Structural Determinants of Health across Race, Sexual Orientation, and Gender: A Mixed Methods Application of Public Health Critical Race Praxis

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Abstract

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Purpose: This dissertation uses Public Health Critical Race Praxis (PHCRP) to understand how structural determinants (including structural racism and discrimination (SRD) and community cultural wealth (CCW)) impact the health of U.S. adults across race, sexual orientation, and gender. The purpose of this research is to effect positive structural change to promote the health and wellbeing of queer and transgender Black, Indigenous, and other people of color (QTBIPOC).

Specific Aims: The aims of the dissertation are as follows: (1) Conduct a systematic scoping review to describe how PHCRP is applied methodologically in published health literature and summarize strategies for applying anti-racist principles in health research; (2) Examine individual and joint associations between structural racism, structural cisheterosexism, and QTBIPOC status on measures of health-related quality of life (HRQoL) and health services outcomes among U.S. adults; and (3) Identify how QTBIPOC community members describe the ways in which structural determinants impact the health of their community through a content analysis of QTBIPOC-authored independently-published print media.

Methods: This mixed methods study utilizes three unique data sources to answer its research questions. Aim 1 is a qualitative systematic scoping review of four major health databases. Aim 2 is a quantitative analysis of national Behavioral Risk Factor Surveillance System (BRFSS) data,

linked with state-level indices of structural racism and structural LGBTQ+ discrimination. Aim 3 is a qualitative analysis of QTBIPOC-authored independently-published print media from the Zine Archive & Publishing Project (ZAPP) Collection at the Seattle Public Library.

Importance: This dissertation is innovative in approach, population, methodology, and impact. The use of PHCRP, focus on multiply marginalized populations, examination of structural-level factors, novel datasets, and applicability to a variety of stakeholders distinguishes this study. This study will serve as a model for anti-racist and intersectional public health research.

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Chapter 1: Introduction

Through reckonings with racism and discrimination across the U.S. and within the public health field itself, researchers are more readily naming structural racism and structural discrimination (SRD) as fundamental causes of health. The National Institute on Minority Health and Health Disparities describes SRD as interlocking systems of oppression and power.[1] Structural racism maintains racial and ethnic hierarchies, reifying white supremacy culture and harming Black, Indigenous, and other people of color (BIPOC).[2–4] Structural discrimination is a broader concept which includes other oppressive systems, including cisheterosexism, which stigmatizes lesbian, gay, bisexual, transgender, queer, and other non-cisgender and non-heterosexual (LGBTQ+) populations.[1,5]

However, even as our understanding of the impact of these factors on health grows, there is still a shortage of research that considers the impact of multiple systems of oppression simultaneously in order to develop a multifaceted understanding of health and social phenomena. Research which centers the intersections of macro-level structures is vital to understand the health of multiply marginalized communities, whose health and well-being is disproportionately impacted by these interlocking systems.

LGBTQ+ BIPOC (often referred to as QTBIPOC), who are racialized and stigmatized through their race, sexual orientation, and/or gender, are one example of multiply marginalized communities. QTBIPOC are disproportionately affected by interlocking SRD, resulting in unique lived experiences which are meaningfully different from their white LGBTQ+ and BIPOC cisgender and heterosexual peers.

An estimated 7-10 million QTBIPOC adults reside in the U.S.,[6] a population that is growing based on current trends in racial and ethnic, as well as sexual orientation and gender identity (SOGI) identification. QTBIPOC as a population are understudied, but current research demonstrates health inequities across multiple health and social outcomes, such as healthcare access, health behaviors, and mental health.[7–12] At the same time, research indicates that community strengths, assets, and resources unique to QTBIPOC communities act as a protective factor against SRD.[13]

Examining the health of QTBIPOC offers a vital opportunity to apply anti-oppressive methodology based in Critical Race Theory to public health research, such as Public Health Critical Race Praxis (PHCRP), Intersectionality, and Community Cultural Wealth (CCW). Therefore, the aims of this dissertation center PHCRP to examine the health-related quality of life (HRQoL) and healthcare access of QTBIPOC adults in the U.S. We focused on HRQoL and healthcare access because they are a multi-dimensional measure of health status, well-being, and health services usage, and they are highly correlated with key health outcomes such as mortality, chronic disease, and health behavior.

Through a unique set of qualitative and quantitative datasets, we conducted a mixed methods investigation of how structural determinants impact the health of U.S. adults across race, sexual orientation, and gender. These datasets included published literature in major health databases, national health survey data from the Behavioral Risk Factor Surveillance System (BRFSS), and zines (self-published print media) from online and physical archives. The aims of the dissertation are as follows:

Aim 1: Conduct a systematic scoping review to describe how PHCRP is applied methodologically in published empirical health literature and summarize strategies for applying anti-racist principles in health research.

Aim 2: Examine individual and joint associations between 1) structural racism, 2) structural cisheterosexism, and 3) QTBIPOC status on measures of HRQoL and health care access among U.S. adults.

Aim 3: Identify how QTBIPOC community members describe the ways in which oppression and strengths impact the health of their community through a qualitative content analysis of QTBIPOC-authored zines.

Theoretical Foundation and Application

Public health research on SRD should be examined with anti-racist and anti-oppressive approaches to avoid replicating systems of inequity within our own research practices. PHCRP is one such approach. Developed by Ford and Airhihenbuwa in 2010, the framework applies Critical Race Theory (CRT)—an interdisciplinary concept originating in the legal field—to interrogate racism within public health research, teaching, and practice.[2,14] PHCRP guides public health researchers to consider how the social construction of race, racial hierarchies, and

structural racism influence their work. Without PHCRP or other anti-oppressive frameworks, research with QTBIPOC communities may fail to rigorously confront the impact of racialization and racism on the health inequities experienced in this population. As such, this dissertation centered PHCRP as its overarching framework (Table 1).

This dissertation is guided by critical theory and praxis centered around anti-racism, including PHCRP, Intersectionality, CCW, and reflexivity. We detail these theories below and describe how they create the foundation of our inquiry.

Introducing Anti-Racism and Other Critical Approaches: Marginalized people and accomplices have always resisted racism and oppression, even before the vocabulary of anti-racism existed. In the US, there is a deep legacy of anti-racism across marginalized racial groups, from resistance against settler colonialism, the abolition of slavery, to the Black Power, Chicano, Indigenous, and Asian American movements of the 1960-70s.[13,15,16] From these roots grew CRT, through which much of the application of anti-racism principles in academia and research have developed.[2,13,15] CRT emerged in the legal field in the 1970s, but it is now considered a multi-disciplinary movement which examines and addresses racism through race consciousness, or the awareness of how racial hierarchy operates in society.[2,14,15] Offshoots of CRT include PHCRP—which we utilize throughout this dissertation.[13]

In this dissertation, we define anti-racist public health research as empirical work which utilizes Critical Race Theory (CRT),[15] its related frameworks (e.g., PHCRP,[2] Intersectionality,[17] and CCW), and/or its principles (e.g., race consciousness, structural determinism, primacy of racialization) to examine health and contribute to the active critique and dismantling of structural racism, white supremacy, and its harms. We also recognize that there is not one agreed upon definition of anti-racism; in fact, leading anti-racist scholars Came & Griffith embrace this fluidity as a strength.[18]

In the past decade, the acknowledgement of structural racism and a public health issue—and a call for anti-racist public health research—has exploded. A search of the term “anti-racism” in PubMed in June 2024 retrieved 1,706 articles, 95% of which were published in the last decade—and 88% of which were published since 2020. Such anti-racist public health research spans both quantitative and qualitative public health methodologies. Across both methodologies, scholars have used anti-racism to: (1) describe the impact of structural racism on health,[4,19,20] (2) center

the health of various marginalized communities,[16,21–23] (3) investigate causal pathways between structural racism and health,[24–29] and (4) unlearn and critique disciplinary norms,[14,30–33,34,35].

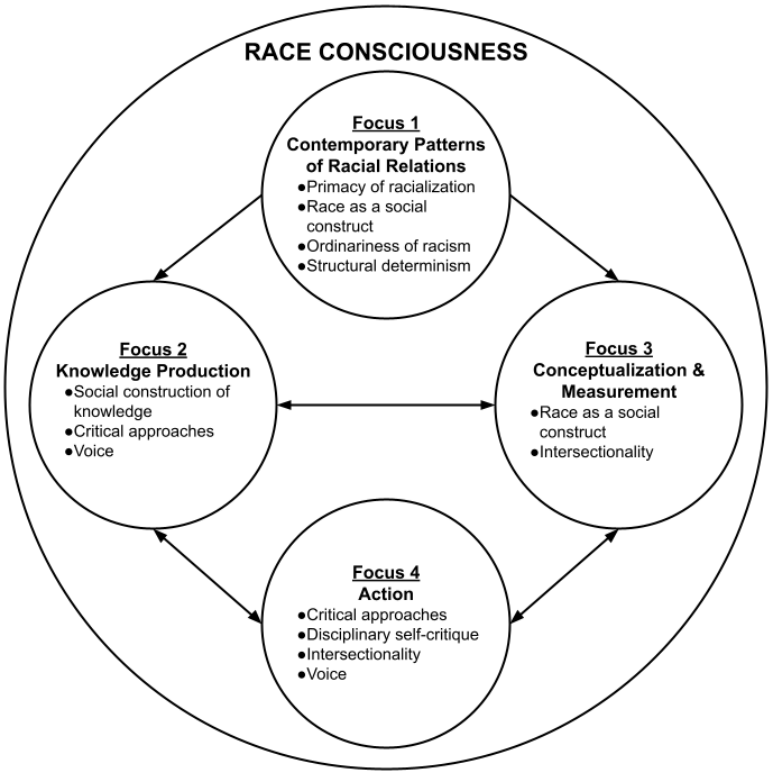


Figure 1.1. Public Health Critical Race Praxis Model (From: Ford & Airhihenbuwa, 2010)

However, despite this growth in anti-racist public health research, a recent literature review found that the vast majority of health equity literature about race is divorced from critical theory. Mannor and Malcoe found that only 10% of racial health disparities journal articles explicitly used theory.[36] Similarly, Intersectionality scholars have criticized the lack of engagement with critical theory and social justice within the research field.[17,37,38]

Across public health research, a greater understanding of theory, as well as social and historical forces, is needed to ensure anti-racism does not become removed from its social justice roots.[15,17,37,39] As more and more scholars unlearn traditional, positivist ways of conducting research under white supremacy, we must also critique, reform, and reimagine our own research and our own institutions using an anti-racist lens.[40] This dissertation utilized anti-racist and anti-oppressive theories and frameworks (i.e. PHCRP, Intersectionality, and CCW) to guide its research aims, methodology, interpretation, and impact. In doing so, we aim to work toward the transformative potential of a future where health is a human right, and health equity and justice are the status quo.

Public Health Critical Race Praxis (PHCRP): PHCRP is a framework created by Ford & Airhihenbuwa to guide the application of CRT in the public health field.[2] It has since shaped how

we apply anti-racism to public health research, practice, and pedagogy. PHCRP demonstrates how to apply ten key tenets to four focus areas (Figure 1.1).

Race consciousness is the overarching guiding principle of PHCRP, intended to be utilized in all contexts. Race consciousness involves a deep examination of one's racial identity and how it manifests in seemingly colorblind contexts. Each of the 10 principles of PHCRP and their definitions can be found in Table 1.1.

Throughout this dissertation, we interpreted each focus area of PHCRP as a different stage of the research process. By applying the tenets of PHCRP to each stage, we aimed to better integrate race consciousness throughout our work. Focus 1, Contemporary Patterns of Racial Relations, asks how social context impacts one's work. This is particularly crucial for establishing the background of this research study or project. In Focus 2, Knowledge Production, researchers should examine our own field and practices and consider how racism creates a 'status quo' of how knowledge is traditionally constructed. Focus 3, Conceptualization and Measurement, highlights the importance of considering how key constructs are operationalized and measured. Focus 4, Action, asks how we use the findings of a research study to disrupt health inequities. This includes interpretation, dissemination, and creating real world change. To ensure that PHCRP was incorporated throughout the research process of this dissertation, we described *a priori* how PHCRP would be applied across this dissertation's aims (Table 1.1).

Table 1.1. Application of PHCRP in Dissertation Aims

PHCRP Principle	**Aim**	**Definition (From Ford & Airhihenbuwa, 2010)**	**Examples of Application**
Race Consciousness	1-3	Deep awareness of one's racial position; awareness of racial stratification processes operating in colorblind contexts.	Reflexivity of author positionality is explicitly discussed at research meetings. Positionality statements will be a part of published manuscripts. Reflexivity will also be further embedded in the research process (Table 5).
Primacy of Racialization	2	The fundamental contribution of racial stratification to societal problems; the central focus of CRT scholarship on explaining racial phenomena.	Racialization is prioritized in analysis; under sample size constraints, race is disaggregated instead of other demographic categories.

Race as a Social Construct	2, 3	Significance that derives from social, political and historical forces.	Race is explicitly defined as a social and political construct in published manuscripts. We acknowledge that racism, rather than race, is the true root cause of racial health inequities.
Ordinariness of Racism	2, 3	Racism is embedded in the social fabric of society.	In aim 2, Structural racism is operationalized through state policy, as an example of how racism is embedded in systems. In aim 3, we examine how QTBIPOC zine creators describe the ways structural racism is a part of their everyday, lived experience.
Structural Determinism	2, 3	The fundamental role of macro-level forces in driving and sustaining inequities across time and contexts; the tendency of dominant group members and institutions to make decisions or take actions that preserve existing power hierarchies.	Structural racism and cisheterosexism are the main exposures in aim 2, operationalized through state policy environments. Structural-level strengths (i.e., Community Cultural Wealth) and oppression are examined in Aim 3.
Social Construction of Knowledge	1, 3	The claim that established knowledge within a discipline can be re-evaluated using antiracism modes of analysis.	In Aim 1, PHCRP is used as a codebook to evaluate how existing research applies PHCRP to examine fidelity to anti-racist principles.
Critical Approaches	1-3	To dig beneath the surface; to develop a comprehensive understanding of one's biases.	Research meetings and publications adopt critical approaches to guide reflexivity and challenge assumptions. This includes reflexive prompts and memos.
Intersectionality	2,3	The interlocking nature of co-occurring social categories (e.g., race and gender) and the forms of social stratification that maintain them.	Aims 2 and 3 focus on QTBIPOC populations at the intersection of race, gender, and sexual orientation and how they are impacted by interlocking SRD. Intersectionality theory is used throughout these aims as a basis for analysis.
Disciplinary Self-Critique	1-3	The systematic examination by members of a discipline of its conventions and impacts on the broader society.	In aim 1, we critique how health fields utilize PHCRP. In Aim 3, we use an arts-based approach to critique traditional research methods which often ignore art as a form of data. Overall, our grounding in anti-racist and anti-oppressive theory critiques the status quo of traditional positivist research paradigms.

Voice	3	Prioritizing the perspectives of marginalized persons; Privileging the experiential knowledge of outsiders within.	The use of existing zines prioritizes the perspectives of QTBIPOC community members as they wish to express it, without the filter of a researcher-created data collection method. In addition, a 'research salon' participatory analysis technique trains QTBIPOC students on qualitative data analysis. This also incorporates the voices of other QTBIPOC in the interpretation of the zines.

Intersectionality: As the concept of intersectionality has spread through our culture and zeitgeist, its definition has become more amorphous. As we embark on a project of intersectional public health research, it is important to define our theoretical basis. Drawing upon the scholarship of Patricia Hill Collins, Sirma Bilge, Lisa Bowleg, the Combahee River Collective, Kimberlé Crenshaw, Sumi Cho, and many others,[17,33,39,41–46] we define intersectionality as the following: Intersectionality is a dynamic way of thinking and acting which critically examines how interlocking and mutually reinforcing systems of power and oppression impact social conditions and relations, with the goal of furthering social justice.

We categorize intersectionality broadly as a 'way of thinking and acting' because of its ability to take on many diverse forms and uses. Intersectionality has been described by various scholars as a field of study, analytic tool, critical praxis, critical inquiry, theoretical framework, and a perspective.[17,33,42,46] Both the inquiry and praxis of intersectionality must be critical.[17] That is, they must challenge societal structure in transformative ways. Through critical thinking and praxis, we can align intersectionality research with its principles of focusing on social inequality, examining intersecting power relations, and centering a social justice approach.[17] Since the beginning, intersectionality's focus has been on systems of power. Intersectionality's unique approach compared to other critical theories is the commitment to seeing these systems as interlocking and mutually reinforcing. As Collins & Bilge state, intersectionality is "the seemingly simple idea that entities that are typically treated as separate may actually be interconnected. (p. 198)"[17]

The way we assign power to 'sameness and difference'[46] is what causes social inequality. Interlocking systems of oppression create hierarchy, transforming mere variation into difference

with implications on one's position in society. We recognize oppression as the reason why social identities matter, and why they are often the entryway to people's understanding of intersectionality. Ultimately, the goal of intersectionality is to address these social inequities through social justice. Intersectionality centers in the margins,[47] empowering those impacted by multiple systems of oppression. Much of intersectionality theory is rooted in the activism and scholarship of Black, lesbian women, who called out the single-system thinking of typical anti-racist or feminist movements and emphasized that to truly dismantle systems of oppression, we must understand that these systems reinforce one another and cannot truly be addressed separately.[17,44]

We used Collins & Bilge's framework for Intersectionality for Aims 2 and 3 of this dissertation. Collins & Bilge outline six core themes of Intersectionality[17] (Table 1.2). Firstly, the primary goal of intersectionality is to investigate social inequality and the systems of power that create these hierarchies. Second, intersectionality takes a structural perspective, examining interlocking systems of power and oppression which are mutually constituted and have multi-level impacts. Third, intersectional analysis and praxis must be contextualized in its specific place and time and should also consider global and transnational forces. In particular, Collins & Bilge state that the historical, social, and political context of one's nation-state is an important unit to understand. Next, Intersectionality's basic premise is the understanding that things which seem separate are actually interconnected. Relationality calls for "both/and" perspectives, recognizing multiplicity and combatting oppositional thinking. Relationality can apply to connections not only between power structures, but also between and across ideas, actions, dialogue, movements, and communities. Further, the recognition that ideas with which intersectionality deals with are complex, and therefore intersectionality itself is complex. These complex ideas include social inequality, power structures, context, the process of relationality, as well as people themselves. Because of this complexity, we should allow intersectionality, its application and its definition, to be expansive and inclusive. Finally, social justice is the core theme and shared goal of intersectionality. As intersectionality is legitimized within academia, its social justice aim has become diluted and sanitized. Scholars and practitioners of intersectionality must actively combat this through critical approaches, centering the experience of marginalized peoples, and working toward a changed future.

Table 1.2. Themes of Intersectionality (Adapted from Collins & Bilge, 2020)	
Theme	**Description**
Social Inequality	Investigation of social inequality, and the systems of power that create these inequalities, is the primary purpose of intersectionality.
Intersecting Power Relations	Intersectionality is structural, examining interlocking systems of power and oppression which are mutually constituted and multi-level.
Social Context	The use of intersectionality must be contextualized in its specific social, historical, political, and global context.
Relationality	Things which seem separate are actually interconnected; this includes power structures, ideas, movements, and communities.
Complexity	Intersectionality grapples with complex ideas, and therefore should be expansive and inclusive.
Social Justice	The ultimate goal of intersectionality is socially just, equitable, and transformative society.

Collins & Bilge describe in depth how their framework applies to various real-world situations and examples, providing an excellent roadmap on how to apply intersectionality analytically and use it to affect real world change. Agénor recommends the Collins & Bilge framework for incorporating Intersectionality into mixed methods public health research.[38] To supplement Collins & Bilge's framework, we also incorporate the following practices described by other scholars: reflexivity, acknowledging intersectionality's limits for health research, and acknowledging the diverse well of knowledge—current and historical—of intersectional ways of thinking.[13,33,43,46,48] In particular, various women of color feminist movements—including Indigenous, Latina/Chicana, and Asian American—and queer theory, have made important contributions to the field.[43,46,48,49]

Community Cultural Wealth (CCW): Deficit theorizing is the default approach of many fields, including public health, which seek to uncover disparities and ill health. Although an examination of disparities is not innately harmful, the status quo of the public health field is often to focus on what is 'wrong' with marginalized groups, typically in comparison to the White, male, cisgender, and heterosexual majority. This reifies a social hierarchy wherein privileged groups are deemed the norm or the ideal. When the vast majority of research focuses on deficits, it creates a narrative of ill health, poor behavior, or weakness which is often

weaponized against marginalized people.[50,51] Therefore, strengths-based approaches, such as CCW, are important to uplift to combat such norms.[13]

CCW is a framework developed by Tara Yosso, a leading LatCrit scholar.[13] By applying Critical Race Theory to the educational experience of BIPOC students, Yosso exposes deficit thinking as a form of racism. She uplifts the concept of community cultural wealth to combat the narrative of deficits imposed upon BIPOC students, demonstrating that BIPOC students have a unique set of skills and capital which allow them to navigate systems.

The capital cultivated by marginalized students is distinct from traditional capital from privileged groups and therefore may go unrecognized. On the community level, BIPOC students can therefore draw upon "communal funds of knowledge" to guide them, providing them tools against structural racism and discrimination. While the language of this framework may appear to refer to monetary income, Yosso conceptualizes wealth as encompassing an individual's total assets and resources they have accumulated over time. As such, community wealth refers to the assets and resources of an entire community.

Yosso describes six forms of capital which are included under the CCW framework (Table 1.3). She notes that these forms of capital are not mutually exclusive, but rather interrelated and dynamic. BIPOC communities demonstrate aspirational capital through the ability to dream of possibilities beyond their current circumstances, nurturing a "culture of possibility." Linguistic capital can be used to describe BIPOC community members who are multilingual and who use those language skills to build

Table 1.3. Forms of Community Cultural Wealth (Adapted from Yosso, 2005)

Capital	**Explanation**
Aspirational	The ability to maintain hopes and dreams for the future, even in the face of real and perceived barriers.
Linguistic	The intellectual and social skills attained through communication experiences in more than one language and/or communication style.
Familial	Cultural knowledges nurtured among families and kin that carry a sense of community history, memory, and cultural intuition.
Social	Networks of people and community resources.
Navigational	Skills of maneuvering through social institutions, particularly those not created with communities of color in mind.
Resistant	Knowledges and skills fostered through oppositional behavior that challenge inequality.

connections and navigate communities. It can also refer to various communication styles, techniques, and traditions, such as oral histories, storytelling, proverbs, art, music, and poetry. Language can also refer to different vocabularies and literacy skills, such as the ability to 'read' social and cross-cultural situations.

Familial capital is cultivated among families, both biological and non-biological. Kinship networks pass down knowledge across time to care and provide its members. A broad understanding of family for this form of capital is key for dismantling traditional, heteronormative assumptions about family. Through our ties with family, we can learn about how to maintain healthy relationships and prioritize mutual care. Social capital is broader, referring to networks of peer and social networks, as well as community resources. Among BIPOC community, there is a tradition of "lifting as we climb," giving back in resources and knowledge to the wider community. Social capital also includes mutual aid groups, which are networks working together in transformative ways to care for community members.

