020). Mental health care in oncology. Contemporary perspective on the psychosocial burden of cancer and evidence-based interventions. *Epidemiology and Psychiatric Sciences*, 29, e86. <https://doi.org/10.1017/S2045796019000866>
- D’Onise, K., Iacobini, E. T., & Canuto, K. J. (2020). Colorectal cancer screening using faecal occult blood tests for Indigenous adults: A systematic literature review of barriers, enablers and implemented strategies. *Preventive Medicine*, 134, 106018. <https://doi.org/10.1016/j.ypmed.2020.106018>
- Daley, C. M., Kraemer-Diaz, A., James, A. S., Monteau, D., Joseph, S., Pacheco, J., Bull, J. W., Cully, A., Choi, W. S., & Greiner, K. A. (2012). Breast cancer screening beliefs and behaviors among American Indian women in Kansas and Missouri: A qualitative inquiry. *Journal of Cancer Education*, 27, S32–40. <https://doi.org/10.1007/s13187-012-0334-3>
- DeSantis, C. E., Miller, K. D., Goding Sauer, A., Jemal, A., & Siegel, R. L. (2019). Cancer statistics for African Americans, 2019. *CA: A Cancer Journal for Clinicians*, 69(3), 211–233. <https://doi.org/10.3322/caac.21555>

- Essue, B. M., Iragorri, N., Fitzgerald, N., & de Oliveira, C. (2020). The psychosocial cost burden of cancer: A systematic literature review. *Psycho-Oncology*, 29(11), 1746–1760. <https://doi.org/10.1002/pon.5516>
- Gatchell, M. S. (2012). *Understanding the Disparities in Cervical Cancer Screening for Economically Disadvantaged Women (Doctoral dissertation, UCLA)*. <https://escholarship.org/uc/item/2448d8mw>
- Gerry, A. A. (2011). *Breast cancer screening disparities among ethnically diverse women in California: a latent profile analysis (Doctoral dissertation, UC San Diego)*. <https://escholarship.org/uc/item/13g2d2ch>
- Gonzales, K. L., Harding, A. K., Lambert, W. E., Fu, R., & Henderson, W. G. (2013). Perceived experiences of discrimination in health care: A barrier for cancer screening among American Indian women with type 2 diabetes. *Women's Health: Official Publication of the Jacobs Institute of Women's Health*, 23(1), e61–e67. <https://doi.org/10.1016/j.whi.2012.10.004>
- Ibekwe, L. N., Fernández-Esquer, M. E., Pruitt, S. L., Ranjit, N., & Fernández, M. E. (2021). Racism and cancer screening among low-income, African American women: A multilevel, longitudinal analysis of 2-1-1 Texas callers. *International Journal of Environmental Research and Public Health*, 18(21), 1–20. <https://doi.org/10.3390/ijerph182111267>
- Jacobs, E. A., Rathouz, P. J., Karavolos, K., Everson-Rose, S. A., Janssen, I., Kravitz, H. M., Lewis, T. T., & Powell, L. H. (2014). Perceived discrimination is associated with reduced breast and cervical cancer screening: the Study of Women's Health Across the Nation (SWAN). *Journal of Women's Health (2002)*, 23(2), 138–145. <https://doi.org/10.1089/jwh.2013.4328>
- Johnson, C., Rastetter, M., & Olayiwola, J. N. (2022). Pathways to equity: A pilot study implementing a health equity leadership curriculum in residency education as an antidote to systemic racism. *Journal of the National Medical Association*, 114(2), 141–146. <https://doi.org/10.1016/j.jnma.2021.12.015>
- Krieger, N. (2014). Discrimination and health inequities. *International Journal of Health Services*, 44(4), 643–710. <https://doi.org/10.2190/HS.44.4.b>
- Lee, D.-C., Liang, H., Chen, N., Shi, L., & Liu, Y. (2020). Cancer screening among racial/ethnic groups in health centers. *International Journal for Equity in Health*, 19(1), 43. <https://doi.org/10.1186/s12939-020-1153-5>
- Ledingham, J. A. (2003). Explicating relationship management as a general theory of public relations. *Journal of Public Relations Research*, 15(2), 181–198. https://doi.org/10.1207/S1532754XJPRR1502_4
- Lu, M., Moritz, S., Lorenzetti, D., Sykes, L., Straus, S., & Quan, H. (2012). A systematic review of interventions to increase breast and cervical cancer screening uptake among Asian women. *BMC Public Health*, 12, 413. <https://doi.org/10.1186/1471-2458-12-413>