BIPOC communities have learned how to maneuver social institutions and white supremacy culture. These skills are referred to as Navigational capital. This capital recognizes that individuals have agency and have even learned to thrive under structures of racism and oppression. Communities share navigational skills, allowing one another to navigate white-dominated institutions. Finally, resistant capital describes the longstanding tradition of resistance and activism against systems and racism and discrimination. BIPOC communities have a legacy of challenging such structures, norms, and cultures. Such resistance can be seen embodied in the "Black is Beautiful" movement and in the "Thrivance" of Indigenous cultures under colonialism.[22,52,53]

There are numerous other strengths-based approaches to research and health, such as resilience, resistance, and thrivance.[52,53] Although resilience is a widely used theme across strengths-based research, we chose not to utilize it in this project. Although the term has opened up the conversation about strengths-based approaches, it is not without its critics. Researchers have argued that resilience places an unfair expectation on marginalized communities to persevere through structural oppression and trauma.[54–57] This creates a mismatch in level between the root cause of health inequities (structural racism and discrimination) and the offered solution (individual resilience).[57] In fact, resilience can be considered an "adverse event," as

noted by scholars Suslovic and Lett—a reaction to racist and discriminatory systems rather than a solution to those systems.[57] As such, scholars have urged for a reconsideration of resilience.

Beyond resilience, researchers have explored interventions such as collective liberation from colonialism,[58] the #BlackGirlMagic framework,[22] Black history knowledge,[59] social justice movements,[60] and autonomous trans healthcare[61] as way to emphasize the strengths present in marginalized communities. We utilize CCW because it explicitly operationalizes strength on a community, rather than individual, level. It can also be applied across racial and other social groups. However, we draw upon the diverse strengths-based literature to inform our project, particularly recognizing the work that has been done in the area by Indigenous, Black, and Transgender scholars.

Reflexivity: Reflexivity is an iterative process of examining of one's positionality.[62,63] By positionality, we mean one's social location in regards to their identities, lived experiences, and perspectives.[64] This can include race, ethnicity, gender, class, ability, education level, and more. Race consciousness, as the foundational principle of PHCRP, is closely related to reflexivity. We commit to taking additional steps to embed a reflexive, race conscious approach in this dissertation. We established several *a priori* strategies to imbue reflexivity throughout this dissertation, which can be found in Table 1.4.

Table 1.4. Application of Race Conscious Reflexivity in Dissertation Aims

Strategies	**Description**	**Aims**
Reflexivity discussions with Committee	The student and committee discuss reflexivity during committee meetings. Adjustments to the research process are made as needed based on such discussions.	1, 2, 3
Reflexive prompts in memos	Memos, which are key tools in the qualitative coding process, are also used for reflexivity. We include critical prompts about race consciousness rooted in PHCRP and other important aspects of reflection in memos, so that reflexivity is an explicit part of coding and interpretation.	1, 3
Computational Notebooks	Such notebooks are used to write prose alongside coding during quantitative analysis. Although not typically used for reflexivity, they are commonly used to note decision making and describe the coding process. Additional reflexive observations describe rationale and reflect on potential bias that can arise when making analysis decisions for covariates, models, etc.[62] Programs such as R Markdown and STATA allow for computational notebooks.	2

Positionality statements of authors in manuscripts	Manuscripts, where relevant, will include brief positionality statements of co-authors, particularly regarding relevant social identities such as race, gender, and sexuality. Identities discussed in such statements will be up to the co-author, so as to protect co-author as needed.[35,62]	1, 2, 3
Multiple coders with diversity of background	Recognizing that a single qualitative coder can introduce bias, as the single coder becomes the lens through which the study data is viewed, we will prioritize study funds to hire and compensate additional coders. Given the study content, we will actively recruit QTBIPOC students to act as coders for Aim 3's research salon. For Aim 1, we will aim for a diversity of health sciences researchers to be a part of the coding process.	1, 3
Sharing reflexivity skills with others	Aligning with reflexivity's emancipatory goals, we will also build the capacity of other students and researchers to engage in reflexive practice. This can occur through Aim 3's research salon, where reflexivity concepts can be taught to public health students. It can also be accomplished by publishing about reflexive techniques in quantitative public health research, encouraging others in the field to utilize these strategies.	2, 3
Shared committee norms and agreements	Shared norms and agreements, which were established at the first full committee meeting, will continue to be referred to and updated as needed. Part of these norms is the agreement for all committee members to engage in reflexivity, as well as be aware of how power and hierarchy show up in academic spaces.	1, 2, 3

Within a research setting, reflexivity involves critically grappling with how positionality and world view influence the research process.[62] By actively reflecting upon one's positionality, researchers can understand how their experiences may impact the research process, the research topic, the research participants, and the context of the research.[64] In line with a constructivist worldview, actively engaging in reflexivity reminds us that researchers are a part of constructing knowledge and reality. Because of this, we cannot divorce ourselves from the creation of knowledge or 'truth;' therefore, it is better to acknowledge and understand how we shape the research process.[64] Reflexivity is an iterative process because positionality is not fixed—it will change depending on context.[64]

When taking a critical approach to research, it is also important to recognize how systems of power and privilege are at play in one's positionality, and how that may impact one's relationship with the research, research participants, and research team. We center PHCRP and Intersectionality to guide our critical, race conscious approach to reflexivity.[2,17] Utilizing PHCRP, we emphasize race consciousness as central to our reflexive practice. As researchers engaged in anti-racist research, we must always ask, "How is racialization and racism operating

here?", particularly in settings or actions which appear to be 'colorblind.'[2] In doing so, we should reflect on our own racial identity, including how dimensions such as ethnicity, skin color, immigration status, religion, gender, class, sexual orientation, ability, and other identities may impact our how we are racialized in society. Because race is so central to our U.S. social context, race consciousness should be especially prioritized in the reflexivity process.

Intersectionality theory also calls for the use of reflexivity. Collins & Bilge state that to be critical is to be self-reflective, and they urge that researchers "cast a self-reflexive eye" to their own practice of intersectionality.[17] It is especially important to core ideas of intersectionality such as complexity and relationality. How can we complicate our understanding of how our own positionality impacts our intersectional praxis? How do our social identities, lived experiences, and perspectives relate to one another to create the way we interact with the world? How does our positionality impact how we relate to critical theory, with our research team, with our research participants, the research process itself, and the outcomes of our research?

In particular, health equity researchers from marginalized backgrounds who seek to take anti-racist, decolonizing, and liberatory approaches to research must pay special attention when engaging in reflexivity. Tuhiwai Smith cautions that 'insider research'—where a researcher shares positionality with the researched—has a constant need for reflexivity.[65] We recognize that there are multiple ways to be an 'insider' or 'outsider,' and even if a researcher shares the same background as their participants, their role as a researcher still impacts the relationality process. A position as a researcher in an academic institution comes with power and privilege which can shape partnerships, trust, and the interpretation of data. Insider-Outsider status should be seen as a spectrum, rather than a dichotomy, on which researchers can occupy multiple positions.[64] Researchers must recognize that they cannot act as substitutes for true community engagement in their research. We embrace intersectionality's "both/and" orientation, recognizing that our positionality can be a source of strength and power in our research, and that power and privilege can also manifest in harmful ways as researchers.

It is crucial to recognize that reflexivity cannot fix nor prevent all of the harms of research.[64] Self-reflection has its limits, and the act of self-reflection does not mean that that all bias will be recognized, nor that bias will be ameliorated after the act of reflection. Holmes notes

the concept of the 'blind area' and 'hidden area' of bias.[64] A researcher does not know their own blind area, but others recognize it. On the other hand, there are biases that the researcher themselves does know, but that are not known to others. Researchers should rely on one another as team members to help confront and address biases; and they must also rely on themselves to be as honest and authentic throughout the research process.

Overall, this dissertation is guided by the goal of social justice. We see reflexivity not just as a tool to ensure validity, but as an act of emancipation and transformation.[63] Foucauldian emancipation involves becoming aware of the norms which influence us, as well as changing our perspectives and actions to create 'new modes of being and acting.'[63] This aligns with the PHCRP principle of disciplinary self-critique and critical approaches, and Intersectionality's critical, social justice-orientated praxis.[2,17] Critical research is not just about coming up with findings that can effect future change, it is also about embodying that act of transformation within the processes and actions of research on a day-to-day basis. Researchers can use the act of critical reflection to disrupt the status quo and center the pursuit of social justice within research.

Overall Dissertation Approach & Conceptual Model

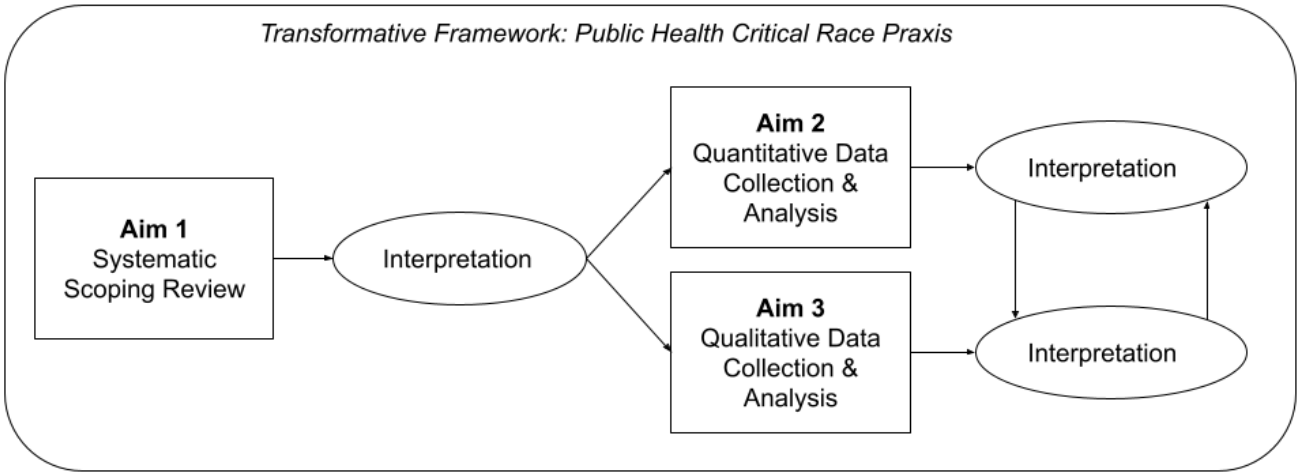
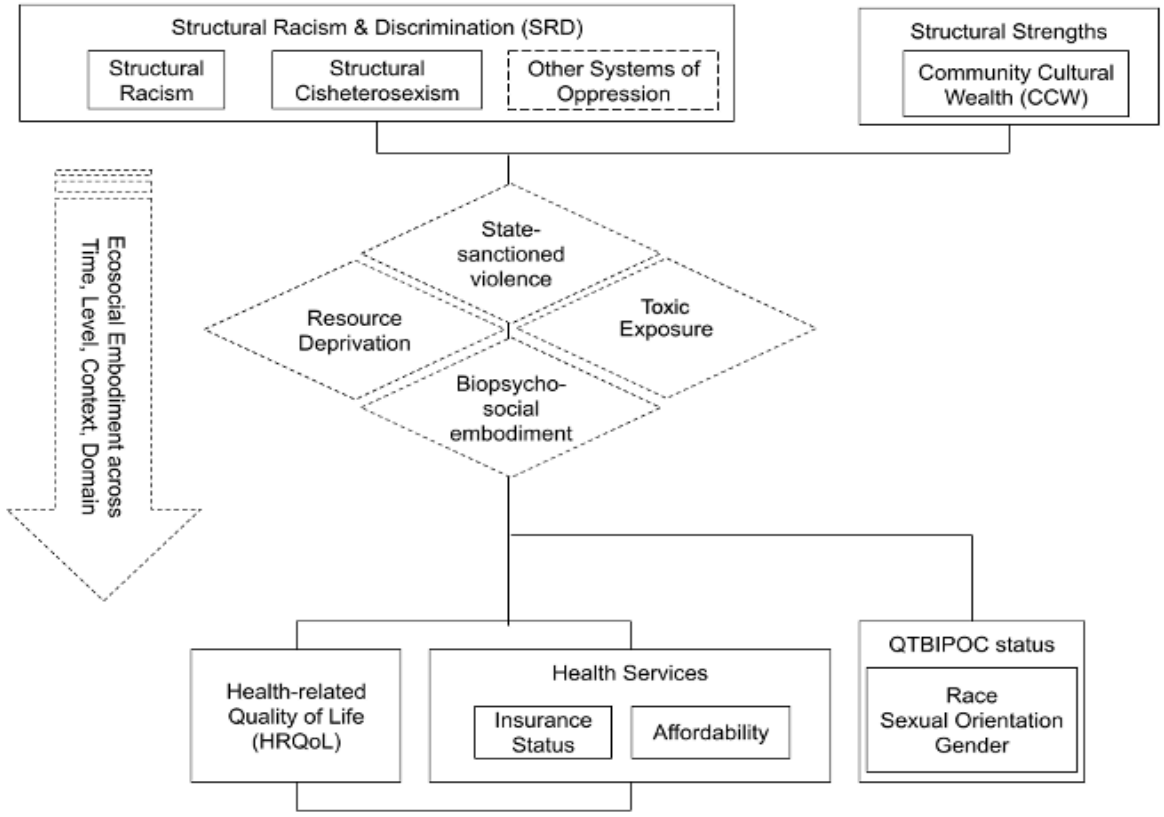


Figure 1.2. Overall Dissertation Approach

Overall Approach: The overall dissertation approach (Figure 1.2) is informed by Creswell & Clark's categories of mixed method designs.[66] This dissertation uses a transformative mixed methods design, which embeds the study within a critical, transformative theory—in this case, PHCRP. Each aim of the dissertation was conducted independently, though each aim's findings informed and supplemented the approach and interpretation of the others. Aim 1 firmly situated

the dissertation in its PHCRP-informed approach, and the research strategies derived from this aim informed subsequent aims. Aims 2 and 3 supplement one another, each offering a different intersectional approach. Aim 2's quantitative methods provide the 'what' of QTBIPOC health inequities and provided a nationally representative understanding of exposure to SRD across race, sexual orientation, and gender. Aim 3 used a phenomenological, qualitative approach to delve into the 'why' and 'how' of health inequities, exploring the experience of existing at the intersectional of multiple systems of oppression, as well as CCW within the QTBIPOC community.

Figure 1.3. Conceptual Model



Conceptual Model This dissertation's conceptual model (Figure 1.3) links structural factors with HRQoL, insurance status, and cost barriers to health. Our conceptualization relies on ›rigorous research linking how societal-level factors impact individual-level health outcomes. In particular, Krieger's Ecosocial Theory[32,67–70] details the process of embodiment—how human beings biologically incorporate societal power structures, conditions, and experiences across the life

course, resulting in health inequities across populations.[69] This theory emphasizes social justice approaches to health, critiquing systems of power and how they 'get under the skin' to impact health.[32]

Ecosocial theory is well-suited to highlight the influence of structural-level factors on health. Krieger emphasizes that structural-level level factors are not necessarily more distant nor have less causal potency than individual-level factors; in fact, structural-level factors do not have to necessarily work through proximal pathways to affect health.[70] Common fallacies in causal thought in the public health field often confuse causal potency, temporality, space, distance, and level.[70] Krieger and others describe how 'causal pragmatism' and the 'prison of the proximate' cause public health to prioritize more proximal factors for change, rather than structural-level factors.[70,71] In this dissertation, we prioritized such structural-factors for investigation, and in our conceptual model we describe four direct and indirect pathways which link structural factors to health curated from the literature on structural racism and other forms of oppression on health.[3,4,24,72–75] These pathways include state-sanctioned violence, biopsychosocial pathways, resource deprivation, and toxic exposure. It is important to note that these pathways are not mutually exclusive, and that the complex translation of intersectional oppression into health outcomes often cannot be easily divided into clear categorizations.

State-sanctioned Violence: State-sanctioned violence is explicitly named as one pathway of structural racism,[4,26] or is described as a pathway for SRD through the institutions it works through, such as the policing and carceral system, immigration system, military industrial complex, and publicly funded medical and public health systems.[3,69,76,77] There are examples of state-sanctioned violence throughout history, as well as in the present day. After the passage of the 13th amendment, which abolished slavery except for as a punishment for a crime, Black Codes in many U.S. states continued its oppression by criminalizing Black life across numerous domains, including land ownership, the right to assemble, and interracial marriage.[78] White supremacist groups such as the Ku Klux Klan were emboldened by these laws and acted as vigilante enforcers, inflicting injury and death on Black Americans as unofficial agents of the state.[78] Those arrested under such laws then had their unpaid labor exploited by prisons.[79] To this day, $0 minimum wages for incarcerated people are legal in numerous states, and Black Americans are vastly overrepresented in prisons.[79,80] This enslavement of incarcerated people, who are more likely to be Black, is intertwined with intense health injustices in prisons,

including inadequate healthcare and solitary confinement.[80] Prisons are such significant sites of state-sanctioned violence that each year someone spends in prison reduces their life expectancy by two years.[81] Because the U.S. incarcerates more people than any other country in the world, the health impacts of incarceration drop the overall average life expectancy for U.S. adults by five years.[81] Police violence, disproportionately enacted against Black men, Black women, and Black and Brown transgender people, is a part of this system and historical legacy.[34,82–84]

The public health system is also an enactor of state-sanctioned violence. Using publicly funded dollars, public health institutions have led efforts in eugenics and unethical medical testing.[85] These overwhelmingly impact Black, Brown, and other people color, particularly those with intersecting marginalized identities (e.g., gender, sexuality, mental and physical ability, and immigration status). There are numerous examples, from the Tuskegee Syphilis Experiment from 1932-1972, experiments on women in Guatemala who were infected with sexually transmitted diseases in the 1940s, to the forced sterilization of Indigenous women at the hands of the Indian Health Service in the 1960-70s.[85–88] In the present day, there are alarming rates of hysterectomies of immigrant women being held in Immigration and Customs Enforcement (ICE) detention centers,[89] and surgery requirements for state ID changes amount to forced sterilization procedures to obtain correct gender markers.[90,91] As demonstrated in these examples, the state can enact direct violence and ill health, and this violence is overwhelmingly wielded against marginalized populations.

Biopsychosocial pathways: This is the most commonly researched pathway between racism, oppression and health. Initially used to describe how interpersonal discrimination impacts health, it has since been applied on the structural level as well.[4,24] Ecosocial theory and embodiment theorizes that injustices on the societal level are embodied via biobehavioral pathways to create health inequities.[67,69] Similarly, weathering was theorized by Geronimus to explain health inequities between Black and White women over time.[73] She found that the accumulation of disadvantage over time impacted Black women at different life stages compared to White women, resulting in differences across the overall life course.[73] Biologically, researchers have found that racism is associated with stress and increased allostatic load, resulting in various physical health impacts such as reduced telomere length, cortisol imbalances, inflammation, high blood pressure, and metabolic disease.[4,92] Similar results have been found linking minority stress and structural stigma to physical health inequities across gender and

sexual orientation, such as through pathways like hypothalamic-pituitary-adrenal (HPA) axis reactivity.[74]

Psychologically, structural racism can enact trauma on the individual and community levels. Evidence reviews indicate that racism can cause negative mental health impacts including depression, anxiety, post-traumatic stress, worse self-esteem, helplessness, and worse sleep.[4] Structural discrimination has been linked to emotional suppression, vigilance, stigma consciousness, and worse self-worth in the LGBTQ+ community.[74,93] One study found that widely publicized acts of police violence against unarmed Black Americans result in spillover mental health impacts across entire states, indicating that such events have widespread, community-level impacts.[94] Socially, structural racism and discrimination are associated with isolation, reduced feelings of belongingness, social support, and damaged social networks.[4,74] For instance, historical redlining was found to be associated with increased firearm violence in Philadelphia.[95] Health behaviors often occur in the context of social settings, resulting in increased tobacco and alcohol consumption,[4] as well as riskier sexual transmission behaviors such as condom use and sex under the influence.[74]

Access to Resources: In line with Link & Phelan's Fundamental Cause Theory, we conceptualize resources as a broad concept. Resources may include wealth and income, but also include time, social systems, opportunity, networks, capital, education, institutional resources, and social status.[96,97] Interlocking structural systems, such as racial capitalism, shape access to resources, resulting in disparities we see in income, generational wealth, and assets. These monetary disparities are further compounded by other resources strained by racial capitalism. Having less income reduces the ability to spend money to save time—e.g., in commuting to work, driving to get healthy food, and childcare. Such time inequality is further shaped by race, gender, and sexual orientation.

It is important to note that marginalized communities are not completely deprived of resources. Through CCW theory, we can see that BIPOC communities contain numerous unique forms of cultural capital that can benefit them throughout their lives.[13] Despite being deprived from traditional forms of capital, BIPOC communities can generate their own banks of resources, connection, and knowledge. As such, deprivation is not the only direction of this pathway; positive access to resources can support community health.

Toxic Exposures: Toxic exposures are another pathway between structural oppression and health. Exposures can be considered in the classic epidemiological sense, as viruses and other biological agents of disease, or toxic pollutants in the air and water. However, communities of color are not only disproportionately exposed to these sort of toxins, but they are also exposed to targeted advertising of tobacco and alcohol, food deserts and food swamps, media stereotypes, and more.[69,98,99] Such insidious forms of exposure act more indirectly upon health, through cultural norms, access, and geography.

For instance, racial segregation has been linked to lung cancer due to increased industrial and car pollution in deprived neighborhoods.[20] SGM are more likely to be targeted by tobacco advertising, creating higher smoking rates.[100] Similarly, Black communities have been long targeted by flavored tobacco advertising, particularly menthols.[101]

Other Dimensions: Taking an intersectional approach, this dissertation is rooted in the idea that systems of oppression are interlocking and inextricable. For this reason, systems of oppression, like capitalism, colonialism, or nativism, are not considered pathways between SRD and health. Instead, they should be elevated to the same structural-level consideration as SRD. Similarly, dimensions of time, geography, and level are not pathways themselves, but can add dimensionality to pathways. All pathways can act across multiple dimensions of temporality: across history and across the life course. For instance, for biopsychosocial pathways, inequity can be embodied across generations through epigenetics, intergenerational drag, and historical trauma.[3,102–106] Across the life course, weathering impacts the timing of when inequities appear in a person's life.[73] SRD pathways act throughout units of space and geography, impacting communities on local and global levels. Finally, all pathways can journey nonlinearly across multiple levels—structural, interpersonal, internalized—to impact health. For instance, as described above, systems can commit direct violence, but interpersonal violence can also be enabled by policies. Cultural norms cause internalized oppression, resulting in self-inflicted violence.

In addition, pathways are not the same as institutions or other domains that pathways can work through. Pathways of violence, biopsychosocial embodiment, resource deprivation, and exposure can occur across multiple sectors of society. Domains can include the classic social determinants of health (SDoH);[107] they can also include sectors not explicitly mentioned in the

SDoH framework, such as corporations, climate & the environment, and media & culture.[108–110] For instance, deprivation of resources can occur across any of these domains through lack of educational access, healthcare coverage, green spaces, social capital, and other diverse resources.

Ultimately, critical theory and the body of literature on structural determinants and health guides the formation of this dissertation. Critical scholars in numerous fields have demonstrated how structural racism and oppression impact the health of marginalized populations. However, gaps still remain. The exploration of how interlocking systems of oppression impact multiply marginalized populations still needs further study. In addition, the public health field needs further centering of anti-racist theory and approaches. Over three aims, our inquiry seeks to understand how structural determinants impact health across race, sexual orientation, and gender; as well as actively implement anti-racist approaches in the exploration of this question. Through our foundation in critical theory and evidence, we emphasize that QTBIPOC and other marginalized groups offer unique insights that can augment our field's current understanding of structural determinants of health. We review the health literature to summarize strategies used to apply an anti-racism framework in empirical research (Chapter 2), examine the associations between state-level structural racism and structural cisheterosexism on the health and healthcare access of U.S. adults by race, sexual orientation, and gender (Chapter 3), and explore how QTBIPOC convey themes of health, strength, oppression, and intersectionality through independently-published print media (zines).

Chapter 2: The Application of Public Health Critical Race Praxis in Health Research: A Systematic Scoping Review

Abstract

Since its publication by Ford & Airhihenbuwa in 2010, the Public Health Critical Race Praxis (PHCRP) has guided health researchers in applying a race conscious approach to their scholarship. In this systematic scoping review, we qualitatively examined how PHCRP has been applied in the empirical health literature. We (1) described how PHCRP and its principles are currently applied throughout the research process, (2) catalogued practical strategies for conducting anti-racist public health research, and (3) demonstrated application of PHCRP in the review itself. Nearly 50 strategies for applying PHCRP were found across 22 articles. This review can be used as a guide for researchers interested in utilizing anti-racist strategies in their work through the application of PHCRP.

Introduction

In the past decade, the call for anti-racist public health research has exploded. A search of the term "anti-racism" in PubMed as of February 2025 retrieves 1,901 articles, 94% of which were published in the last decade, and 89% of which were published since 2020. Public health scholars have used anti-racism to conduct crucial research in multiple areas including: describing the impact of structural racism on health, [4,19,20] centering the health of various marginalized communities, [16,21–23] investigating pathways between structural racism and health, [24–29] and unlearning and critiquing disciplinary norms. [14,30–35]

In particular, Public Health Critical Race Praxis (PHCRP), created by Ford & Airhihenbuwa to guide the application of Critical Race Theory (CRT) in the field of public health, has emerged as a leading anti-racist framework for public health researchers.[2] It has since shaped how we apply anti-racism to public health research, practice, and pedagogy. CRT began in the legal field in the 1970s, but it is now considered a multi-disciplinary movement which examines and addresses racism through race consciousness, or the awareness of how racial hierarchy operates in society. [2,14,15]

Race consciousness is the overarching guiding principle of PHCRP and involves an active and continual process of reflecting on how race, racialization (i.e., the process of constructing and sustaining racial categories), and racism operate in all contexts. Additional principles of PHCRP include the primacy of racialization, race as a social construct, ordinariness of racism, structural determinism, social construction of knowledge, critical approaches, intersectionality, disciplinary self-critique, and voice.[2] Together, these principles guide users of PHCRP to apply CRT and anti-racist thinking and action throughout their work in public health.

PHCRP applies these principles across four focus areas, which can be interpreted by researchers as different stages of the research process. Focus 1, Contemporary Patterns of Racial Relations, asks what social context one's work is embedded within, how that context manifests across time and space, and how those manifestations impact the expression of health for individuals and communities. This is particularly crucial for establishing the background of a research study or project. In Focus 2, Knowledge Production, researchers examine their own field and disciplinary practices to consider how racism creates a 'status quo' of how knowledge is traditionally constructed. In addition, researchers grapple with their own biases by engaging in critical approaches to research during the study development and implementation phases. Focus 3, Conceptualization and Measurement, highlights the importance of considering how key constructs are operationalized and measured, a particularly important part of research methods. Focus 4, Action, asks scholars to use the findings of a research study to create impact and disrupt health inequities. This includes interpretation, dissemination, and creating real world change.

However, despite this growth in anti-racist public health research and the decades-long existence of anti-racist theory, a recent literature review found that the vast majority of health equity literature about race is divorced from critical theory. Mannor & Malcoe found that only 10% of racial health disparities journal articles explicitly used theory.[36] Similarly, intersectionality scholars have criticized the lack of engagement with critical theory and social justice within the research field.[17,37,38]

Across public health research, a greater understanding of theory, as well as social and historical forces, is needed to ensure health equity research does not become removed from its social justice roots.[15,17,37,39] As more scholars unlearn traditional, positivist ways of conducting research, we must also 'retrofit, reform, and reimagine' our institutions using an anti-racist lens.[40] As part of anti-racist systems change, proposed by Griffith & Came, a key act is evaluating how

anti-racism is applied in the public health discipline.[18] As such, it is important to review how anti-racist approaches—like PHCRP—are being applied to in health research. Doing so can help researchers understand how we can move toward anti-racist systems change in academic settings. To date, there has been no evidence review of how PHCRP has been applied in health literature.

In this systematic scoping review, we examined how PHCRP has been applied in health research since its inception in 2010. To do so, we analyzed empirical health research articles which explicitly utilized PHCRP as a guiding framework for their research. We (1) describe how PHCRP and its principles are currently applied throughout the research process, (2) catalogue practical strategies for conducting anti-racist public health research, and (3) demonstrate application of PHCRP in the review itself.

Methods

This study can be categorized as a critical, systematic scoping review. Scoping reviews, a type of evidence review, offer the opportunity to map the extent and range of current literature on a topic, particularly when the current literature is diverse and complex.[111–113] Systematic scoping reviews use a selective and purposeful search strategy and exclusion process to accomplish this, resulting in a reliable and reproducible evidence review.[111–113] We followed Preferred Reporting Items for Systematic Reviews and Meta-Analyses- Scoping Reviews (PRISMA-SR) guidelines for the search and retrieval of our sample of journal articles.[113] The critical aspect of this systematic scoping review is through its use of PHCRP as a guiding framework throughout.

Application of PHCRP: Figure 2.1 and Table 2.1 demonstrate how we applied PHCRP foci and principles to conceptualize and implement the study. Firstly, we recognized the contemporary pattern that most institutions do not teach anti-racist approaches in training programs for students and researchers. This is because most institutions are predominantly White, and curricula are shaped by the racist legacies of higher education.[114] Therefore, this study meets a gap by providing a synthesis on how to practically apply PHCRP during the research process, a useful tool for combatting the current context of white supremacy norms[115] in research. Second, we selected the methodology of a systematic scoping review, recognizing that existing anti-racist scholars who have utilized PHCRP have created a body of knowledge for other researchers to learn from. We drew upon research which explicitly engages with PHCRP to

prioritize knowledge that clearly recognizes and critiques the status quo of academic research. Third, we contribute to conceptualization and measurement of anti-racist research methodologies by creating our qualitative codebook using PCHRP principles. Finally, this study encourages action by synthesizing our research results into practical strategies for use by other scholars interested in anti-racism. Throughout these four foci, the design of the study is particularly guided by the PHCRP principles of race consciousness, social construction of knowledge, critical approaches, and disciplinary self-critique.

Data Collection & Screening: We conducted our search in four major scientific databases to retrieve high-quality, peer-reviewed literature: PubMed, Web of Science, Embase, and Scopus. PubMed, maintained by the National Library of Medicine, accesses the MEDLINE database, which includes over 5,400 biomedical, life sciences, health, and clinical research journals.[116] Web of Science includes over 21,100 journals covering the sciences, social sciences, arts & humanities.[117] Embase focuses on biomedical sciences, with over 8,500 journals in its database.[118] Scopus is the largest of the four databases, covering 27,950 journals across the science, medicine, and social science literature.[119] The inclusion of social science journals recognizes that health research is interdisciplinary, and doing so allows us to draw upon anti-racist approaches across multiple disciplines. These databases are well-used in the health fields, and their use in combination ensures high coverage of published literature of public health research.[120]

A priori Boolean search strings were entered into the above four scientific databases, searching for "PHCRP" and/or "public health critical race praxis." The search was conducted in all four databases in July 2023. All search results were then imported into Rayyan, a web-based systematic review tool.[121] All duplicate articles were removed.

In Rayyan, article titles and abstracts were screened based on inclusion criteria. Articles were only included in the next phase of screening if they were empirical articles that mentioned PHCRP in the title or abstract. Empirical articles include single studies and systematic reviews of research, as well as descriptions of research methodology, program implementation and evaluation, pedagogy, and case studies. Articles were excluded if they were non-empirical (e.g., commentary, theory), did not have full-text available, or were not available in English. Because the landmark paper describing PHCRP was published in 2010, all included articles had to be published after 2010.

After the title and abstract screening, the full texts of the remaining articles were screened. In this stage, articles were evaluated to determine if PHCRP was used as a guiding framework. Any articles that did not state their use of PHCRP or did not meet any of the previous inclusion criteria were removed.

Analysis: After confirmation of the final sample, the full texts of articles were imported into Atlas.ti 23.2.1 for qualitative analysis.[122] A team of three coders, who each had experience with the application PHCRP, anti-racist approaches, and reflexivity in qualitative research, conducted coding of articles. The coders come from diverse racial and ethnic backgrounds to strengthen the perspectives included in the analysis and interpretation process. During qualitative coding, both manifest and latent meaning were examined. As such, coders not only coded for parts of articles where authors explicitly stated which PHCRP principles were used (manifest), but also 'read between the lines' to capture the implicit use of PHCRP principles throughout their research (latent) [123]. Principles of PHCRP were coded when explicitly named by authors, as well as when principles were implied by the authors. The coding team relied on their expertise in PHCRP and anti-racist approaches, as well as calibration discussions, to ensure validity in identifying latent applications of PHCRP.

The coding team included CAF, an East Asian American doctoral student; DM, a Black/African American doctoral student; and AN, a Filipina American graduate student. Prior to analysis, coders completed calibration coding of one article from the final study sample. The coders met before and after coding to discuss their experience, including interpretations of the PHCRP principles, reflexivity, over-arching observations about the articles, and any questions and uncertainties which emerged.

Both deductive and inductive approaches were used to qualitatively examine retrieved articles. The deductive codebook (Table 2.2) included PHCRP principles, which were coded in tandem with the codes Contextualization, Application, and Interpretation. These three codes represent three stages of the research process. Contextualization includes context, background, literature, theory, study justification, and conceptual models. Application includes study methods, including recruitment, data collection, and analysis. Finally, interpretation includes the study results, discussion, and impact. In conjunction, these codes demonstrate how and when scholars are applying PHCRP in the research process. This codebook was developed by CAF, EL, and WEB.

Memos supported the inductive coding process. For each article, coders recorded reflexive observations about race and other relevant elements of positionality that surfaced while conducting analysis. Coders also noted general strengths and weaknesses of how the articles applied PHCRP based on their review of how and to what extent the articles engaged with the principles of PHCRP.

Secondary analysis included the review of article quotes, code co-occurrence (examining which codes appeared in tangent), and inductive observations from memos. We examined descriptive characteristics of the published articles, the articles' application of PHCRP principles, and patterns and strategies for applying PHCRP.

Results

After conducting systematic searches in each of our four databases, we retrieved n=41 articles from PubMed, n=45 articles from Web of Science, n=50 articles from Embase, and n=47 articles from Scopus, for a total of n=183 articles for our initial screening sample. After duplicate records were removed, n=59 unique articles remained. These 59 articles were screened using inclusion criteria. Two articles were removed for lack of explicit naming of PHCRP, seven articles had no full text available, and 28 articles were excluded for not being empirically based. After excluding 37 articles during screening, a final sample of n=22 articles remained. Figure 2.2 displays the PRISMA-SR flow diagram of the screening process.

The 22 articles in the final sample spanned numerous topics and populations (Table 2.3). The following topics appeared more than once: graduate curriculum on racism,[124,125] endometrial cancer, [19,126] youth development,[127,128] and COVID-19.[129,130] Other topics included abortion,[131] patient-clinician communication,[132] cancer screening,[133] traffic stops,[134] HIV,[35] scholar-activist organizing,[135] the use of theory in health equity research,[36] a PHCRP training institute,[136] the Flint water crisis,[137] vaccination,[138] congestive heart failure,[139] police violence,[140] physician point of care tools,[141] and permanent supportive housing.[142] A total of n=6 (27.3%) articles were published in Ethnicity & Disease.[127,136,137,143–145]

Most PHCRP principles (9 out of 10; 90%) were present in the majority of articles (Table 2.4). *Race Consciousnes*s, the foundational guiding principle of PHCRP, was utilized in n=22 (100%) of studies, as was *Primacy of Racialization*. *Social construction of Knowledge* was utilized in n=21 (95.5%) studies; *Structural Determinism* was used in n=19 studies (86.4%);

Ordinariness of Racism and *Critical Approaches* were each used in n=18 studies (81.8%); *Intersectionality*, *Disciplinary Self-Critique*, and *Voice* were each used in n=17 studies (77.3%). *Race as a Social Construct* was the least used, appearing in n=10 studies (45.5%). PHCRP was largely applied across the research process, with n=21 articles (95.5%) applying PHCRP in all three stages of research (contextualization, application, and interpretation). Three articles (13.6%) utilized all ten PHCRP principles.[125,137,138]

Through our secondary coding process, we derived strategies for applying the ten strategies of PHCRP across three stages of research: contextualization, application, and interpretation. Nearly 50 strategies were generated from the articles in our sample (Table 2.5). We conceptualize Table 2.5 as a 'menu' of strategies for scholars to browse and select from. These strategies are categorized by 'course' (i.e., research stage), making it easy for scholars to identify when to apply their chosen strategies. These strategies are the 'dishes' researchers can order and engage with. The strategies scholars select should align with their study design, methodology, population, topic, and goals; just as a diner may select dishes based on the dietary needs and tastes of the group they are dining with. The cited articles provide a fuller picture of the strategies, offering additional context and guidance on their application.

Each 'course' (Contextualization, Application, and Interpretation) offers the chance to order from any of the ten principles of PHCRP (race consciousness, primacy of racialization, race as a social construct, ordinariness of racism, structural determinism, social construction of knowledge, critical approaches, intersectionality, disciplinary self-critique, voice), as well as an additional category of strategies which span across the principles.

For instance, a researcher who wishes to use the social construction of knowledge to inform the conceptualization of their study can use this principle to examine the state of the literature around one's topic of interest. By examining current knowledge through a race conscious lens, researchers can identify gaps where further investigation is called for.[126] Researchers can then make the justification that a study with an anti-racist approach is needed. Doll et al., demonstrate this principle, and researchers using this table can turn to this reference to gather further information and context about applying this strategy.

During the application stage, the research is being implemented based on the study's conceptualization. To engage in a principle such as disciplinary self-critique, the research team

can consider using art-based approaches to collect data to challenge disciplinary norms in the health field [125,136].

The interpretation stage is tightly linked to knowledge construction and action. Researchers interested in centering voice when interpreting their findings should consider using participatory approaches to data analysis. Community members can not only partake in analysis, but they can also be co-authors on papers, conference presentations, and other dissemination activities.[127,128]

In this example, a researcher has just designed and implemented a research project which is rooted in an understanding of how anti-racist approaches can generate new knowledge and insights into research on racial and ethnic health inequities. The research project not only uses novel methods which create an accessible opportunity for data collection, but it also uses the knowledge of community members to strengthen the validity and rigor of the research findings. This represents just one of countless ways the strategies in this synthesis table can be utilized and combined.

Discussion

This systematic scoping review summarizes the application of Public Health Critical Race Praxis (PHCRP) in empirical research, offering a set of promising practices for anti-racist research. We found that the articles in our sample demonstrated comprehensive application of PHCRP principles throughout their research, as demonstrated in Table 2.5. The articles' engagement with PHCRP allowed us to derive strategies for the application of PCHRP in empirical health research. This demonstrates the feasibility for scholars to apply all ten principles of PHCRP across all stages of the research process. We hope these strategies will be useful as inspiration for other anti-racist scholars seeking to center PHCRP in their research. We discuss the results of this review through the lens of PHCRP foci.

Focus 1: Contemporary Patterns of Racial Relations

This scoping review allowed us to gain insights about contemporary patterns of anti-racist research. PHCRP was applied across a varied spectrum of health outcomes, populations, and geographic areas. The oldest article in our study sample was published in 2017,[138] seven years after the initial publication on PHCRP by Ford & Airhihenbuwa. Most articles were published after 2020. This demonstrates how long it may take for theories and praxes to gain

foothold in empirical research, particularly those which require disciplinary self-critique, require rigorous engagement, and will to change.

The publication dates of these articles also indicate how the Black Lives Matter movement has influenced public health research. The Black Lives Matter movement was created in 2013 by Alicia Garza, Patrisse Cullors, and Opal Tometi in response to George Zimmerman's acquittal for the murder of Trayvon Martin.[146–149] The movement continued to swell through the 2016 election and continued to grow in strength in 2020 during the COVID-19 pandemic era and the murders of George Floyd, Breonna Taylor, and many others. These dates broadly align with trends in publication dates of the articles in our final sample.

As researchers, we must also reflect on how our current sociopolitical context may shape anti-racism research in the present and future. Anti-racist research has always represented a stance against the status quo and will continue to do so. At the time of publication, we are currently seeing racially and ethnically marginalized communities targeted, detained, and deported, at the loss for human life.[150,151] Although defunded grants, lost jobs, redacted datasets, and rejected papers[152] pale in comparison to the years of life lost, these issues are a part of the same system—a system which upholds racist structures, devalues communities of color, rejects critical thought, and cultivates a culture of fear.[3,15,24,31,115,153]

Focus 2: Conceptualization & Measurement

Numerous studies collapsed racial groups to form a "BIPOC" group due to sample size limitations. Collapsing racial groups raises important questions about data equity, data genocide, and the otherization of certain racial groups.[154] A single BIPOC racial category can mask disparities across racial groups, particularly for Black and Indigenous groups who are most impacted by racism and settler colonialism. Without disaggregation, heterogeneity and disparities may be masked. Approaches to combat this include disaggregating racial and ethnic groups to the extent possible in descriptive analyses, if it is not possible to do so in more advanced analyses.[154] Researchers should acknowledge such data equity issues in their manuscripts.

Focus 3: Knowledge Production

The rich set of research studies in our final sample indicates a growing body of scholars who are engaging in research which goes against the status quo of their home disciplines. By taking a race conscious and critical race approach to their work, these researchers are addressing

and grappling with how racism influences health outcomes as well as the practice of research itself.

Articles in this review commonly utilized other anti-oppressive theories (i.e., reproductive justice, intersectionality, decolonization, and participatory research approaches) in tandem with PHCRP. These theories are linked through their social justice and health equity missions. Using multiple critical theories reflects the concept of relationality, a key part of intersectionality and Indigenous ways of knowing.[17,38,155] Relationality emphasizes how all things are interconnected; this can include ideas, theories, and methodologies, as we witnessed in this review.[17] Researchers can continue to strengthen their anti-oppressive praxes by putting different approaches in conversation with one another.

Focus 4: Action

A key action item from this review is that scholars should grapple with how their research and their practices engage with the meaning and mission of PHCRP in a genuine and reflexive way. What this looks like will vary depending on one's positionality, context, topic of interest, population, resources, and desired impact. There is no singular way to apply PHCRP. Indeed, as Ford & Airhihenbuwa note, applying PHCRP formulaically violates the goals of PHCRP, as its goals as a praxis are expansive and critical.[2] Therefore, we advocate that the goal of research teams engaging in PHCRP should not be applying the maximum number of PHCRP principles; rather, researchers should prioritize an intentional approach to race consciousness and anti-racism.

On the disciplinary or institutional level, we recommend that disciplines and organizations provide structural and institutional support for research engaging in anti-racist health equity research. More than ever, health equity researchers need to be protected to continue supporting the health of marginalized communities.

Limitations & Solutions

There are limits to this study's search strategy and analysis methods. We chose to focus our search on empirical articles which explicitly state their usage of PHCRP. However, we recognize that there are articles which incorporate PHCRP principles but do not explicitly say so. Given the rise in interest in anti-racist research, concepts from PHCRP and other related theories have percolated throughout the health literature. We are interested in researchers who make explicit their use of theory to guide their research, as such articles are more likely to provide rich

explanation of their use of PHCRP. However, there are likely takeaways and strategies which can be derived from articles not captured by our systematic search. In addition, our search focuses on empirical academic research and therefore does not include insights from public health practice in the grey literature.

The search strategy involved a single co-author (CAF) retrieving and screening the articles to determine the final study sample. This may introduce bias into the screening process. To mitigate this, the screening criteria was co-developed with co-authors EL and WEB. Any questions regarding inclusion or exclusion were addressed in meetings with EL and WEB.

Our coding strategy emphasized diversity of background and perspectives that could bring unique viewpoints to the analysis process. We utilized the positionality and research interests of our coding team to assign articles in a race conscious way, utilizing racial concordance with coders and study populations where possible. Coders were previously trained in PHCRP and anti-racist approaches, met prior to coding to discuss shared understandings of the PHCRP framework, and participated in a calibration session. However, we did not emphasize traditional concordance during the calibration stage, instead focusing on co-learning to reach shared understanding of the purpose of the framework and how to apply it to the literature.

The coding approach examined latent meaning in the articles to extract strategies for applying PHCRP. We found that even when not explicitly stated, PHCRP principles were imbued throughout the articles in our study sample. This also means that there was subjectivity in the coder's part on assigning PHCRP principles to various quotations. We see this subjectivity as a strength, diving deeper into the article's meaning to mine themes and strategies.[123,156]

One limitation emerged because of the nature of the anti-racist public health field. Our study team was familiar with and has worked with a number of the scholars who were co-authors of the articles in the final study sample. This could have influenced how we assigned codes to articles, potentially resulting in coders identifying greater use of PHCRP in articles whose authors were well known to be Critical Race scholars. This potential bias was discussed during coding meetings to reduce the influence of our opinions of researchers or institutions on our coding. If replicating this scoping review, we encourage researchers to redact all identifying information from the articles in the final sample, including author and institution names.

Finally, we recognize that structures and norms across disciplines and academic journals are varying. We predict that many authors may have had to cut short their descriptions of their

application of PHCRP due to word count and journal limitations. Authors may have also encountered peer reviewers and editors who were not familiar with or did not align with anti-racist approaches. Scholars in different fields, institutions, and regions may face more severe pushback against anti-racist research, be threatened with academic sanctions, or face difficulties funding anti-racist work. All of these structural barriers make the pursuit and publication of anti-racist research difficult and impact the scholarship that can be found in our final study sample. As such, we did not analyze pure quantitative counts of codes or co-occurrences, recognizing that this may be impacted by journal limitations. We instead analyzed use of principles on the article level. Our qualitative approach offered greater flexibility, allowing us to examine manifest and latent meaning regarding PHCRP broadly across our study sample.