- Marlow, L. A. V, Waller, J., & Wardle, J. (2015). Barriers to cervical cancer screening among ethnic minority women: A qualitative study. *The Journal of Family Planning and Reproductive Health Care*, 41(4), 248–254. <https://doi.org/10.1136/jfprhc-2014-101082>
- Mayhand, K. N., Handorf, E. A., Ortiz, A. G., Gonzalez, E. T., Devlin, A., Sorice, K. A., Esnaola, N., Fisher, S., & Lynch, S. M. (2021). Effect of Neighborhood and Individual-Level Socioeconomic Factors on Colorectal Cancer Screening Adherence. *International Journal of Environmental Research and Public Health*, 18(9). <https://doi.org/10.3390/ijerph18094398>
- Meghani, S. H., & Chittams, J. (2015). Controlling for socioeconomic status in pain disparities research: All-else-equal analysis when “all else” is not equal. *Pain Medicine*, 16(12), 2222–2225. <https://doi.org/10.1111/pme.12829>
- Miles-Richardson, S., Allen, S., Claridy, M. D., Booker, E. A., & Gerbi, G. (2017). Factors associated with self-reported cervical cancer screening among women aged 18 years and older in the United States. *Journal of Community Health*, 42(1), 72–77. <https://doi.org/10.1007/s10900-016-0231-5>
- Miller, K. D., Goding Sauer, A., Ortiz, A. P., Fedewa, S. A., Pinheiro, P. S., Tortolero-Luna, G., Martinez-Tyson, D., Jemal, A., & Siegel, R. L. (2018). Cancer Statistics for Hispanics/Latinos, 2018. *CA: A Cancer Journal for Clinicians*, 68(6), 425–445. <https://doi.org/10.3322/caac.21494>
- National Cancer Institute. (n.d.). *Cancer statistics*. <https://www.cancer.gov/about-cancer/understanding/statistics>
- Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan--a web and mobile app for systematic reviews. *Systematic Reviews*, 5(1), 210. <https://doi.org/10.1186/s13643-016-0384-4>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Systematic Reviews*, 10(1), 89. <https://doi.org/10.1186/s13643-021-01626-4>
- Park, J., & Look, K. A. (2019). Health care expenditure burden of cancer care in the United States. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 56, 0046958019880696.

- Pérez-Stable, E. J., Afable-Munsuz, A., Kaplan, C. P., Pace, L., Samayoa, C., Somkin, C., Nickleach, D., Lee, M., Márquez-Magaña, L., Juarbe, T., & Pasick, R. J. (2013). Factors influencing time to diagnosis after abnormal mammography in diverse women. *Journal of Women's Health, 22*(2), 159–166. <https://doi.org/10.1089/jwh.2012.3646>
- Rogers, C. R., Mitchell, J. A., Franta, G. J., Foster, M. J., & Shires, D. (2015). Masculinity, racism, social support, and colorectal cancer screening uptake among African American men: A systematic review. *American Journal of Men's Health, 11*(5), 1486–1500. <https://doi.org/10.1177/1557988315611227>
- Shelton, R. C., Winkel, G., Davis, S. N., Roberts, N., Valdimarsdottir, H., Hall, S. J., & Thompson, H. S. (2010). Validation of the group-based medical mistrust scale among urban Black men. *Journal of General Internal Medicine, 25*(6), 549–555. <https://doi.org/10.1007/s11606-010-1288-y>
- Sheppard, V.B., Williams, K.P., Wang, J., Shavers, V., Mandelblatt, J. S. (2014). An examination of factors associated with healthcare discrimination in Latina immigrants: The role of healthcare relationships and language. *Journal of the National Medical Association, 106*(1), 15–22. [https://doi.org/10.1016/S0027-9684\(15\)30066-3](https://doi.org/10.1016/S0027-9684(15)30066-3).
- Simonds, V. W., Colditz, G. A., Rudd, R. E., & Sequist, T. D. (2011). Cancer screening among Native Americans in California. *Ethnicity & Disease, 21*(2), 202–209.
- Smith-Bindman, R., Miglioretti, D. L., Lurie, N., Abraham, L., Barbash, R. B., Strzelczyk, J., Dignan, M., Barlow, W. E., Beasley, C. M., & Kerlikowske, K. (2006). Does utilization of screening mammography explain racial and ethnic differences in breast cancer? *Annals of Internal Medicine, 144*(8), 541–553.
- Stanley, S. J., Chatham, A. P., Trivedi, N., & Aldoory, L. (2019). Communication and control: Hearing the voices of low-income African American adults to improve relationships with healthcare providers. *Health Communication, 35*(13), 1633–1642. <https://doi.org/10.1080/10410236.2019.1654177>
- Sung, H., Ferlay, J., Siegel, R. L., Laversanne, M., Soerjomataram, I., Jemal, A., & Bray, F. (2021). Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians, 71*(3), 209–249.
- VanderWeele, T. J., & Robinson, W. R. (2014). On causal interpretation of race in regressions adjusting for confounding and mediating variables. *Epidemiology, 25*(4), 473. <https://doi.org/10.1097/EDE.000000000000105>

- Vella, E., White, V. M., & Livingston, P. (2022). Does cultural competence training for health professionals impact culturally and linguistically diverse patient outcomes? A systematic review of the literature. *Nurse Education Today*, 105500. <https://doi.org/10.1016/j.nedt.2022.105500>
- White, A., Thompson, T. D., White, M. C., Sabatino, S. A., de Moor, J., Doria-Rose, P. V., Geiger, A. M., & Richardson, L. C. (2017). Cancer screening test use—United States, 2015. *MMWR. Morbidity and Mortality Weekly Report*, 66(8), 201.
- Williams, D. R., Lawrence, J. A., Davis, B. A., & Vu, C. (2019). Understanding how discrimination can affect health. *Health Services Research*, 54, 1374–1388. <https://doi.org/10.1111/1475-6773.13222>
- Zavala, V. A., Bracci, P. M., Carethers, J. M., Carvajal-Carmona, L., Coggins, N. B., Cruz-Correa, M. R., Davis, M., de Smith, A. J., Dutil, J., Figueiredo, J. C., Fox, R., Graves, K. D., Gomez, S. L., Llera, A., Neuhausen, S. L., Newman, L., Nguyen, T., Palmer, J. R., Palmer, N. R., ... Fejerman, L. (2021). Cancer health disparities in racial/ethnic minorities in the United States. *British Journal of Cancer*, 124(2), 315–332. <https://doi.org/10.1038/s41416-020-01038-6>

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.