Conclusion

This systematic scoping review examined the empirical health research articles which used PHCRP as a guiding framework. In doing so, we summarized strengths, gaps, and areas for growth in the current PHCRP literature. In addition, we demonstrated application of PHCRP in our own review.

In the future, we urge anti-racist scholars to consider how they can continue to iterate upon the foundation of PHCRP, as well as CRT more broadly. There are numerous questions which arise for the future of anti-racist public health research. How can our current generation of racial health disparities research align more closely with the critical approaches of PHCRP? Can research truly be anti-racist within the larger institution of academia? What are innovative methods researchers can adopt that challenge disciplinary norms? How can PHCRP be supplemented by Indigenous and non-Western methodologies?

We hope that the evidence, strategies, and approach offered in this paper are an accessible way for scholars to understand how to practically apply anti-racism to their research, thus moving racial health equity scholarship closer towards anti-racism and racial justice. As long as social justice remains the north star of public health research, the application of PHCRP and other anti-racist approaches will continue to develop, expand, and nurture health equity and justice.

Tables & Figures

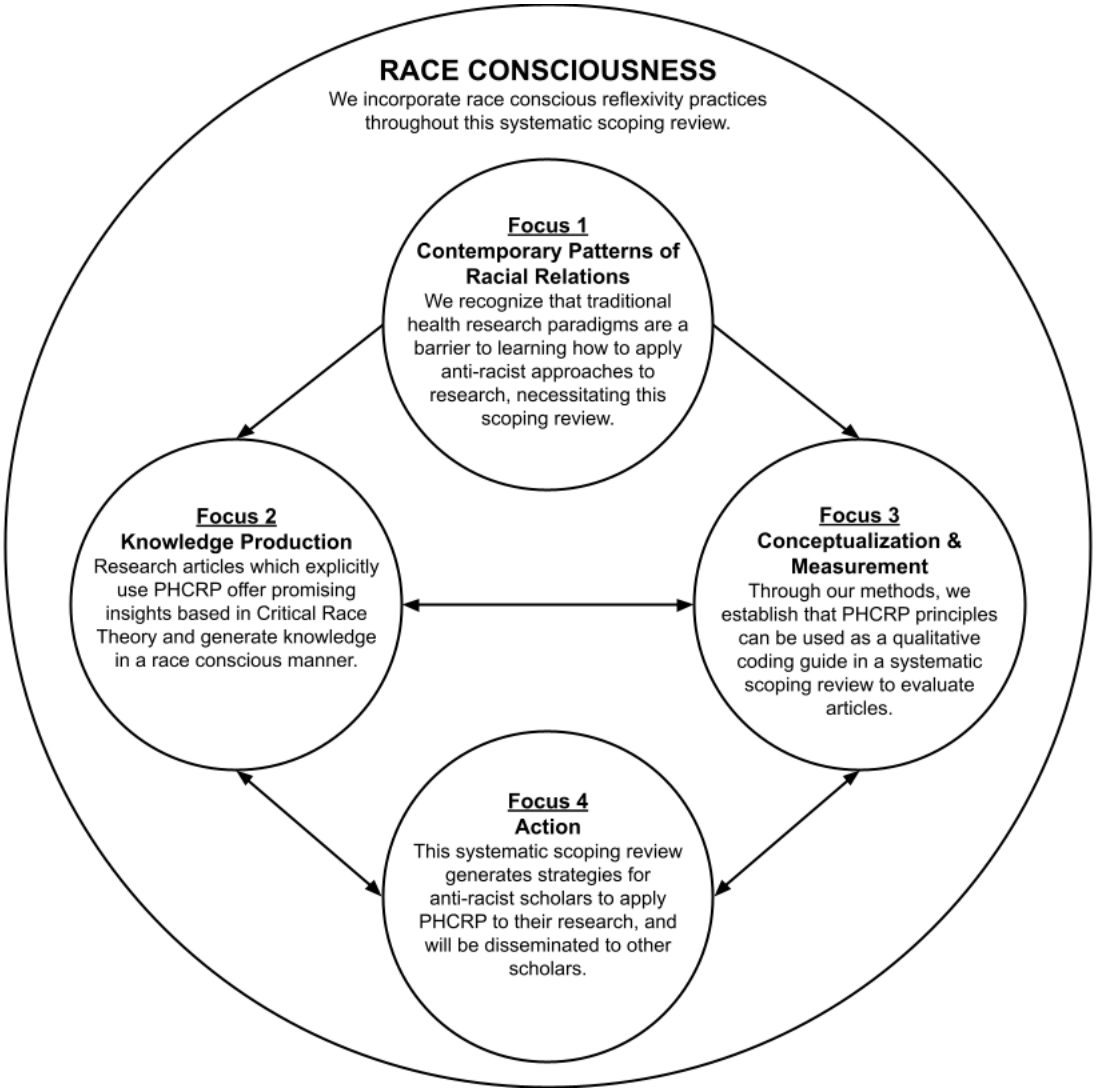


Figure 2.1. Adaptation of Public Health Critical Race Praxis Model to this systematic scoping review

Table 2.1. Application of Race Consciousness, Social Construction of Knowledge, Critical Approaches, and Disciplinary Self-Critique in this Systematic Scoping Review	
	Application in Systematic Scoping Review
Race Consciousness	Develop race-conscious memo prompts to guide inductive coding process and promote reflexivity around race.
Social Construction of Knowledge	Recognizing that the existing PHCRP literature can be evaluated using PHCRP as a qualitative codebook, forming the basis of this research study. Acknowledging in our discussion section where we deviated from traditional public health methods and norms, providing justification for our decisions from a PHCRP-based perspective.

	Recognize that institutional, systemic, and structural factors in academic research and publishing result in differences in ability to apply PHCRP and report on such methods. Coding calibration focused on diversity of knowledge and perspectives coders bring to the table, rather than a goal of sameness in the coding team.
Critical Approaches	Critical reflexivity was a part of coding memos and discussions to unpack and address areas of potential bias. Reflexivity discussions uncovered areas of potential biases, which are acknowledged in the discussion section.
Disciplinary Self-Critique	Systematic scoping review approach allows us to identify gaps and contradictions within the application of PHCRP in the health literature. Strategies derived from the review represent approaches for scholars to move beyond traditional health research paradigms.

Table 2.2. Qualitative Analysis Codebook

Code	**Code Definition**
01. Race Consciousness	Deep awareness of one's racial position; awareness of racial stratification processes operating in colorblind contexts. Frames the entire process of PHCRP. (e.g., A researcher clarifies her racial biases before beginning research within a diverse community).
02. Primacy of Racialization	The fundamental contribution of racial stratification to societal problems; the central focus of CRT scholarship on explaining racial phenomena. (e.g, A study on neighborhood characteristics includes factors hypothesized to reflect structural racism)
03. Race as a Social Construct	Significance that derives from social, political and historical forces (e.g., A study assesses race not as a risk factor but to identify a population at risk for specific racism exposures)
04. Ordinariness of Racism	Racism is embedded in the social fabric of society (e.g., A study on racism and health operationalizes racism as routine exposures (e.g., being followed while shopping))
05. Structural Determinism	The fundamental role of macro-level forces in driving and sustaining inequities across time and contexts; the tendency of dominant group members and institutions to make decisions or take actions that preserve existing power hierarchies (e.g., A multilevel study considers policy factors that may promote residential segregation)
06. Social Construction of Knowledge	The claim that established knowledge within a discipline can be re-evaluated using antiracism modes of analysis (e.g., A disparities-related literature review compares articles published in minority vs. majority journals)
07. Critical Approaches	To dig beneath the surface; to develop a comprehensive understanding of one's biases (e.g., A researcher considers alternative explanations for findings than those previously posited)
08. Intersectionality	The interlocking nature of co-occurring social categories (e.g., race and gender) and the forms of social stratification that maintain them (e.g., Efforts to reduce HIV risk behaviors among diverse men who have sex with men address racial stereotypes)
09. Disciplinary Self-Critique	The systematic examination by members of a discipline of its conventions and impacts on the broader society (e.g., Researchers examine implications for research of using 'health inequities' vs. 'health disparities' vs. 'health inequalities')

10. Voice	Prioritizing the perspectives of marginalized persons; Privileging the experiential knowledge of outsiders within (e.g., Responses of skepticism or anger when outsiders within speak truth to power)
11. Contextualization (co-code)	Co-code with # 1-10 (PHCRP tenets). Use when the respective PHCRP tenet is being applied by authors in the conceptualization and contextualization of the study (i.e., Introduction/Background section, including the study objectives, study justification, conceptual model, theoretical backing, etc.)
12. Application (co-code)	Co-code with # 1-10 (PHCRP tenets). Use when the respective PHCRP tenet is being applied by authors in the application of the study (i.e., Methods section, including data collection, intervention design, implementation, analysis, etc.)
13. Interpretation (co-code)	Co-code with # 1-10 (PHCRP tenets). Use when the respective PHCRP tenet is being applied by authors in the interpretation of the study (e.g., Results and Discussion sections, including interpretation of results, implications and impact of the work, future action or studies, etc.)
14. Facilitators/Barriers	Facilitators and barriers to implementing anti-racism research, as described by study researchers
15. Other Frameworks	Other frameworks and theories which researchers state were used to guide their work alongside PHCRP
16. Study Impact	Description of how the research was used to address inequity and support communities outside of the research itself, by impacting current or future actions, policy, programs, norms, etc.
17. Key Quote	Stand-out quote from article
18. Other	Other emergent themes of interest not covered by other codes.
PHCRP principles (codes #1-10) definitions derived from Ford & Airhihenbuwa 2010.	

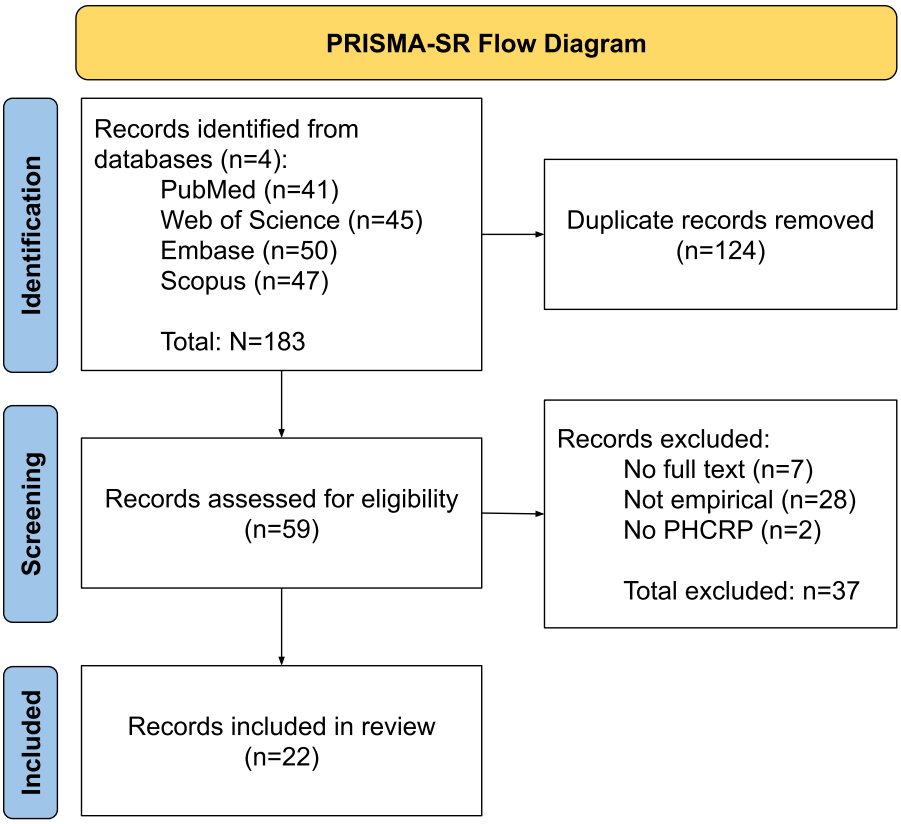


Figure 2.2. PRISMA-Scoping Review Flow Diagram

Table 2.3. Final Review Articles & Characteristics						
Author	**Year**	**Title**	**Journal**	**Topic**	**Population**	**Location**
Allen M, Wilhelm A, Ortega LE, Pergament S, Bates N, Cunningham B	2021	Applying a Race(ism)-Conscious Adaptation of the CFIR Framework to Understand Implementation of a School-Based Equity-Oriented Intervention	Ethnicity & Disease	Student-School connectedness program	Middle and High Schoolers (primarily BIPOC)	Urban school district in Minnesota
Alson JG, Nguyen A, Hempstead B, Moore A, Wilson M, Sage L, Cheng G, Doll KM	2021	"We Are a Powerful Movement": Evaluation of an Endometrial Cancer Education Program for Black Women.	Progress in Community Health Partnerships: Research, Education, and Action	Endometrial cancer education program	Black women impacted by endometrial cancer	US
Amani B, Cabral A, Sharif MZ, Huynh J, Jeffers KS, Baptista SA, McAndrew B, Bradford NJ, de la Rocha P, Ford CL	2022	Integrated Methods for Applying Critical Race Theory to Qualitative COVID-19 Equity Research.	Ethnicity & Disease	Racism and COVID-19 risk and mitigation	Health equity and social justice advocacy advocates	National (US) and regional (Los Angeles, CA)
Brown K, Plummer M, Bell A, Combs M, Gates-Burgess B, Mitchell A, Sparks M, McLemore MR, Jackson A	2022	Black Women's Lived Experiences of Abortion.	Qualitative Health Research	Experiences of abortion in context of racism and injustice	Black women who have had an abortion	San Francisco, CA; South, Midwest
Brown CE, Marshall AR, Snyder CR, Cueva KL, Pytel C, Jackson SY, Golden SH, Campelia GD, Horne DJ, Doll KM, Curtis JR, Young BA	2023	Perspectives About Racism and Patient-Clinician Communication Among Black Adults With Serious Illness.	JAMA Network Open	Patient-clinician communication	Black patients with serious illness	Washington state
Butler J, Fryer CS, Garza MA, Quinn SC, Thomas SB	2018	Commentary: Critical Race Theory Training to Eliminate Racial and Ethnic Health Disparities: The Public Health Critical Race Praxis Institute	Ethnicity & Disease	PHCRP Training Institute	Academic scholars	University of Maryland
Doll KM, Snyder CR, Ford CL	2018	Endometrial Cancer Disparities: A Race-Conscious Critique of the Literature.	American Journal of Obstetrics and Gynecology	Systematic review of race and endometrial cancer	Research articles	3 databases
Fliss MD, Baumgartner F, Delamater P, Marshall S, Poole C, Robinson W	2020	Re-prioritizing Traffic Stops to Reduce Motor Vehicle Crash Outcomes and Racial Disparities.	Injury Epidemiology	Black:White disparities in traffic stops	North Carolina Drivers	North Carolina
Ford CL, Takahashi LM, Chandanabhumma PP, Ruiz ME, Cunningham WE	2018	Anti-Racism Methods for Big Data Research: Lessons Learned from the HIV Testing, Linkage, & Retention in Care (HIV TLR) Study.	Ethnicity & Disease	HIV cascade outcomes	Primary Care Patients in large managed care organization	Southern California

Table 2.3. Final Review Articles & Characteristics						
Author	**Year**	**Title**	**Journal**	**Topic**	**Population**	**Location**
Hardeman RR, Burgess D, Murphy K, Satin DJ, Nielsen J, Potter TM, Karbeah J, Zulu-Gillespie M, Apolinario-Wilcoxon A, Reif C, Cunningham B	2018	Developing a Medical School Curriculum on Racism: Multidisciplinary, Multiracial Conversations Informed by Public Health Critical Race Praxis (PHCRP)	Ethnicity & Disease	Medical school curriculum development on racism	First year medical students, academic medicine faculty	University of Minnesota
Ibekwe LN, Fernández-Esquer ME, Pruitt SL, Ranjit N, Fernández ME	2023	Associations between Perceived Racial Discrimination, Racial Residential Segregation, and Cancer Screening Adherence among Low-Income African Americans: A Multilevel, Cross-Sectional Analysis.	Ethnicity & Health	Cancer screening	Low-income African Americans	Texas
Lightfoot AF, Efird CF, Redding EM	2021	Developing an Antiracist Lens: Using Photography to Facilitate Public Health Critical Race Praxis in a Foundational MPH Course	Pedagogy in Health Promotion	Anti-racist photovoice assignment for MPH program	MPH students in North Carolina	University of North Carolina
Manalo-Pedro E, Mackey A, Banawa RA, Apostol NJL, Aguiling W, Aguilar A, Oronce CIA, Sabado-Liwag MD, Yee MD, Taggueg R, Bacong AM, Ponce NA	2022	Learning to Love Ourselves Again: Organizing Filipinx/a/o Scholar-Activists as Antiracist Public Health Praxis	Frontiers in Public Health	Creation of counter-space for Fil-Am scholar-activists	Filipinx/a/o scholar-activists	US
Mannor KM, Malcoe LH	2022	Uses of Theory in Racial Health Disparities Research: a Scoping Review and Application of Public Health Critical Race Praxis.	Annals of Epidemiology	Literature review of health disparities research	Research articles	17 high impact public health and social science journals
Muhammad M, Hill De Loney E, Brooks CL, Assari S, Robinson D, Caldwell CH	2018	"I think that's all a lie…I think It's genocide": Applying a Critical Race Praxis to Youth Perceptions of Flint Water Contamination.	Ethnicity & Disease	Racism and the Flint Water Crisis	Black/African American residents of Flint, MI	Flint, MI
Myroniuk TW, Lewis KR, Harmsen JM, Schatz E	2023	Mitigating the Spread of COVID-19: Differential Perceptions of Midwestern University Students.	Family & Community Health	Attitudes about COVID-19 mitigation	Undergraduate students	University of Missouri
Osuagwu C, Khinkar RM, Zheng A, Wien M, Decopain J, Desai S, McElrath E, Hinchey E, Mueller SK, Schnipper JL, Boxer R, Shannon EM	2023	A Public Health Critical Race Praxis Informed Congestive Heart Failure Quality Improvement Initiative on Inpatient General Medicine.	Journal of General Internal Medicine	Quality improvement of Congestive heart failure inpatient care	Patients admitted to hospital for congestive heart failure	Boston, MA academic medical center

Table 2.3. Final Review Articles & Characteristics						
Author	**Year**	**Title**	**Journal**	**Topic**	**Population**	**Location**
Petteway RJ, González LA	2022	Engaging Public Health Critical Race Praxis in Local Social Determinants of Health Research: The Youth Health Equity and Action Research Training Program in Portland, OR- yHEARTpdx	International Journal of Environmental Research and Public Health	Health equity research training for youth	Youth of color and low-income youth in N/NE Portland	Portland, OR
Quinn SC, Jamison A, An J, Freimuth VS, Hancock GR, Musa D	2017	Breaking Down the Monolith: Understanding Flu Vaccine Uptake Among African Americans.	SSM - Population Health	Vaccine uptake attitudes	African Americans	US
Siegel M	2020	Racial Disparities in Fatal Police Shootings: An Empirical Analysis Informed by Critical Race Theory	Boston University Law Review	Black:White disparities in police shootings	Victims of police shootings (armed and unarmed)	US
Singh S	2021	Racial Biases in Healthcare: Examining the Contributions of Point of Care Tools and Unintended Practitioner Bias to Patient Treatment and Diagnosis	health:	Race in Point of Care Tools used by physicians	Physicians and point of care tool editor	Ontario, Canada
Twis M, Petrovich JC	2023	Race and Retention in Permanent Supportive Housing: a Secondary Analysis of Housing Outcomes	Journal of Human Behavior in the Social Environment	Retention in permanent supportive housing	Clients of permanent supportive housing	North Texas

Table 2.4. Article's usage of Public Health Critical Race Praxis Principles

Author, Year	Race Consciousness	Primacy of Racialization	Race as a Social Construct	Ordinariness of Racism	Structural Determinism	Social Construction of Knowledge	Critical Approaches	Intersectionality	Disciplinary Self-Critique	Voice	
Allen et al. 2021	x	x	x	x	x	x	x		x	x	9/10 (90%)
Alson et al. 2021	x	x		x	x	x	x	x	x	x	9/10 (90%)
Amani et al., 2022	x	x		x	x	x	x	x	x	x	9/10 (90%)
Brown K. et al., 2022	x	x		x	x	x	x	x	x	x	9/10 (90%)
Brown CE et al., 2023	x	x		x		x	x	x	x	x	8/10 (80%)
Butler et al., 2018	x	x				x		x		x	5/10 (50%)
Doll et al., 2018	x	x	x	x		x	x	x	x	x	9/10 (90%)
Fliss et al., 2020	x	x	x	x	x	x	x	x	x		9/10 (90%)
Ford et al., 2018	x	x	x	x	x	x	x		x	x	9/10 (90%)
Hardeman et al., 2018	x	x		x	x	x	x	x	x	x	9/10 (90%)
Ibekwe et al., 2023	x	x	x	x	x	x	x	x		x	9/10 (90%)
Lightfoot et al., 2021	x	x	x	x	x	x	x	x	x	x	10/10 (100%)
Manalo-Pedro et al., 2022	x	x			x	x	x	x	x	x	8/10 (80%)
Mannor & Malcoe, 2022	x	x	x	x	x	x	x	x	x		9/10 (90%)
Muhammad et al., 2018	x	x	x	x	x	x	x	x	x	x	10/10 (100%)
Myroniuk et al., 2023	x	x			x						3/10 (100%)
Osuagwu et al., 2023	x	x		x	x	x	x	x		x	8/10 (80%)
Petteway & González, 2022	x	x			x	x	x	x	x	x	8/10 (80%)
Quinn et al., 2017	x	x	x	x	x	x	x	x	x	x	10/10 (100%)
Siegel, 2020	x	x		x	x	x					5/10 (50%)

Singh, 2021	x	x	x	x	x	x	x		x		8/10 (80%)
Twis & Petrovich, 2023	x	x		x	x	x		x	x	x	8/10 (80%)
	22/22 (100%)	22/22 (100%)	10/22 (45.5%)	18/22 (81.8%)	19/22 (86.4%)	21/22 (95.5%)	18/22 (81.8%)	17/22 (77.3%)	17/22 (77.3%)	17/22 (77.3%)	

Table 2.5. Research Strategies for Applying Public Health Critical Race Praxis Principles (PHCRP) across the Research Process			
	Contextualization	**Application**	**Interpretation**
Race Consciousness	Explicitly name and define PHCRP's race conscious orientation. Weigh considerations of how you determine your study population and comparison groups (e.g., focusing on inter-racial vs intra-racial differences).	Explicitly state the author team's positionality regarding race and how it may impact the study [124,125,127,132].	Reflect on how study team's relationship with racial power, privilege, and marginalization may impact the implications of your research [135].
Primacy of Racialization	Describe how racialization and racism are the fundamental causes of health inequities. Explain why race, racialization, and racism are of such historical, social, and political importance to your research topic and in your research's context (e.g., in time, geography, etc.) [131,134,140].	Examine racism in its various forms (e.g., internalized, interpersonal, structural) as the primary exposure of your research study [132,133].	Ground your interpretation of your results in the importance of race, racialization, and racism, taking into account your research's context.
Race as a Social Construct	Explicitly state that race is a social construct, rather than biologically determined. Explain why race is evoked in the study design.	Explicitly define how race is operationalized in your study, if used. (e.g., self-identified, provider-identified, etc.) [131].	Ensure your interpretation of your results does not reify race as a biological construct.
Ordinariness of Racism	Recognize how all levels of racism (e.g., internalized, interpersonal, structural) are embedded in everyday life [131–134,137,140,141].	Operationalize racism in ways that recognize the ordinariness of racism (e.g., everyday discrimination scale, residential segregation, etc.) [133].	Acknowledge that both the *process* and *consequences* of racism are embedded in everyday life; actions should address both of these aspects of racism [140].
Structural Determinism	Acknowledge that structural racism, rather than individual race, is the root cause of health inequities.	Explicitly define how structural racism is operationalized in your study (e.g., racism in policy, residential segregation, etc.) [133].	Utilize study findings to demonstrate the impact of structural racism and other structural factors on health [131,133].
Social Construction of Knowledge	Use a comparison table to demonstrate how PHCRP allows for a race conscious understanding of your research topic that stands in contrast to traditional understanding of the topic [126].	Re-evaluate existing knowledge using PHCRP as a tool [36,126].	Compare and contrast how traditional approaches may interpret study findings in different ways [134].

Critical Approaches	Structure the study as an opportunity to encourage and build capacity for critical reflection among researchers/participants/community through the research process and methodology [141].	Intentionally incorporate reflexivity in the research process to encourage critical reflection on race (e.g., through a priori surveys) to surface potentially biased a priori assumptions [35].	Use the study as an opportunity to reflect upon your own positionality and explain how it could influence study design as well as data collection, analysis, interpretation, and dissemination [131,141].
Intersectionality	Acknowledge interlocking systems of oppression (e.g., sexism, colonialism) that play a role in your study alongside structural racism [131,135]. Do not portray individual racial groups or all BIPOC as monoliths; recognize the diversity of voices within these groups.	Apply PCHRP alongside other relevant critical theories and approaches (e.g., reproductive justice, decolonization, etc.) [19,125,128,131,135].	Use visual approaches to demonstrate the interconnectedness and relationality of roles, themes, and ideas [135]. Lean into complexity and relationality.
Disciplinary Self-Critique	Use theories and approaches from multiple academic disciplines [128,135].	Conduct systematic literature reviews utilizing PHCRP [36,126]. Use art-based approaches to challenge disciplinary norms [125,128,136].	Describe how the conventions of research and academic systems themselves may facilitate or limit the application of PHCRP [129].
Voice	"Center at the margins" in the conceptualization of your study, meaning to make the perspectives of marginalized groups the crux of your research [131,135,137,157]. Have community define and co-create research questions[157].	Establish Community Advisory Boards. Consider race-based caucusing approaches to center on the margins [124]. Utilize participatory approaches [125,128].	Conduct participatory analysis and dissemination with participants/community [128]. Have community members as co-authors on papers and conference presentations [128].
Other	Adapting PHCRP visual model and/or principles table for your own research project [126,131,132]. Explicitly state which PHCRP principles you are engaging with in your research and why [127,157]. Apply strength-based approaches [135].	Use PHCRP principles foci as a priori templates for data collection (e.g., interview guides) and/or analysis [132]. Apply PHCRP across all stages of research. Consider publishing methods papers to detail how your study centered PHCRP [129].	Map study results (e.g., key quotes and themes) to PHCRP principles and Foci [124,132,135]. Clearly demonstrate study impact and action resulting from your research, including non-academic impact [135].

Chapter 3: Associations between Structural Racism, Structural Cisheterosexism, Health-Related Quality of Life, and Health Care Access Among U.S. Adults by Race, Sexual Orientation, and Gender Identity

Abstract

Health and healthcare access inequities across race, sexual orientation, and gender are well documented. However, more research is needed to understand how structural racism and discrimination (SRD) interact to cause these health inequities. This paper examines independent and joint associations between structural racism, structural cisheterosexism (i.e., LGBTQ+ discrimination), and race and sexual orientation and gender identity (SOGI) subgroups on outcomes of health-related quality of life, cost barriers to seeking healthcare, and insurance status. Data sources include 2020-2023 Behavioral Risk Factor Surveillance System data, as well as indices of structural racism (Agénor et al.'s database of Structural Racism-related State Laws for Health Equity Research and Practice[158]) and structural cisheterosexism (Movement Advancement Project LGBTQ Policy Tally[159]) represented in state policy. We found that across all Race_SOGI subgroups (White Cisgender and Heterosexual (cishet); White LGBTQ+; Black, Indigenous and other People of Color (BIPOC) cishet; and BIPOC LGBTQ+), racist and cisheterosexist state policy environments were generally associated with worse health and healthcare access outcomes. In particular, BIPOC LGBTQ+ groups had the highest prevalence of these negative outcomes. This study demonstrates that state policy environments—and the systems of oppression they reflect—are significantly associated with health and healthcare access across a number of race, sexual orientation, and gender subgroups.

Introduction

In the U.S., the health of marginalized groups is under attack. Executive orders, federal and local policy, and cuts to social programs are intensifying the systematic marginalization of already vulnerable populations, leading to the acceleration and widening of already-existing health inequities. In the U.S., federalism means that state policies shape numerous social and health-related factors, including access to Medicaid, protection against employment

discrimination, minimum wage, voting rights, and the carceral system.[4,24,158,159] Populations experiencing multiple layers of marginalization are at even greater risk.

Documented health inequities among Black, Indigenous, and other people of color (BIPOC), as well as lesbian, gay, bisexual, transgender, queer, and other non-heterosexual and non-cisgender (LGBTQ+) peoples are long-standing.[160–163,164–167] Individuals who are both BIPOC and LGBTQ+ face major disparities in areas such as social determinants of health, mental health, behavioral health, physical health, and healthcare access.[7–12] BIPOC LGBTQ+, although understudied, represent a significant sector of the US population. There are over 7-10 million adults in the U.S. who identify as both BIPOC and LGBTQ+,[6] and this number is likely growing—demonstrated by current trends in racial and ethnic, as well as LGBTQ+ identification.[168,169]

Despite recent attacks against health equity research, public health institutions have called for greater focus on racial, as well as LGBTQ+ health disparities, particularly over the last decade. Since 2018, racism has been declared as a public health crisis by the American Public Health Association, Center for Disease Control and Prevention, American Medical Association, and 265 state and local entities.[170] One of the U.S. Department of Health and Human Services Healthy People 2030 core objectives include improving the health of LGBTQ+ people. A key section of this goal includes improving public health infrastructure to better the national monitoring of LGBTQ+ population health.[171] Considering these national priorities, there is a growing need for research which considers the health of BIPOC LGBTQ+ who exist at the intersection of the margins of race, sexual orientation, and gender.

Beyond the intersection of social identities, research on multiply marginalized populations must also consider the intersection of systems of oppression. BIPOC LGBTQ+ are impacted by multiple systems of structural racism and discrimination (SRD), including racism and cisheterosexism (i.e., LGBTQ+ discrimination). SRD is pervasive, embedded within laws and policies, institutional practices, and societal norms.[1] Such structures reflect, enact, and reinforce racist and cisheterosexist social hierarchies. Ecosocial theory demonstrates how societal-level factors impact individual-level health outcomes. [69] Macro-level power structures, conditions, and experiences become embodied by humans across the life course, resulting in health inequities across populations that ‘get under the skin’.[69] In addition to the embodiment of inequities, SRD determines patterns in social determinants of health and fundamental causes,

shaping who gets access to resources and who is exposed to harm.[75,172,173] As such, structural factors have some of the most wide-ranging and potent impacts on health.[70] However, even as literature on SRD as fundamental cause of health grows, research which examines the root causes of BIPOC LGBTQ+ health disparities is limited.[1,3,4,8,174]

This paper focuses on structural racism and structural cisheterosexism operationalized through state-level policy environments, and how they are jointly associated race, sexual orientation, gender, health, and healthcare access. This investigation of interlocking structural determinants of health is guided by critical theory such as Public Health Critical Race Praxis and Intersectionality.[2,17,38,41,175,176] We theorize that state policy environments influence health outcomes through both direct and indirect pathways; policies enact both de jure and de facto discrimination based on race, gender, and sexual orientation, while also playing a role a wider culture in that state. This study will add to the current literature by examining how intersecting systems of power, specifically structural racism and structural cisheterosexism, impact health. This will fill a gap in the current literature on how health policy impacts health of multiply marginalized populations. Second, the results of this study will highlight how health and healthcare access needs are patterned by race, sexual orientation, gender, and state of residence, demonstrating the groups which need the most support and care.

Methods

In this analysis, we explore individual and joint associations of structural racism, structural cisheterosexism, and health and healthcare access outcomes across race, sexual orientation, and gender. We hypothesize that not only will harmful state-level structural racism and structural cisheterosexism be significantly associated with worse HRQoL and healthcare access outcomes, but such associations will be stronger for those with marginalized identities. BIPOC LGBTQ+, who are impacted by both structural racism and structural cisheterosexism, will demonstrate the highest prevalence of poor health and healthcare access outcomes.

Study Sample

BRFSS is a nationally representative annual survey on health risk behavior of US adults 18 years and older.[177] Established in 1984, BRFSS interviews more than 400,000 adults a year, making it one of the largest health surveys in the world.[178] The BRFSS questionnaire covers topics such as health-related risk behaviors and chronic health. The SOGI module is optional;

with around 25-35 states participating in a given year (Table 3.1).[179] Data from 2020-2023 was merged to create a larger, cross-sectional dataset; these years were selected for recency. Of note, the Department of Health and Human Services states that BRFSS data collection was not significantly impacted by the COVID-19 pandemic.[180]

The study sample consists of U.S. adults who responded to the BRFSS in years 2020-2023 and reside in states that participated in the optional SOGI module during this period. To participate in BRFSS, participants must (1) reside in a US state or select territories, (2) be 18 years or older, (3) have access to a phone number, (4) speak English or Spanish, and (5) opt into the telephone interview. For the purposes of this study, participants must reside in states that collected SOGI data through BRFSS in at least one year of 2020-2023 (Table 1). Washington D.C., Florida, Maine, New Hampshire, Oregon, South Dakota, and Tennessee did not collect SOGI measures at any point from 2020-2023 and therefore were excluded.

Exposure Variables

Structural Racism and Structural Cisheterosexism Measures

Two existing indices are used to measure SRD: Agénor et al.'s database of Structural Racism-related State Laws for Health Equity Research and Practice,[158] and the Movement Advancement Project (MAP) LGBTQ Policy Tally.[159] The Agénor et al. database represents state-level structural racism, while the MAP Policy Tally represents state-level structural cisheterosexism (Table 3.2).

To create the structural racism database, Agénor et al. convened a team of public health researchers and legal scholars to evaluate structural racism in state policy on ten legal domains: voting rights, stand-your-ground laws, racial profiling, mandatory minimum prison sentencing, immigrant protections, fair housing, minimum wage, predatory lending, punishment in schools, and stop-and-identify laws.[158] The current database evaluated all U.S. states from 2010-2013. Although state legal environments have likely changed in the past decade, this database is the only one that measures structural racism via state policy. Jahn et al. further classified states within the Agénor database using latent class analysis; states were divided into three categories including: predominantly harmful laws, predominantly protective laws, and a mix of harmful and protective laws.[28] Utilizing the Jahn et al. categories, we dichotomized the state structural racism measure into "More protective" and "More harmful", with the latter also including the "mixed" category.

The MAP LGBTQ Policy Tally examines over 50 LGBTQ-related state policies in all 50 states, Washington D.C., and five U.S. territories.[181] States are evaluated based on seven major policy categories, including: Relationship & Parental Recognition, Nondiscrimination, Religious Exemptions, LGBTQ Youth, Health Care, Criminal Justice, and Identity Documents.[181] Based on this policy tally, states are categorized from most to least equitable in the following categories: High, Medium, Fair, Low, and Negative. In addition to an overall LGBTQ Equality policy tally, MAP also creates sexual orientation-specific and gender identity-specific policy tallies. The most recent publicly available dataset is the 2020 LGBTQ Policy Tally, via the University of Michigan's Inter-university Consortium for Political and Social Research (ICPSR) Data Repository.[159] To align with our state structural racism variable, we dichotomized the state cisheterosexism variable into "More protective" (High and Medium) and "More harmful" (Fair, Low, and Negative). Figure 3.1 shows a map of the U.S., with states categorized by their harmfulness for structural racism and structural cisheterosexism.

Race, Sexual Orientation, and Gender Measures

Race, sexual orientation, and gender demographic variables are collected by BRFSS. Race includes options for White, Black or African American, American Indian or Alaska Native, Asian, Pacific Islander, and "Other". Sexual orientation options are delineated by gender; men can select gay, straight, bisexual, and something else. Women could select lesbian or gay, straight, bisexual, or something else. Gender options in the core section include male, female, and "unspecified or another gender identity." Transgender identity, in the SOGI optional section, are defined as transgender, male-to-female; transgender; female-to-male; transgender, gender non-conforming; or no transgender identity (cisgender).

Race, sexual orientation, and gender were collapsed into a combined variable of race and SOGI status, henceforth called the Race_SOGI variable. Both race and SOGI were dichotomized for this purpose. Participants were categorized as White or BIPOC. For SOGI, they were categorized as Cisgender & Heterosexual (Cishet, i.e., non-LGBTQ+) or LGBTQ+. This resulted in a four-level Race_SOGI variable with the following categories: White Cishet, White LGBTQ+, BIPOC Cishet, and BIPOC LGBTQ+.

Outcome Variables

Health and Healthcare Access Measures

We examine HRQoL, cost barriers to seeking medical care, and insurance status as our outcomes. HRQoL is multi-dimensional, reflecting how respondents rate their physical and mental functioning and well-being. Research demonstrates that HRQoL is highly correlated with mortality, morbidity, chronic disease, and health-related behavior.[182] As a self-reported measure, studying HRQoL allows us to understand a person's health as they perceive and experience it. Examining HRQoL allows us to gain a broad yet impactful understanding of the health status of individuals.

Our health services outcomes offer insights into how marginalized populations are covered by the U.S. healthcare system, which varies strongly by state and locale. Our outcomes of focus, cost barriers to seeking healthcare and insurance status, determine how easily patients can enter the healthcare system and afford the care they need. By considering insurance status and cost barriers together, we recognize that even when an individual is insured, they can still experience underinsurance and other cost barriers to healthcare.[165]

Each outcome variable is collected in the core section of BRFSS. For HRQoL, BRFSS asks participants "Would you say that in general your health is…," with options for "Excellent," "Very Good," "Good," "Fair," and "Poor." This variable is further dichotomized as an available calculated measure in the BRFSS dataset as "Good or Better" and "Fair or Poor."

BRFSS asks participants for their current source of primary health insurance, with multiple options including employer-purchased plans, private insurance, Medicare, Medigap, Medicaid, Children's Health Insurance Program, Military related healthcare, Indian Health Service, state sponsored health plan, and other government program. We dichotomized all of these options as "Insured," and those who indicated no coverage of any type were considered "Uninsured." Finally, BRFSS also asks participants: "Was there a time in the past 12 months when you needed to see a doctor but could not because you could not afford it?" Participants could answer yes or no.

Statistical Analysis

All analyses were conducted in STATA version 18[183] using a regression with interaction approach.[176] A series of models examined the independent and joint effects of structural racism

and structural cisheterosexism on our outcomes. We used Poisson regression models with a log link and robust standard errors to account for the high prevalence of our outcome variables and generate prevalence ratios. Model 1 investigated the impact of structural racism on outcomes across Race_SOGI subgroups. Model 2 investigated the impact of structural cisheterosexism on outcomes across Race_SOGI subgroups. Model 3 combined these models, investigating the joint effects of structural racism and structural cisheterosexism on outcomes across Race_SOGI subgroups. The results of these models allow us to interpret how structural racism, structural cisheterosexism, and the intersection of these two structures impact HRQoL and healthcare access, and how this varies by Race_SOGI subgroups.

The regression with interaction approach, is a longstanding method in the quantitative intersectionality field.[176,184] It allows us to interpret whether or not joint effects of multiple social positions are greater or less than the sum of their parts.[185] Non-significant two-way and three-way interactions indicate a relationship between variables which is to be expected given the assumption of a multiplicative relationship. Significant interactions indicate a relationship between variables different from what would be expected multiplicatively. Therefore, a non-significant interaction does not necessarily mean a low burden of ill health. In addition, marginal effects were calculated for all models, comparing the outcomes of those in the same Race_SOGI subgroup. These marginal effects demonstrate the prevalence difference of living in a more harmful state to a more protective one, keeping the demographic subgroup the same.

This analysis was minimally adjusted to avoid over-adjustment of potential mediators, given the substantial impact of SRD on intermediary individual-level socio-demographic characteristics such as income and education. The analysis was conducted without using sample weights, given our interest in sexual orientation and gender identity variables. Because BRFSS is not weighted with these variables in mind, our estimates for these variables could be skewed by weighting.

Results

In the 2020-2023 combined BRFSS dataset, approximately 25.01% of the population was BIPOC, 9.76% identified as LGB+, and 0.71% identified as transgender (Table 3.3). Across the study sample, 1.99% were categorized as both BIPOC and LGBTQ+. State SRD environments were evenly split; 48.1% and 46.5% of respondents resided in a state with more racist state

policy and more cisheterosexist state policy, respectively. In our outcomes of interest, 17.2% of participants reported "Fair or Poor" HRQoL; 8.6% reported not being able to see a doctor at some point in the last 12 months because they could not afford it; and 5.4% were uninsured.

Model 1: Structural Racism

Model 1 examined independent and joint associations between structural racism and Race_SOGI subgroups on health and healthcare outcomes (Table 3.4). Those living in a more harmful state for structural racism were 26% more likely to report Fair or Poor health compared to those in more protective states (95% CI: 1.24, 1.28). They were also 28% more likely to report being unable to go to the doctor due to cost in the last 12 months (95% CI: 1.24, 1.33) and 51% more likely to be uninsured (95% CI: 1.43, 1.59). BIPOC LGBTQ+ had highest prevalence ratio of these outcomes compared to other Race_SOGI subgroups; they were 62% more likely to report worse general health (95% CI: 1.56, 1.70), 231% more likely to face cost barriers (95% CI: 3.04, 3.61), and 355% more likely to be uninsured (95% CI: 4.02, 5.15). Significant two-way interactions between structural racism and Race_SOGI subgroups were present, but not for all interaction nor for all outcomes. Significant two-way interactions included those interactions which were significantly greater ($\beta > 1$) or less than ($\beta < 1$) what would be expected multiplicatively. For instance, for insurance status, all two-way interactions were significant. For White LGBTQ+ in more harmful states for structural racism, the prevalence of uninsurance was greater than what would be expected multiplicatively (β: 1.24, 95% CI: 1.05, 1.46). For BIPOC Cishet and BIPOC LGBTQ+ in more harmful states, the prevalence was less than what would be expected (β: 0.61, 95% CI: 0.57, 0.66; β: 0.75, 95% CI: 0.64, 0.89).

Marginal effects were calculated, and post-hoc chi-square tests evaluated if the marginal prevalence difference was significant between living in more harmful versus more protective states for structural racism within the same demographic subgroups (Table 3.5, Figure 3.2). All marginal differences for all outcomes were significant, except for the comparison in insurance status between BIPOC LGBTQ+ living in more harmful states versus more protective states (p=0.127). Notably, BIPOC Cishet living in more harmful states had a significantly smaller prevalence of uninsurance compared to their counterparts in more protective states (β: -0.90 percentage points, p=0.004). In all other categories, living in a more harmful state was worse for one's health.

Model 2: Structural Cisheterosexism

In Model 2, living in a more harmful state for structural cisheterosexism was associated with worse HRQoL, cost barriers, and insurance status (Table 3.6). Residents of these states were 34% more likely to report Fair or Poor health (95% CI: 1.32, 1.36), 41% more likely to be unable to go to the doctor due to cost (95% CI: 1.36, 1.46), and 79% more likely to be uninsured (95% CI: 1.70, 1.89). Each marginalized identity category was significantly associated with these outcomes, with BIPOC LGBTQ+ demonstrating highest prevalence ratios. BIPOC LGTBQ+ were 63% more likely to report Fair or Poor health (95% CI: 1.57, 1.70), 239% more likely to experience cost barriers (95% CI: 3.12, 3.69), and 365% more likely to be uninsured (95% CI: 4.13, 5.23). Notably, White LGBTQ+ were 126% more likely to face cost barriers (95% CI: 2.10, 2.44), and BIPOC Cishet were 325% more likely to be uninsured (95% CI: 4.02, 4.50).

In Model 2, significant two-way interactions were found for BIPOC Cishet across all outcomes; prevalences were less than what would be expected multiplicatively (HRQoL: β: 0.93, 95% CI: 0.91, 0.95; Cost Barriers: β: 0.94, 95% CI: 0.86, 1.00; Insurance: 0.61, 95% CI: 0.57, 0.66). The same was true to BIPOC LGBTQ+, but only for HRQoL (β: 0.88, 95% CI: 0.83, 0.94) and insurance status (β: 0.77, 95% CI: 0.65, 0.90).

All marginal differences were significant (Table 3.7). Living in a more harmful state for structural cisheterosexism was associated with worse health and healthcare access across all groups (Table 3.7, Figure 3.3). For instance, for White Cishet, living in a more harmful state for structural cisheterosexism was associated with 4.49 percentage point higher likelihood of reporting Fair or Poor health compared to their counterparts in more protective states ($p<0.001$). White LGBTQ+ in harmful states had a 5.33 percentage point higher likelihood compared to their counterparts in protective states ($p<0.001$), BIPOC Cishet had a 4.48 percentage point higher likelihood ($p<0.001$), and BIPOC LGBTQ+ had a 3.97 percentage point higher likelihood ($p<0.001$).

Model 3: Structural Racism and Structural Cisheterosexism

Model 3 explored 3-way interactions between structural racism, structural cisheterosexism, and Race_SOGI subgroups (Table 3.8). In this model, we identified multiple significant 3-way interactions, each of which indicated greater outcome prevalences for their respective groups than what would be expected multiplicatively. 3-way interactions were present for healthcare access outcomes (cost barriers and uninsurance), but not the HRQoL outcome.

White Cishet living in the most harmful states (harmful for both structural racism and structural cisheterosexism) had a higher prevalence of facing cost barriers (β: 1.32, 95% CI: 1.19, 1.46) and uninsurance (β: 1.35, 95% CI: 1.17, 1.55) beyond what would be expected. There were no significant three-way interactions for the White LGBTQ+ group. BIPOC Cishet living in the most harmful states had a higher prevalence of cost barriers (β: 2.23, 95% CI: 1.90, 2.63) and uninsurance (β: 4.41, 95% CI: 3.51, 5.54) beyond what would be expected. Similarly, BIPOC LGBTQ+ living in the most harmful states had a higher prevalence of cost barriers (β: 1.73, 95% CI: 1.15, 2.61) and uninsurance (β: 1.85, 95% CI: 1.11, 3.08) beyond what would be expected.

Marginal effects for Model 3 compared three categories of state structural racism and structural cisheterosexism environments with a reference group of the most protective states (protective against both structural racism and structural cisheterosexism) within the same demographic group (Table 3.9, Figure 3.4). States could be mixed status (more protective against structural racism but more harmful for structural cisheterosexism, or vice versa) or most harmful (harmful against both structural racism and structural cisheterosexism).

In the White Cishet group, nearly all versions of harmful state structural environments were associated with significantly worse health and healthcare outcomes. The difference between the White Cishet living in the most protective states and White Cishet living in states that were more harmful against structural racism and more protective against structural cisheterosexism states was not significant. Notably, White Cishet living in states that were more harmful for structural racism and more protective against structural cisheterosexism were significantly less likely to experience cost barriers, though this was by a small margin (-0.61 percentage points, $p=0.003$). For White Cishet living in the most harmful states, the prevalence of worse HRQoL was 4.91 percentage points higher than their counterparts in the most protective states, on average ($p<0.001$). The prevalence of cost barriers was 2.45 percentage points higher ($p<0.001$), and the prevalence of uninsurance was 2.07 percentage points higher ($p<0.001$) compared to White Cishet in the most protective states.

For White LGBTQ+, those in states with some level of harmful state policy environment had significantly higher prevalence of worse HRQoL, compared to those in the most protective states. The prevalence of Fair or Poor health was, on average, 3.66 percentage points higher for those in states more protective against structural racism but more harmful for structural cisheterosexism ($p<0.001$) and 2.23 percentage points higher for those in states more harmful for

structural racism but more protective against structural cisheterosexism (p=0.011). White LGBTQ+ in the most harmful states had, on average, significantly higher prevalences of HRQoL (6.14 percentage points, p<0.001), cost barriers (4.69 percentage points, p<0.001), and uninsurance (4.68 percentage points, p<0.001), compared to their counterparts in the most protective states.

Among BIPOC Cishet, the relationship between state structural environments and health and healthcare outcomes was mixed. For BIPOC Cishet living in states more protective against structural racism but more harmful for structural cisheterosexism, the prevalence of worse HRQoL was 5.45% percentage points greater on average than their counterparts in the most protective states (p<0.001). However, this group of BIPOC Cishet had lower prevalences had 7.25 percentage points lower prevalence of being uninsured (p<0.001). BIPOC Cishet in the other mixed status state (more harmful for structural racism, but more protective against structural cisheterosexism) also had, on average, lower prevalences of cost barriers (-4.87 percentage points, p<0.001) and uninsurance (-5.52%, p<0.001) compared to BIPOC Cishet in the most protect states. BIPOC Cishet in the most harmful states demonstrated a higher prevalence of worse HRQoL (4.25 percentage points, p<0.001) and facing cost barriers (2.99 percentage points, p<0.001), but no significant difference in uninsurance status.

BIPOC LGBTQ+ also demonstrate mixed average marginal effects compared to their counterparts in the most protective states. BIPOC LGBTQ+ in states more harmful for structural racism but more protective against structural cisheterosexism had prevalence of uninsurance that was 3.30 percentage points lower than BIPOC LGBTQ+ in the most protective states (p=0.009). Other significant differences demonstrated higher prevalences of worse health outcomes. BIPOC LGBTQ+ in states more protective for structural racism and more harmful against structural cisheterosexism had, on average, a 5.17 percentage point higher prevalence of worse HRQoL (p=0.019). BIPOC LGBTQ+ in the most harmful states demonstrated greater prevalences of worse HRQoL (3.68 percentage points, p<0.001), cost barriers (5.07 percentage points, p=0.002), and uninsurance (3.75 percentage points, p=0.004).

Discussion

The results of this study suggest that structural racism and structural cisheterosexism on the state-level are associated with poorer health and less healthcare access for all peoples, and

that BIPOC LGBTQ+ bear the largest brunt of this burden. The relationship between structural racism; structural cisheterosexism; race, sexual orientation, and gender identity groups; and HRQoL, cost barriers, and insurance status were associated in expected and unexpected ways. As hypothesized, living in more harmful states for structural racism, structural cisheterosexism, or both was generally associated with significantly worse outcomes for not only BIPOC LGBTQ+, but also for BIPOC Cishet, White LGBTQ+, and White Cishet people. There were a few unexpected exceptions to this pattern, where there were non-significant associations, non-significant marginal differences, or marginal differences in opposite directions.

Our results suggest a broad impact of systems of oppression; harmful state policies are bad for everyone, not just the most marginalized. In fact, when comparing marginal differences within demographic categories, White Cishet had some of the highest marginal differences in outcomes, compared to other subgroups. This could demonstrate that the health of the White Cishet population (who make up the vast majority of the sample (Table 3.2)), is especially sensitive to less equitable state policy. Alternatively, this could indicate that poorer health for White Cishet populations encourages support for more harmful state policies which scapegoat and punish marginalized racial and SOGI groups. Meanwhile, White LGBTQ+, BIPOC Cishet, and BIPOC LGBTQ+ groups have other factors in addition to state policy which may relate to their health. This does not mean that marginalized groups are not most impacted by these interlocking, inequitable systems. Figure 3.4 shows that BIPOC LGBTQ+ in harmful states have the greatest likelihood of poor health and healthcare access outcomes.

There are also unexpected relationships between variables in this analysis. Some two-level interactions and three-level interactions were not significant or showed significant relationships in the opposite direction to our hypothesis. For instance, BIPOC Cishet in the most protective states demonstrated near equal likelihood of being uninsured as those in the most harmful states (Figure 3.4). These complex associations are worthy of further research and analysis.

Limitations

There are limitations to the study's dataset. We cannot infer causation from the study results, particularly because the dataset is cross-sectional. Although BRFSS is a nationally representative survey, we can only analyze data from select states that opted into the SOGI module. This means that study results may not be generalizable to the states and territories that

did not participate. However, BRFSS is still the only large, national health survey which asks both sexual orientation and gender identity questions, necessitating its use.

In addition, the language of the BRFSS demographics may exclude some racial and SOGI subgroups. Racial categories are based on U.S. Census categories, which did not have a racial category for those identifying as Middle Eastern-North African in the years of this study sample. In addition, the SOGI module may not be suitable for all LGBTQ+ community members. Sexual orientation questions vary by male or female gender, which can alienate those who identify outside the binary. The BRFSS gender identity category only offers three concrete options. As a result, those who identify as pansexual, queer, Two Spirit, nonbinary, or other forms of sexual orientation and gender diversity may not identify with the included categories within BRFSS, resulting in under-measurement.

The way we categorized race and SOGI in this analysis aggregates numerous subgroups. Our power and analytical approach necessitated fewer categories per variable. However, there are a wide range of identities and experiences within the BIPOC LGBTQ+ category, some of whom experience more oppression across all levels. In particular, Black and Brown transgender and gender diverse people are the most targeted by both structural racism and structural cisheterosexism. Efforts to improve the health of BIPOC LGBTQ+ communities must recognize the diversity within the community, and target efforts where they are most needed. We hope this research provides the foundation to further analyze specific BIPOC LGBTQ+ subgroups or to explore greater disaggregation of BIPOC LGBTQ+ identities in relation to structural racism and structural cisheterosexism.

Our measures of state-level structural racism and structural cisheterosexism are blunt, which may have resulted in some of the heterogeneity we saw in the relationship between mixed protective and harmful states. Due to power limitations and our regression with interaction analytical approach, we dichotomized these variables. Larger datasets or different analytical approaches may be able to use more granular measures of structural racism and structural cisheterosexism to gain a better understanding of the impact these systems of oppression have across populations.

In addition, there are other limits to the measures used for structural racism and structural cisheterosexism. As of the time of the analysis, the most recent policies evaluated of the Agénor

et al., structural racism index were from 2010-2013. The MAP LGBTQ+ Policy Tally used for this analysis was from 2020. As a result, the two indices measured state policy environments at different points in time. The fact that the structural racism index measures policies from 2010-2013 means there are newer state policies related to structural racism which have not been captured, or that there are policies that have since been struck down. In addition, the longer these policies are in place may also mean affected populations have had more time to come up with community-based or individual-level solutions. In comparison, there may not as many long-term solutions to address more recent policies attacking LGBTQ+ groups; such resistance and resilience may continue to develop in the future. However, given our focus of our research, these two measures were best suited for our analysis.

We also recognize that our focus on state-level policy does not capture local policy which may vary within states, nor does it capture numerous other facets of structural racism and structural cisheterosexism. It also does not capture interpersonal or internalized oppression. These determinants are outside the scope of this analysis, but future research should consider the complex interlink across types of policies, as well as levels of oppression.

Caution does need to be taken with the intersectional regression approach. Evans et al. state that the regression approach may reinforce the notion that dominant groups are the ones we should measure all other group against.[186] We rectify this by comparing systems of oppression rather than across identity whenever possible, with living in more protective states as the reference group. The calculation of marginal effects compared within Race_SOGI subgroup, as these are not things which can be changed; however, a state's racist and cisheterosexist policy *can* be changed.

In addition, the use of regression may further the "intersectionality as a testable theory" approach, which scholars warn against.[41,186] Because intersectionality was not created for the purposes of quantitative hypothesis testing, intersectionality scholars question whether statistically testing its existence in the data is meaningful. Although we operate from a conceptual foundation that intersectionality is at work within interlocking systems of oppression, we believe that it is still useful to understand how these systems of oppression operate, especially on a more granular level. As such, in testing for significance of interaction terms, we do not question the existence of interlocking racism and cisheterosexism, but rather we seek to uncover

disparities across various marginalized groups in order to better target interventions and policy change.

Overall, there is an epistemological debate surrounding the use of quantitative methods for research on intersectionality. We recognize that quantitative methods, which requires discrete categories and is limited by mathematical functions, cannot fully capture the truly unique nature and experience of intersectionality.

Implications and Future Directions

This study demonstrates that state policy environments—and the systems of oppression they reflect—have major impacts on health across race, sexual orientation, and gender. Structural racism and cisheterosexism in state policy was chosen as the main exposure in this analysis because they represent aspects of structural oppression which can be changed. Outdated policies can be struck down; activism and advocacy can advance new policies which protect the health of all peoples.

As such, these findings should be used to advocate for state policy change, particularly the policies captured in the structural racism and structural cisheterosexism measures used in this study (Table 3.2). BIPOC LGBTQ+ and other marginalized populations may experience economic or other barriers to moving to more protective states, keeping them in harmful states with racist and/or cisheterosexist policy. BIPOC LGBTQ+ should not be expected to uproot their lives and communities to move to protective states; instead, the structures of these states should be changed to prioritize the health of all residents.

Our findings add to the literature on structural racism, structural stigma, and intersectionality. We utilized indices of structural racism and cisheterosexism developed by policy experts to represent interlocking systems of oppression, whereas most of the current quantitative intersectional literature examines social identity as a proxy for these systems. This aligns our analysis with scholars like Collins & Bilge, Bowleg, and Agénor who have called for a reclamation of the structural nature of intersectional thought.[17,38,187]

Overall, the results of this analysis can galvanize changemakers in academic, policy, and community. Stakeholders can explore which groups across race, sexual orientation, gender, and states are most impacted in terms of health and healthcare access. This can help partners target their policy advocacy, as well as other interventions such as community-based programs (e.g.,

community-based health centers, sliding scale providers, health promotion activities) to ameliorate the health inequities demonstrated in this study.

Conclusion

In the US, states are uniquely empowered through federalism to create their own policy environments. At the same time, this can result in vast variability across states regarding protections for the health, wellbeing, and safety of their residents. When state policies create, reflect, and reinforce structural racism and cisheterosexism, all people suffer—but it is the most marginalized populations who are most harmed. Macro-level societal forces, such as policy, have some of the deepest impacts on health across populations. Therefore, they are ripe targets to affect change which will result in widespread health improvements. This study found that structural racism, structural cisheterosexism, and race and SOGI identity are uniquely and significantly associated with healthcare access outcomes like cost barriers to health and insurance status. We call for the policymakers, activists, and academics to advocate for changes in state policies, particularly in states that are most harmful in regard to structural racism and structural cisheterosexism.

Tables & Figures

Table 3.1: U.S. State Participation in the BRFSS SOGI Module (2020-2023)														
State	**'20**	**'21**	**'22**	**'23**	**State**	**'20**	**'21**	**'22**	**'23**	**State**	**'20**	**'21**	**'22**	**'23**
AL	-	-	-	✓	**KY**	-	✓	-	-	**ND**	-	-	✓	✓
AK	✓	✓	✓	✓	**LA**	✓	✓	✓	✓	**OH**	✓	✓	✓	✓
AZ	-	-	-	✓	**ME**	-	-	-	-	**OK**	✓	✓	✓	-
AR	✓	✓	-	-	**MD**	-	-	✓	✓	**OR**	-	-	-	-
CA	✓	-	-	✓	**MA**	✓	✓	✓	✓	**PA**	-	✓	✓	-
CO	✓	✓	✓	✓	**MI**	✓	✓	✓	✓	**RI**	✓	✓	✓	✓
CT	✓	✓	✓	-	**MN**	✓	✓	✓	✓	**SC**	✓	-	-	-
DC	-	-	-	-	**MS**	-	✓	-	-	**SD**	-	-	-	-
DE	-	-	✓	✓	**MO**	-	✓	✓	✓	**TN**	-	-	-	-
FL	-	-	-	-	**MT**	✓	✓	✓	✓	**TX**	✓	✓	✓	✓
GA	✓	✓	✓	✓	**NE**	-	-	✓	-	**UT**	✓	✓	✓	✓
HI	✓	✓	✓	✓	**NV**	-	✓	-	✓	**VT**	✓	✓	✓	✓
ID	✓	✓	-	✓	**NH**	-	-	-	-	**VA**	✓	✓	✓	✓
IL	✓	✓	✓	✓	**NJ**	✓	✓	✓	✓	**WA**	✓	✓	✓	✓
IN	✓	✓	✓	✓	**NM**	✓	✓	✓	✓	**WV**	✓	✓	✓	✓
IA	✓	✓	✓	✓	**NY**	✓	-	-	-	**WI**	✓	✓	✓	✓
KS	✓	✓	✓	✓	**NC**	✓	✓	✓	✓	**WY**	-	-	-	✓

Structural Determinant:	Structural Racism	Structural Cisheterosexism
Data Source:	Structural Racism-related State Laws for Health Equity Research and Practice (Agénor et al. database, and Jahn et al. categorization)	Movement Advancement Project LGBTQ Policy Tally
Domains included in data source:	• Voting Rights • Stand-your-ground laws • Racial profiling • Mandatory minimum prison sentencing • Immigrant protections • Fair housing • Minimum wage • Predatory lending • Punishment in schools • Stop-and-identify laws	• Relationship and parental recognition • Nondiscrimination • Religious exemptions • LGBTQ youth • Health care • Criminal justice • Identity documents
Categorization used in analysis	More Protective vs More Harmful	More Protective vs More Harmful

Table 3.2: Variables used to capture the structural determinant of state policy environments

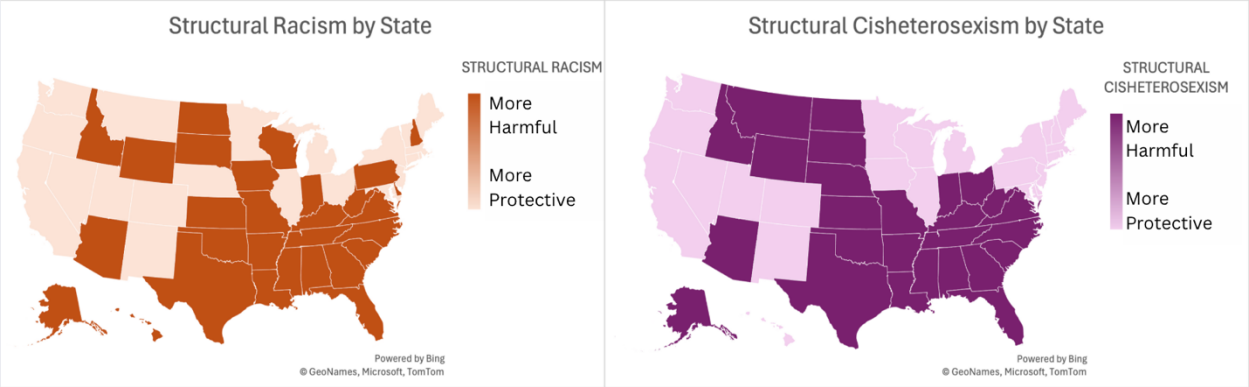


Figure 3.2. Structural Racism[28,158] and Structural Cisheterosexism[159] by State as operationalized in analysis..

Table 3.3. Participant Demographics, BRFSS 2020-2023

Race	**N**	**%**
White, non-Hispanic	931,182	74.09
Black, non-Hispanic	93,618	7.45
American Indian/Alaskan Native, non-Hispanic	20,848	1.66
Asian, non-Hispanic	33,615	2.67
Native Hawaiian/Pacific Islander, non-Hispanic	6,074	0.48
Other, non-Hispanic	10,511	0.84
Multiracial, non-Hispanic	27,578	2.19
Hispanic	104,125	8.28
N/A	29,338	2.33
Sexual Orientation		
Straight	935,283	90.24
Gay or Lesbian	19,226	1.85
Bisexual	29,514	2.85
Something Else	16,621	1.6
Don't Know	11,736	1.13
Refused	24,093	2.32
Gender Identity		
Cisgender	1,015,635	97.99
Transgender Woman	1,797	0.17
Transgender Man	2,078	0.2
Transgender Gender Nonconforming	2,048	0.2
Don't know/Not sure	3,242	0.31
Refused	11,618	1.12
Race x Sexual Orientation (SOGI)		
White Cisgender and heterosexual (Cishet)	522,195	71.44

White, LGBTQ+	33,461	4.58
BIPOC, Cishet	160,720	21.99
BIPOC LGBTQ+	14,547	1.99
State Structural Racism		
More Protective	875,596.00	51.9
More Harmful	811,806.00	48.1
State Structural Cisheterosexism		
More Protective	902,613.00	53.5
More Harmful	784,789.00	46.5
Health Related Quality of Life		
Good or Better	1,400,410.00	82.8
Fair or Poor	290,142.00	17.2
Ability to afford care in the last 12 months		
Could Afford Care	361,740.00	91.4
Could Not Afford Care	34,141.00	8.6
Insurance Status		
Insured	790,845.00	94.6
Uninsured	45,443.00	5.4

Table 3.4. Model 1: Independent and 2-way Joint Associations of Health and Healthcare Outcomes with Structural Racism and Race x Sexual Orientation (SOGI) Subgroup

Model 1: Health and Healthcare Outcomes by State Structural Racism and Race_SOGI Subgroup									
	Fair or Poor Health			**Unable to go to the doctor due to cost in the last 12 mo**			**Uninsured**		
	PR	95% CI	p-value	PR	95% CI	p-value	PR	95% CI	p-value
More Harmful State (Structural Racism)	1.26	(1.24, 1.28)	<0.001	1.28	(1.24, 1.33)	<0.001	1.51	(1.43, 1.59)	<0.001
White LGBTQ+	1.33	(1.29, 1.38)	<0.001	2.21	(2.05, 2.38)	<0.001	1.58	(1.38, 1.81)	<0.001
BIPOC Cishet	1.40	(1.37, 1.42)	<0.001	2.05	(1.97, 2.14)	<0.001	4.22	(3.98, 4.47)	<0.001
BIPOC LGBTQ+	1.62	(1.56, 1.70)	<0.001	3.31	(3.04, 3.61)	<0.001	4.55	(4.02, 5.15)	<0.001
More Harmful x White LGBTQ+	1.00	(0.96, 1.05)	0.845	0.99	(0.89, 1.10)	0.843	1.24	(1.05, 1.46)	0.012

More Harmful x BIPOC Cishet	0.90	(0.88, 0.92)	<0.001	0.85	(0.80, 0.91)	<0.001	0.61	(0.57, 0.66)	<0.001
More Harmful x BIPOC LGBTQ+	0.87	(0.82, 0.93)	<0.001	0.91	(0.80, 1.03)	0.129	0.75	(0.64, 0.89)	0.001

Table 3.5. Model 1: Marginal Effects of Living in a More Harmful State for Structural Racism, Compared to Living in a More Protective state for Structural Racism, Stratified by Race_SOGI Subgroup

Model 1: Health and Healthcare Outcomes by Structural Racism and Race_SOGI Subgroup									
	Fair or Poor Health			**Unable to go to the doctor due to cost in the last 12 mo**			**Uninsured**		
	AME	*Chi-sq*	*p-value*	*AME*	*Chi-sq*	*p-value*	*AME*	*Chi-sq*	*p-value*
White Cishet x More Harmful	**3.53%**	**1045.00**	**<0.001**	**1.64%**	**157.09**	**<0.001**	**1.42%**	**238.2**	**<0.001**
White LGBTQ+ x More Harmful	**4.82%**	**90.22**	**<0.001**	**3.45%**	**16.62**	**<0.001**	**3.81%**	**59.82**	**<0.001**
BIPOC Cishet x More Harmful	**2.55%**	**126.47**	**<0.001**	**1.13%**	**12.46**	**0.004**	**-0.90%**	**8.15**	**0.004**
BIPOC LGBTQ+x More Harmful	**2.15%**	**7.03**	**0.008**	**3.13%**	**4.56**	**0.033**	1.75%	2.34	0.127
Reference: Living in More Protective State, within the same Race_SOGI subgroup *Bold: significant difference to reference group; Non-bold: non-significant difference to reference group*									

Figure 3.3. Model 1: Prevalence of Health and Healthcare Outcomes, by State Structural Racism and Race_SOGI group

Table 3.6. Model 2: Independent and 2-way Joint Associations of Health and Healthcare Outcomes with Structural Cisheterosexism and Race_SOGI Subgroup

Model 2: Health and Healthcare Outcomes by State Structural Cisheterosexism and Race_SOGI Subgroup									
	Fair or Poor Health			**Unable to go to the doctor due to cost in the last 12 mo**			**Uninsured**		
	PR	95% CI	p-value	PR	95% CI	p-value	PR	95% CI	p-value
More Harmful State (Structural Cisheterosexism)	1.34	(1.32, 1.36)	<0.001	1.41	(1.36, 1.46)	<0.001	1.79	(1.70, 1.89)	<0.001
White LGBTQ+	1.36	(1.32, 1.41)	<0.001	2.26	(2.10, 2.44)	<0.001	1.75	(1.53, 1.99)	<0.001
BIPOC Cishet	1.4	(1.37, 1.42)	<0.001	1.99	(1.91, 2.07)	<0.001	4.25	(4.02, 4.50)	<0.001
BIPOC LGBTQ+	1.63	(1.57, 1.70)	<0.001	3.39	(3.12, 3.69)	<0.001	4.65	(4.13, 5.23)	<0.001
More Harmful x White LGBTQ+	0.97	(0.93, 1.01)	0.146	0.95	(0.85, 1.05)	0.304	1.06	(0.90, 1.26)	0.454
More Harmful x BIPOC Cishet	0.93	(0.91, 0.95)	<0.001	0.94	(0.86, 1.00)	0.040	0.61	(0.57, 0.66)	<0.001
More Harmful x BIPOC LGBTQ+	0.88	(0.83, 0.94)	<0.001	0.89	(0.79, 1.01)	0.077	0.77	(0.65, 0.90)	0.001

Table 3.7. Model 2: Marginal Effects of living in a More Harmful State for Structural Cisheterosexism, compared to living in a More Protective state for Structural Cisheterosexism, stratified by Race_SOGI Subgroup

Model 2: Health and Healthcare Outcomes by State Structural Cisheterosexism and Race_SOGI subgroup									
	Fair or Poor Health			**Unable to go to the doctor due to cost in the last 12 mo**			**Uninsured**		
	AME	*Chi-sq*	*p-value*	*AME*	*Chi-sq*	*p-value*	*AME*	*Chi-sq*	*p-value*
White Cishet x More Harmful	**4.49%**	**1658.66**	**<0.001**	**2.27%**	**300.47**	**<0.001**	**1.99%**	**465.06**	**<0.000**
White LGBTQ+ x More Harmful	**5.33%**	**108.19**	**<0.001**	**4.18%**	**24.45**	**<0.001**	**3.98%**	**63.25**	**<0.000**
BIPOC Cishet x More Harmful	**4.48%**	**363.24**	**<0.001**	**3.60%**	**115.97**	**<0.001**	**0.96%**	**9.71**	**0.002**
BIPOC LGBTQ+ x More Harmful	**3.97%**	**21.95**	**<0.001**	**4.85%**	**10.17**	**0.001**	**4.34%**	**13.45**	**0.002**
Reference: Living in More Protective State, within the same Race_SOGI Subgroup *Green: significant difference to reference group; Non-bold: non-significant difference to reference group*									

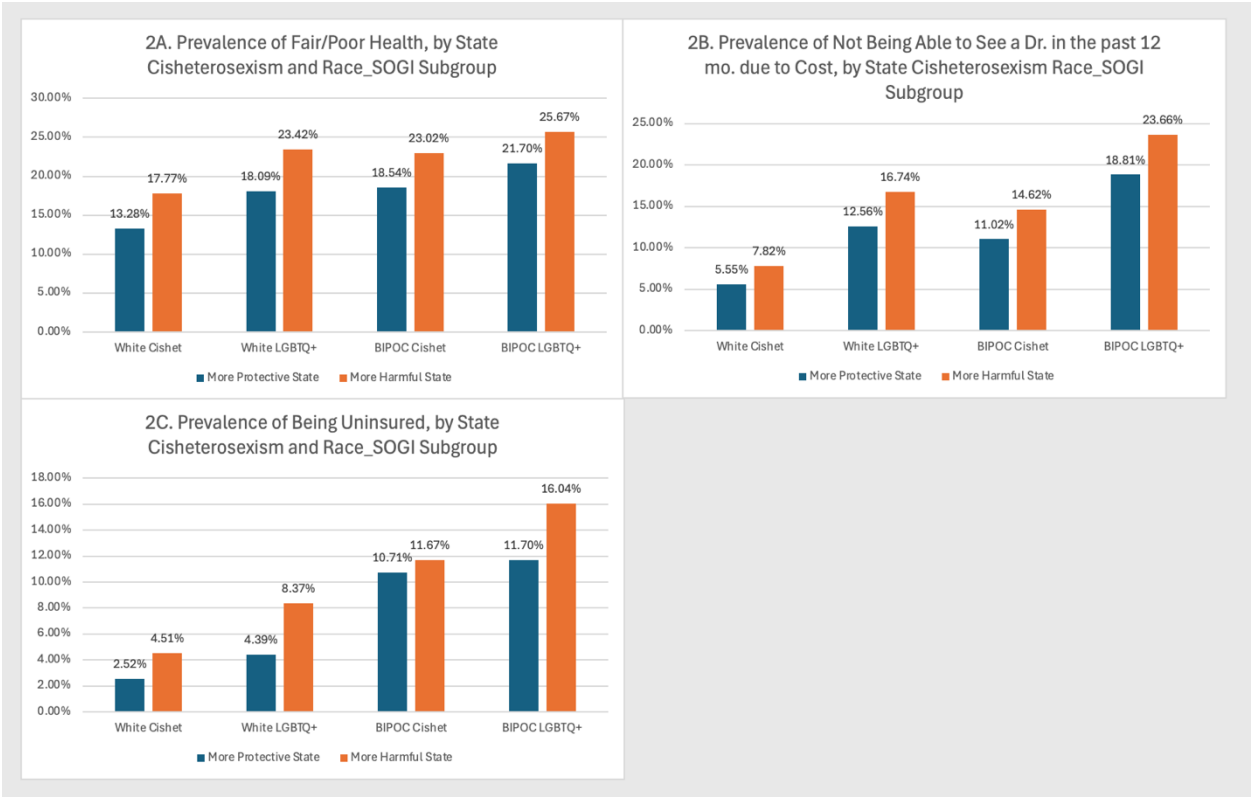


Figure 3.4. Model 2: Prevalence of Health and Healthcare Outcomes, by State Structural Cisheterosexism and Race_SOGI group

Table 3.8. Model 3: Independent, 2-way, and 3-way Joint Associations of Health and Healthcare Outcomes by Structural Racism, Structural Cisheterosexism, and Race_SOGI Subgroups

Model 3: Health and Healthcare Outcomes by State Structural Racism, State Structural Cisheterosexism, and Race_SOGI Subgroups									
	Fair or Poor Health			**Unable to go to the doctor due to cost in the last 12 mo**			**Uninsured**		
	PR	95% CI	p-value	PR	95% CI	p-value	PR	95% CI	p-value
More Harmful State (Structural Racism)	1.09	(1.06, 1.12)	<0.001	0.89	(0.82, 0.96)	0.004	0.92	(0.83, 1.02)	0.122
More Harmful State (Structural Cisheterosexism)	1.29	(1.26, 1.32)	<0.001	1.22	(1.14, 1.30)	<0.001	1.46	(1.32, 1.62)	<0.001
White LGBTQ+	1.36	(1.31, 1.41)	<0.001	2.23	(2.06, 2.41)	<0.001	1.62	(1.39, 1.88)	<0.001
BIPOC Cishet	1.43	(1.40, 1.46)	<0.001	2.13	(2.03, 2.22)	<0.001	4.81	(4.51, 5.12)	<0.001
BIPOC LGBTQ+	1.67	(1.60, 1.75)	<0.001	3.45	(3.15, 3.77)	<0.001	4.92	(4.32, 5.61)	<0.001
More Harmful (Structural Racism) x White LGBTQ+	1.03	(0.95, 1.12)	0.439	1.12	(0.89, 1.40)	0.334	1.413	(1.03, 1.93)	0.030
More Harmful (Str Racism) x BIPOC Cishet	0.89	(0.86, 0.93)	<0.001	0.67	(0.59, 0.76)	<0.001	0.59	(0.51, 0.68)	<0.001
More Harmful (Str Racism) x BIPOC LGBTQ+	0.89	(0.80, 0,99)	0.026	0.89	(0.68, 1.15)	0.374	0.75	(0.55, 1.03)	0.074
More Harmful (Str Cishet) x White LGBTQ+	0.94	(0.86, 1.02)	0.126	0.97	(0.79, 1.18)	0.761	0.93	(0.66, 1.31)	0.680
More Harmful (Str Cishet) x BIPOC Cishet	1	(0.95, 1.06)	0.940	0.77	(0.67, 0.90)	0.001	0.28	(0.22, 0.36)	<0.001
More Harmful (Str Cishet) x BIPOC LGBTQ+	0.959	(0.83, 1.10)	0.561	0.75	(0.54, 1.05)	0.090	0.69	(0.45, 1.07)	0.096
More Harmful (Str Racism) x More Harmful (Str Cishet) x White Cishet	0.98	(0.95, 1.01)	0.218	1.32	(1.19, 1.46)	<0.001	1.35	(1.17, 1.55)	<0.001
More Harmful (Str Racism) x More Harmful (Str Cishet) x White LGBTQ+	0.99	(0.89, 1.11)	0.883	1.16	(0.87, 1.55)	0.298	1.21	(0.79, 1.85)	0.393

More Harmful (Str Racism) x More Harmful (Str Cishet) x BIPOC Cishet	0.98	(0.92, 1.04)	0.458	2.23	(1.90, 2.63)	<0.001	4.41	(3.51, 5.54)	<0.001
More Harmful (Str Racism) x More Harmful (Str Cishet) x BIPOC LGBTQ+	0.98	(0.82, 1.16)	0.800	1.73	(1.15, 2.61)	0.008	1.85	(1.11, 3.08)	0.018

Table 3.9. Model 3: Marginal Effects of Living in a Mixed or Dually Harmful state for Structural Racism (SR) and Structural Cisheterosexism (SC), compared to living in a Dually Protective state, stratified by Race_SOGI Subgroup

	Fair or Poor Health			**Unable to go to the doctor due to cost in the last 12 mo**			**Uninsured**		
	AME	Chi-sq	p-value	AME	Chi-sq	p-value	AME	Chi-sq	p-value
White Cishet x More Protective (SR) x More Harmful (SC)	**3.77%**	**318.2**	**<0.001**	**1.24%**	**28.21**	**<0.001**	**1.18%**	**41.46**	**<0.001**
White Cishet x More Harmful (SR) x More Protective (SC)	**1.17%**	**41.26**	**<0.001**	***-0.61%***	***8.60***	***0.003***	*-0.21%*	*2.44*	*0.118*
White Cishet x More Harmful (SR) x More Harmful (SC)	**4.91%**	**1621.35**	**<0.001**	**2.45%**	**272.77**	**<0.001**	**2.07%**	**403.13**	**<0.001**
White LGBTQ+ x More Protective (SR) x More Harmful (SC)	**3.66%**	**13.88**	**<0.001**	2.30%	2.28	0.1306	1.49%	2.62	0.106
White LGBTQ+ x More Harmful (SR) x More Protective (SC)	**2.23%**	**6.50**	**0.011**	*-0.04%*	*0.00*	*0.976*	1.24%	2.47	0.116
White LGBTQ+ x More Harmful (SR) x More Harmful (SC)	**6.14%**	**117.46**	**<0.001**	**4.69%**	**24.45**	**<0.001**	**4.68%**	**72.21**	**<0.001**
BIPOC Cishet x More Protective (SR) x More Harmful (SC)	**5.45%**	**68.27**	**<0.001**	*-0.68%*	*0.72*	*0.397*	***-7.25%***	***142.32***	***<0.001***
BIPOC Cishet x More Harmful (SR) x More Protective (SC)	*-0.53%*	*2.62*	*0.105*	***-4.87%***	***136.46***	***<0.001***	***-5.62%***	***192.2***	***<0.001***
BIPOC Cishet x More Harmful (SR) x More Harmful (SC)	**4.25%**	**277.71**	**<0.001**	**2.99%**	**66.58**	**<0.001**	*-0.12%*	*0.10*	*0.755*
BIPOC LGBTQ+ x More Protective (SR) x More Harmful (SC)	**5.17%**	**5.55**	**0.019**	*-1.58%*	*0.24*	*0.627*	0.19%	0.00	0.949
BIPOC LGBTQ+ x More Harmful (SR) x More Protective (SC)	*-0.73%*	*0.34*	*0.559*	*-4.05%*	*3.35*	*0.067*	***-3.90%***	***6.76***	***0.009***

BIPOC LGBTQ+ x More Harmful (SR) x More Harmful (SC)	**3.68%**	**16.20**	**<0.001**	**5.07%**	**9.29**	**0.002**	**3.75%**	**8.19**	**0.004**
Reference: Living in Most Protective States, within the same demographic identity category *Bold: significant difference to reference group; Non-bold: non-significant difference to reference group; Italics: negative difference, opposite to hypothesized direction*									

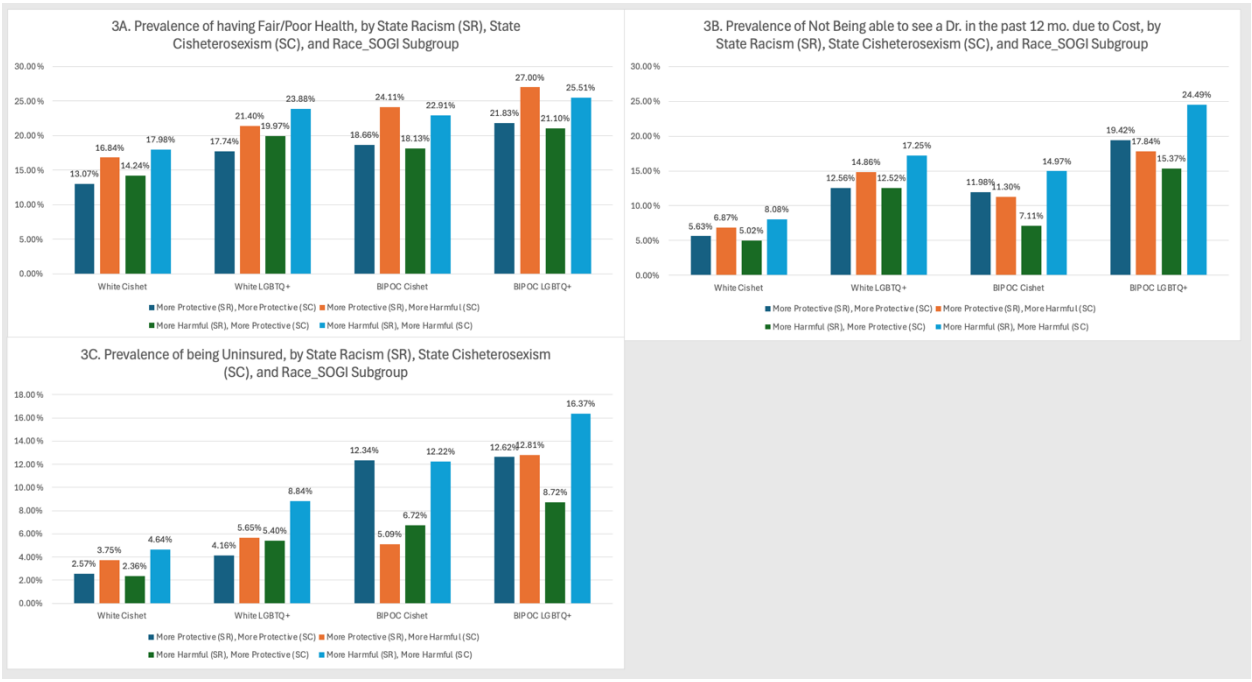


Figure 3.5. Prevalence of Health and Healthcare Outcomes, by State Structural Racism, Structural Cisheterosexism, and Race_SOGI group

Chapter 4: Health, Strength, Oppression, and Intersectionality in QTBIPOC-Authored Zines

Abstract

Zines, independently published print media, are underutilized resources for gathering knowledge about marginalized communities, particularly in the public health field. Aligning our paper with critical approaches such as Public Health Critical Race Praxis, Intersectionality, and Community Cultural Wealth, we conducted a participatory analysis of zines authored by LGBTQ+ Black, Indigenous, and other People or color (QTBIPOC) obtained from physical and digital archives. We identified compelling themes in these zines: First, QTBIPOC used zines as a method to convey trusted health resources, as well to share lived experiences around health. Second, QTBIPOC demonstrated many forms of community cultural wealth and other strengths, and resistance was often equated with ideas of love, community, and aspiration for the future. QTBIPOC were able to deftly describe the multi-level nature of systems of oppression (e.g., racism, cisheterosexism, colonialism) and describe how levels of oppression reify and inform one another. Finally, QTBIPOC articulated complex understanding of intersectionality through the zines, particularly the concept of relationality. We aim for this paper to demonstrate the feasibility of zines as a data source for public health research, as well as highlight the depth of insight that can be garnered through the voices of the QTBIPOC community. Public health researchers and practitioners can better assess and understand spaces on the margins, not only to garner insight on health needs, but also to learn about the strengths these communities demonstrate.

Introduction

Knowledge democracy—a term coined by Paulo Freire—recognizes that knowledge can come from anywhere, not just Western academics.[188] Participatory approaches such as Community Based Participatory Research (CBPR) are based in the idea that the experience, wisdom, and insight from community is deserving of respect and engagement. Advocates of arts-based research approaches further extend this idea by showing that art—as a valid source of knowledge—can also be data, despite being often overlooked in the Western health research literature.[115,189–193]

One example of community-generated art is zines. Zines are independently published and distributed magazines made for the purpose of community and self-expression. Zines are often created by marginalized communities, making them rich sources of data for scholars researching health equity. The self-determined nature of zines aligns it with anti-racist and critical approaches for research.

In this paper, we focus on zines authored by Queer and Transgender Black, Indigenous, and People of Color (QTBIPOC) community members to qualitatively explore QTBIPOC experiences with health, systems of oppression, community strengths, and intersectionality. Through a participatory analysis of zines with a group of undergraduate public health students, we ask: (1) How do QTBIPOC describe their relationship with health and wellbeing? (2) How do QTBIPOC describe the systems of oppression that they face? (3) What strengths and resources protect the health and wellbeing of QTBIPOC? (4) How do QTBIPOC articulate the experience of intersectionality?

QTBIPOC Health

We focus on QTBIPOC-authored zines to gain insight into QTBIPOC experiences with health and the healthcare system. There are documented health inequities among QTBIPOC in a wide variety of health and social needs, including mental health, behavioral health, physical health, housing, and healthcare access.[7–12] QTBIPOC individuals must navigate intersections between racism, homophobia, transphobia, and sexism, among other forms of oppression. These forms of oppression can occur on an individual, interpersonal, and structural level, resulting in complex and diverse pathways to health and wellbeing.

These systems of oppression are mutually constituted, meaning they reify one another in unique ways.[17,194] For a QTBIPOC person, race can become gendered, just as gender can become raced. The relationship between race, ethnicity, sexual orientation, and gender is not just additive or even multiplicative. Intersectionality creates meaningfully different experiences for QTBIPOC community members, beyond what is experienced by their white LBGTQ+ or straight, cisgender BIPOC counterparts. The QTBIPOC community label allows those who have experienced racism in LGBTQ+ spaces and cisheterosexism in BIPOC spaces to come together through shared experiences and mutual understanding.

However, it is also important to remember that QTBIPOC are not a monolith. Even when united under the identity of ‘QTBIPOC,’ members of this community are diverse across race,

ethnicity, sexual orientation, and gender identities which have varying degrees of marginalization and privilege.

Marginalization & Strengths

Multiply marginalized populations offer a wealth of knowledge that public health researchers can learn from, particularly regarding questions of health equity. Through their lived experiences navigating multiple communities, identities, and systems of oppression, such populations can provide valuable insights into how structural racism and discrimination operate, and how to live full lives in the face of the oppression exerted by such interlocking systems.

Despite being considered "hard-to-reach" by researchers, this label stems from structural racism and discrimination[195,196]—macro-level forces which create and reinforce hierarchies based on white supremacy culture and other dominant cultures, which interlock and reinforce one another.[2,3,24,197] Such structures include policies, institutional practices, cultural norms, and historical legacies. Being impacted by multiple systems of oppression results in additional barriers to access institutions such as healthcare, education, and social services. Even when access is offered, the services provided may not be safe or culturally appropriate.

As a result, marginalized communities create their own spaces in the margins, where they can practice self-determination, cultivate their own communities of care, and thrive. In doing so, the margins are no longer a site of relegation—they become a place of strength, protection, and empowerment.[13,16,47,198,199]

Public health research typically takes a health deficits approach, focusing on the investigation, treatment, and prevention of negative health outcomes.[22] Such a perspective is useful, but when health disparities become the only aspect of a community that is documented, researchers risk reinforcing negative perceptions of that community. A health deficits approach can bolster the idea of individual failing among community members, a lack of power within a community, and the need for researchers to act as saviors for these communities. Centering deficits ignores the power and capacity of marginalized peoples to have self-determination and their unique ability to build community in face of oppression.

Researchers centering critical theory like decolonizing methodologies,[49,65,200] Critical Race Theory,[2,15] Intersectionality,[17,45,201] Community Cultural Wealth,[13] and participatory approaches[188,202–204] offer an alternative. Strengths-based approaches emphasize the power and wisdom community members hold to determine their own health and wellbeing priorities, as well

as the assets and resources they have access to.[13,22,52,53] Marginalized communities are well-versed in recognizing and navigating systems of oppression and have come up with their own forms of resistance. By acknowledging these strengths, researchers can take approaches which emphasize solidarity over charity.

Zines

Zines are independent publications, often in the form of booklets, pamphlets, or magazines.[198,205] They are authored, published, and distributed through informal and 'do-it-yourself' (DIY) networks outside of traditional media. Zines can be created by individuals or groups, and may contain a mix of writing, art, resources, and other media. Because zines are, by definition, created by those outside the mainstream without profit in mind, they contain a wealth of insight into marginalized communities.[206] Zines are just one example of autonomous spaces on the margins where communities of all kinds can flourish.[198]

Zines come from a long lineage of alternative publishing. The use of zines by marginalized communities can be traced back to "little magazines," which were published by Black creatives during the Harlem Renaissance in the 1920s.[207] In the 1990s, zines became a popular form of expression and organizing for intersectional feminists during the 'Riot Grrrl' movement, highlighting experiences central to women of color.[208] In present day, zine culture continues, with further proliferation of physical and web-based zines.

Qualitative research on zines have occurred in multiple disciplines,[205,209–212] and zines have been uplifted as a community-based strategy for health equity.[61,192,213,214] However, they are still relatively understudied and underutilized in the public health field. This can be traced to white supremacy norms and epistemological injustice.[115] The public health discipline prioritizes quantitative techniques, numerical data, and positivist paradigms. Qualitative approaches allow us to recognize individual live experiences and stories as legitimate data. By utilizing non-traditional sources of data such as zines, we center in the margins and offer a critical lens through which to understand health equity.

We base this analysis on critical theory, including Public Health Critical Race Praxis,[2] Intersectionality,[17] and Community Cultural Wealth.[13] We add to the current health literature by: (1) using community voice to deepen the field's understanding of QTBIPOC health; (2) exploring how multi-level, interlocking oppression and strengths impact the health of QTBIPOC communities, (3) demonstrating the feasibility of zines and other arts-based forms of data for

public health analysis; and (4) empowering undergraduate public health students and building their research capacity through a participatory research process.

Methods

Data Source

Zines for this study were sourced from two zine archives, the Zine Archive and Publishing Project (ZAPP) Zine Collection and the People of Color (POC) Zine Project. ZAPP Zine Collection is a physical archive of over 30,000 zines housed at the Seattle Public Library [206]. The collection contains zines from across the nation spanning several decades, and many items in its collection are created by those 'outside of the literary mainstream,' offering researchers the opportunity to center the voices from marginalized communities. The archive is accessible to the public by appointment with a librarian, and zines can be scanned for education and research purposes.

The POC Zine Project is a digital archive dedicated to cataloguing zines made by BIPOC creators.[215] Founded in 2010, their goal is to make BIPOC-created zines easy to find and share. Scans of zines included in the archive are available for free online. In addition, the POC Zine Project engages in events, tours, and other advocacy for BIPOC-centered zines.

Zines are a rich source of data. Zines align with the naturalistic paradigm of content analysis,[123] in that zines are created by community members for community members, without the intention for research purposes. In addition, because zines are—by definition—created independently, they can authentically relay the experiences of people on the margins who may be ignored by traditional research, media, or publishing.

Zines were selected for the study sample if they were authored by QTBIPOC community members. Zines from the ZAPP Zine Collection were selected with the help of the Seattle Public Library archiving librarian, while zines for the POC Zine Archive were selected by the lead author. The selection process was phenomenological, purposive, and guided by maximum variation sampling; as such, there was no strict selection criteria.[156,216,217] In the selection phase, zines were evaluated by whether or not they were authored by QTBIPOC-identifying authors. The contents of QTBIPOC-authored zines were then reviewed for their themes and content, represented population, and authors. In alignment with maximum variation, zines were selected on the basis of diversity of race, sexual orientation, gender, US region, and otherwise unique experiences represented in the zines. In particular, zines with perspectives on health (defined

broadly as mental, physical, social, and emotional wellbeing) were prioritized. To avoid over-representing a single author's experiences, we selected only 1-2 zines per author or community group.

Zines could be written by multiple authors or a single author; some are written collaboratively by community groups, and others are submission based. Zines were divided into zine entries, with discrete pieces of writing or art separated into entries that allowed each entry to be analyzed on its own. The final study sample included n=33 zine entries, sourced from N=8 zines (Table 4.1, Figure 4.1)

Analysis

This qualitative content analysis of text and visual arts-based data in QTBIPOC-authored zines illuminates how structural determinants impact the health of the QTBIPOC community. Content analysis is a flexible methodology, with quantitative and qualitative applications, used to analyze the manifest and latent meanings of textual, visual, and audio data.[123,218] Manifest content is what is explicitly and literally presented in the data, while latent content involves that which is implicit or under the surface.[218] In doing so, it includes the context of the content in its analysis and digs beneath pure frequency to understand implicit meaning and themes. Content analysis has been applied across many disciplines, and there is a longstanding history of content analysis as a public health methodology.

We took a directed approach to content analysis, which utilizes existing theory to understand the content at hand.[123] The data obtained through the qualitative content analysis can then be used to validate, extend, or disprove a theory. Our primary and secondary analyses were guided by predetermined critical theories on structural racism and discrimination, including Public Health Critical Race Praxis (PHCRP),[2] A Gardener's Tale of the Levels of Racism,[13] Intersectionality,[17] and Community Cultural Wealth (CCW).[196] The application of these theories and relevant descriptions as used in the coding process are shown in Table 4.2.

Public Health Critical Race Praxis guides researchers in applying race consciousness to public health research, centering the understanding of how racism and racialization impact both health outcomes and the research process.[2] Gardener's Tale is an allegory by Camara Jones, which categorizes forms of racism into three levels—individual, interpersonal, and structural.[197] It is a helpful tool for understanding multi-level racism and oppression. We also explore how intersectionality—a framework for understanding interlocking systems of oppression[17]—is

articulated by QTBIPOC zine creators. Finally, Community Cultural Wealth is a critical race theory approach to understanding the unique forms of community strengths and assets exhibited by marginalized peoples.[13] These strengths include aspirational capital, familial capital, social capital, navigational capital, resistant capital, and linguistic capital. These theories shaped the themes our analysis team explored during primary coding.

We used a Rapid Qualitative Analysis (RQA) approach for our content analysis, which offered an accessible way for our undergraduate student analysis team to learn about and participate in qualitative analysis. RQA is a template-based qualitative analysis approach which does not require specialized qualitative analysis software.[219,220] Studies have shown that RQA is a rigorous and valid analytical method.[219] Coders first practiced coding using a calibration sample of two zine entries. The goal of calibration was not to completely align how analysts coded; rather, diversity of lived experience the analysts brought to their interpretation of the content was emphasized. Calibration, as such, was used to familiarize the analysts with the coding process and answer questions they might have.

During the primary coding stage, coders were randomly assigned 3-4 zines to analyze during the primary coding stage. During this stage, coders filled out their templates with quotes and observations, and they also completed reflexive memos about the analysis process (Table 4.3). While reading their assigned zines, analysts examined the text and visual art to identify data which fit under the theory-derived themes in the RQA template. Text or art which aligned with key themes was described, direct quotes or screenshots of text and art were added to the template. Analysts further described how these quotes and images aligned with key themes, why they selected them, and any additional insights into meaning and interpretation. These themes included oppression and strengths (and the levels they operated on), as well as experiences with intersectionality and health. In addition, analysts were also encouraged to inductively identify emerging themes not covered by these codes.

During secondary coding, quotes and images from the RQA templates were compiled into a data matrix. Coders were paired up and randomly assigned a key theme to analyze. Utilizing their training on critical theories (Table 4.2), they discussed what they took away from their assigned theme. Analysts were asked to reflect on common themes, but also unique findings that did not necessarily appear often in the zines. Each pair shared out their secondary coding findings to the larger Research Salon group, who added in their insights to the theme at hand.

Through this iterative discussion, key findings were identified. The lead author then further summarized the group's takeaways for publication.

Participatory Approach

A participatory analysis process, named the QTBIPOC Zine Research Salon, was used to analyze the zines. This Research Salon also served as a 2-day long training opportunity for public health undergraduate students passionate about QTBIPOC health, where they gained experience in qualitative research, learned about critical theory, and built community with likeminded students. Through the Research Salon, students applied their learnings to the zines in the final study sample. This allowed for diverse perspectives to inform the analysis and interpretation of the zines—improving the robustness, and therefore validity, of our findings—while also offering a capacity building opportunity for marginalized students. This was an opportunity that students could use to build their academic and professional experience, spark interest in qualitative research, and show them an alternative vision of health research which could reaffirm marginalized identity and center social justice. In total, 10 students participated in the Research Salon, with 8 completing the full curriculum and all stages of analysis.

Results

Table 4.1 and Figure 4.1 display the zines and zine entries in the final study sample. The zines include Asian Pacific Islander Pride Zine, Lost I.D., Crosshairs, TransLash Zine Vol. 1, TransLash Zine Vol. 2, Memoirs of a Queer Hapa, Evolution of a Race Riot, and Reflection: An Uncommon Identity Analysis.

The earliest zine was published in 1997 and the latest published in 2020. Identities of the zine authors included queer and transgender Black, Asian, Latinx, Pacific Islander, and multiracial peoples. Publication locations included Portland, OR; New York, NY; Berkeley, CA, Sarasota, FL; as well as nationally curated zines. Zine entry mediums included visual art, poetry, narrative storytelling, resources and guides, interviews, and essays. Topics were wide ranging, including media representation, fetishization, family dynamics, adoptee experiences, supporting QTBIPOC small businesses, community organizing, mental health, gender norms, grief, racism, QTBIPOC history, empowerment, and community care.

In these results, we share findings across the four key themes in this analysis: health, strength, oppression, and intersectionality. Quotes (in-text and in results tables) have been minimally adapted (punctuation and capitalization added) for readability. Emphasis has been

added by the lead author for in-text quotes. All other aspects of the quotes (i.e., spelling errors) remain as they were originally published. No images of the zines, beyond their covers, have been reproduced to respect the intellectual property of the zine makers; however, some zines in the final sample can be viewed online through the POC Zine Project.[215]

Health

There was rich description of health and wellbeing throughout the zines (Table 4.4). Zine authors discussed mental health, violence, social determinants of health, healthcare, and health policy. Mental health, including social and emotional wellbeing, was the most mentioned health outcome. In addition, QTBIPOC described facing other physical and behavioral health struggles such as sexual assault, eating disorders, drug and alcohol use, violence, abuse, and COVID-19. In particular, violence impacting Black and Brown transgender women was noted only in the more recently published, trans-led zines.

> "Now I don't say it to be mean, and I don't mean it to be cruel, but **when Black trans women are being killed twice a month, what do you do?** Do you memorialize our spirits, or do you hush your lips in shame?"
>
> – Mojo Disco, "I'm Tired," TransLash Zine Vol. 2[221]

QTBIPOC community members described poor mental health as the result of external societal othering and exclusion, which impacted their self-worth and interactions with family and community. Such societal pressure was the result of racism, cisheterosexism (i.e., homophobia and transphobia), colorism, and colonialism. Many QTBIPOC community members reported feeling pressure to disconnect from one or more of their marginalized identities to cope or fit in. At times, it felt more tenable to hide parts of themselves for the sake of survival in a racist and cisheterosexist society. When living in unsupportive environments, QTBIPOC felt anger, hopelessness, pain, grief, and loneliness.

> "They say my mind is scattered. I say **pieces of my mind are hiding** to preserve my sanity."
>
> – Anonymous Until Proven Valid, "Untitled", Crosshairs[222]

Even when these systems of oppression were not the direct cause of poor mental health (e.g., grief over the death of a loved one), these experiences were inextricable from their relationship with oppression. In the below quote, the author describes their struggles with sleep after their sister passed from encephalitis after being misdiagnosed in the hospital. Years later, they wonder if their sister would accept their queer identity.

> "[My late sister] was three years old when she left this world. I was five…**after that, I've never slept more than six hours at the most**…I wonder what she would have been like growing up with me. Would she love me, like my brother loves me. **Knowing I'm queer, would she say, I still love you and all parts of you?**"
>
> – Amira Caluya, "Dreaming with Eyes Open," Crosshairs[223]

However, they also described hope and aspirations for a better future. Through radical acceptance of their intersecting QTBIPOC identities, QTBIPOC described how they prioritized mental health, self-worth, and community connections.

> "Today is the day. Today my words solidify my experience. **This isn't just for my validation.** This is for visibility. **To stand in solidarity**…Today I embrace my words. Today I embrace my vulnerability. I don't give a f**k if you want to hear me or not. Cuz I am here.
>
> **Today I let myself fall apart so I can put myself back together in the way I see fit**. Today my chest expands, my shoulder rise, and I taste oxygen for the first time."
>
> – 李美雲 (Li Mei Wan), "Oxygen," Crosshairs[224]

QTBIPOC reported that the U.S. healthcare system was unable to recognize and properly support their intersectional identities. On a structural level, QTBIPOC plainly described how government and policy determined their access to health and social services. Zines by transgender authors notably called out the 2016-2020 Trump administration for their harmful policies which aimed to deny transgender people access to healthcare.[225]

However, there were clear places where the healthcare system and healthy practices in general can support the health and wellbeing of QTBIPOC communities. The TransLash Zines

shared key mental health resources, such as the Trans Lifeline for peer support and other crisis support lines. They shared QTBIPOC-centered non-profits and community-based organizations who could provide COVID-19 support, legal defense, anti-violence resources, and mutual aid. QTBIPOC-owned small businesses who offered wellness support (e.g., makeup for gender affirmation) were also highlighted. In addition, accessible wellness tips for physical exercise and healthy eating were shared, promoting a healthier quality of life. Finally, tips for safe drug and alcohol usage were shared with a harm reduction and non-judgmental approach.

> "Plan on getting drunk or high? **Prepare a harm-reduction plan in advance**. No shaming here, we understand—and we want to see you in 2020."
>
> –TransLash, "5 Tips for Surviving the Holidays," TransLash Zine Vol. 1[226]

Strengths

The positive aspects of health described by QTBIPOC were buoyed by community strengths and resources. We applied the Community Cultural Wealth Framework to examine various strengths described in the zines. We found all types of Community Cultural Wealth demonstrated in the zines by QTBIPOC community members (Table 4.5).

Linguistic capital encompasses the ability to communicate in multiple languages, cultures, and formats. For instance, skills in storytelling, oral histories, visual art, music, or poetry can all be considered under the linguistic capital of marginalized communities. The zines themselves represent a form of linguistic capital, as QTBIPOC are creating a piece of art to communicate their lived experiences and insights in accessible ways. Oftentimes, zine authors addressed their entries directly to other members the QTBIPOC community. This demonstrates the power of zines themselves as a way to relay messages within communities.

> "**Dear QTPoC holding this zine**… Do not forget that you are a living, breathing, active form of resistance, surviving in magnificence, mind fertile, nurturing liberation. Love, amira."
>
> – Amira Caluya, "Dear QTPoC Holding this Zine," Crosshairs[227]

Within the zines, the QTBIPOC authors contributed forms of art and communication including comics, drawings, digital art, collage, photographs, written poetry, dictated spoken word, essays, op-eds, interviews, recipes, and literary critique. This diversity of media demonstrates the strong linguistic capital of QTBIPOC communities. This is further highlighted by the independent and DIY nature of zines, meaning that QTBIPOC seek ways to share stories and empower one another despite a lack of acceptance or support by mainstream systems.

Social and navigational capital were tightly linked for QTBIPOC. QTBIPOC learned to navigate oppressive systems from one another and readily shared that information back to their community. This creates an ongoing cycle of social and navigational capital, an example of "lifting as we climb."[13]

> "On March 25th, 2020, **we compiled this tracker: a directory of coronavirus-related resources for transgender, non-binary, and intersex people**. This resource is being updated in real-time, so keep checking it for new additions! … **Submit any useful links that we may have missed here**: translash.org/connect"
>
> – TransLash, "COVID-19 Resources for Trans/Non-Binary/Intersex/TGNC Communities," Translash Zine Vol. 2[228]

Beyond simply surviving, QTBIPOC experienced joy, connection, love, and empowerment—healing from wounds created by systems of oppression. This exemplifies aspirational capital and resistant capital, which were deeply intertwined in these zines. For QTBIPOC, resistance against oppression was one and the same as aspiring for a better future. The act of cultivating and maintaining hope—and even the act of existence itself—was in and of itself an example of resistance, given the interlocking systems of oppression which seek to harm them.

> "My daughter said to me, Mom you have three strikes, Black…Lesbian…Mother… Invisible as lesbian to all. Equality ain't s**t when you are the wrong color…I can feel it. The pressure, the weight. What my culture thinks of me. Conservatives say traitor to the race. How my chosen family wants me to succeed. What my daughters need…

> Can you feel it? The strength? The brilliance? That is the power of my culture. The strength of my womanhood. What I pass on to my progeny. **Three strikes..? F**k that. Baby, I'm the triple threat.**"
>
> – Julie Harrison, "Three Strikes," Crosshairs[229]

One unique element of resistant capital demonstrated by QTBIPOC in these zines was the highlighting of the history and continuing legacy of resistance in the QTBIPOC community. Zine authors shone a spotlight on queer and Black activists such as James Baldwin, Martha P. Johnson, and bell hooks—discussing them in their writings and honoring them in their art. QTBIPOC emphasized how their communities and identities have always been here and always will be—demonstrated by everything from the queer love of ancient Greek figures, to the hope they had in their own futures. In this way, history and futures were intertwined—both reaffirming one another and strengthening the present ability of QTBIPOC to aspire and resist.

> "We have always been here, since the beginning of time. You can not kill the spirit when the soul is divine. You cannot make ugly a face so damn fine. Does my sexiness upset you? Does it come as a surprise? That I dance like I have diamonds between my thighs? **See a black poet named Maya Angelou taught me to still rise**."
>
> – Mojo Disco, "I'm Tired," TransLash Zine Vol. 2[221]

> "**marsha P Johnson, this is a tribute** for the way you contribute to the acknowledgement of me/him/her/them/they. For paving the way, speaking up, when things weren't okay."
>
> – Anonymous, "#TransLash Familia Art & Writing," TransLash Zine Vol. 1[230]

Familial capital underpins all of these strengths. QTBIPOC created chosen families with one another. They redefined their relationships with themselves and their biological families. Throughout all of these strengths is a deep love—love for themselves and for one another. In fact, love for oneself and love for others could not be disentangled. Because structural oppression caused many QTBIPOC to disconnect from their identity for their own safety and wellbeing, the act of rekindling a relationship with their culture, community, and heritage was powerful. By

doing so, QTBIPOC demonstrated their love for their own identities and experiences by building familial love for their communities, and vice versa.

> "If you truly want to f**k s**t up and bring down the system, learn to love. Love is one of the highest form of resistance. If you can love yourself with the world mounted against you, you've truly accomplish something**. Loving yourself and others happens simultaneously**; it spreads, it enriches our communities; it makes the fight worthwhile"
>
> – Jackie Wang, "Why Love is Important for Mixed-Race Queers (And Everybody Else)," Memoirs of a Queer Hapa #2[231]

Oppression

Of course, not all zines discussed strengths, assets, or resources related to being QTBIPOC. Complicated layers of multiple forms of oppression were discussed throughout the zines. QTBIPOC demonstrated a complex understanding of multi-level, interlocking systems of oppression, evidently due to their experiences existing at the intersection of margins. Forms of oppression described included racism, cissexism, heterosexism, sexism, colonialism, ableism, sizeism, colorism, and classism (Table 4.6). Racism, cisheterosexism, and colonialism were most commonly mentioned in the zines.

> "…My body is missing a language, the one that **colonial rule** ripped from its ancestral bodies, the one that **Christian imperialism** stomped out in the name of 'civilization.' And my body feels guilty because the blood of the colonizer runs as thick as the colonized."
>
> –Jess Kealiihoalani Toshea Mease, "Kino," Crosshairs[232]

These forms of oppression were inflicted by dominant society and non-QTBIPOC individuals; however, this discrimination also occurred within members of BIPOC, LGBTQ+, and QTBIPOC communities. This underscores the diversity of experiences within the QTBIPOC community. There are those within the QTBIPOC community who experience the greatest burden of harm, and combinations of marginalization and privilege can be complex and require reflection.

"**But I noticed that L, G, and B often align with the oppressor, to victimize the T.** Now I don't say it to be mean, and I don't mean it to be cruel, but when Black trans women are being killed twice a month, what do you do?"

– Mojo Disco, "I'm Tired," TransLash Vol. 2[221]

We used the Gardener's Tale allegory to identify levels of oppression—internalized, interpersonal, and structural.[197] All levels were represented in the zines, and more often than not, the interrelated nature of these levels were highlighted. These levels of oppression were not separate—they directly reinforced one another. For instance, white supremacy culture and other societal norms on the structural level directly resulted in the negative self-image many QTBIPOC reported struggling with.

"Love is hard, even harder when it comes to loving ourselves. **The system thrives and depends on our self-hatred.** It oppresses us by forcing us to internalize self-hatred, and damages us psychologically by making us feel worthless. **Self-hatred isn't necessarily a completely private issue; it is a manifestation of racism, sexism, homophobia, transphobia, classism, sizeism, ableism, and so forth**. If we want to build a world founded on love, we gotta start loving ourselves."

– Jackie Wang, "Why Love is Important for Mixed-Race Queers (And Everybody Else)," Memoirs of a Queer Hapa #2[231]

In another zine entry, harmful policies were linked with the ongoing murders and hate incidents against trans people of color. As such, structural violence and interpersonal violence came from the same well of racism and cisheterosexism.

"The toxic mix here is that both the **physical and policy violence work together** to form an ecosystem of antipathy against trans people. Not only does the policy violence create a culture of permissiveness for individual acts of violence, but **they both have the same aim: to erase and deny the fundamental humanity of transgender individuals**."

– Imara Jones, “Honoring Trans Women Isn’t Enough. We Must End the Killing.,” TransLash Zine Vol. 1[225]

Intersectionality

Without explicitly stating the term, QTBIPOC authors imbued intersectionality throughout their zine entries. Authors discussed the complexities of the intersections of race, ethnicity, sexual orientation, and gender. All elements of Collins and Bilge’s Intersectionality framework were described in the zines: social inequality, intersecting power relations, social context, relationality, complexity, and social justice (Table 7).[17]

In particular, many entries discussed how they were rejected by both BIPOC non-LGBTQ+ and White LGBTQ+ spaces, and how this circumstance caused them to develop a deeper understanding of society and self. This exemplifies the concept of mutual constitution; how the QTBIPOC experience is unique and beyond a simple addition of BIPOC and LGBTQ+ identities. One zine entry described an experiment of searching ‘gay’ and ‘asian’ on internet search engines—together and then separately. While ‘gay asian’ resulted in numerous fetishized porn results, searching the terms separately garnered no such results.

> “What if I was a young Asian kid, who was beginning to learn of his/her homosexuality right this very moment—where would I got to figure out what that meant? Probably the first thing I would do is an internet search...
>
> It’s rather depressing to find that using Bing, Atlavista, and Google, nearly all the search results are porn sites. Yahoo returns about 50% porn sites…getting back to that gay Asian kid beginning the journey of self-discovery…what kind of self-esteem are they going to have of themselves? Will the kid grow to be a proud gay Asian individual?
>
> In part 2 of this experiment, I used Google to search the internet using the terms “gay” and “Asian” separately. The search results for “gay” include Wikipedia definitions, news, personals, and even an anti-gay website- BUT exactly 0 (nada, zip, none!) links to porn. Google’s findings on “Asian” relate to travel, art, jokes, music, mail order brides (um…), and wiki entries. That gay Asian kid is probably kind of confused now—**being just Asian or just Gay seems ok, what kind of twisted synergy results when you bring gay and Asian together?”**

–Dennis Lo, "Internet-Search Engineering the Gay Asian Identity," Asian Pacific Islander Pride Zine[233]

Similarly, the concept of relationality was articulated clearly throughout the zines. As seen in our results examining the themes of health, strengths, and oppression, relationality was a central theme. Not only were QTBIPOC individuals relating with one another through the zines, but their very identities were relational. Health was associated with both empowerment and discrimination; strength was birthed from hardship, forms of community cultural wealth—like hope and resistance—were one and the same. Levels of oppression—from individual to interpersonal to structural—were cyclical and interconnected.

In this way, intersectionality moved beyond just social identities or even intersecting power structures, it was imbued in all aspects of their lived experiences and the way QTBIPOC viewed the wider world.

Discussion

In this analysis of QTBIPOC-authored zines, we identified several key themes around health, oppression, strengths, and intersectionality. Firstly, QTBIPOC use zines as a space to share trusted information about health and the healthcare system. They also use zines to share their own personal experiences with health, particularly mental health. Second, QTBIPOC demonstrated many forms of community cultural wealth which were deeply intertwined with one another. The creation of these zines are themselves an example of this resistance and strength. Third, QTBIPOC named racism, cisheterosexism, and colonialism, among other systems of oppression, as impactful in their lives. QTBIPOC were able to deftly describe the multi-level nature of oppression, as well as how these levels of oppression reified and informed one another. Finally, QTBIPOC articulated complex understanding of intersectionality through the zines, demonstrating the strength that their unique positionality offers.

Zines have long been under-appreciated by the public health field. This may have to do with disciplinary norms which deprioritize not only qualitative data in general, but specifically arts-based data and research which centers the voice of marginalized communities. There are examples of health researchers using zines as a data source to explore health communication, particularly among LGBTQ+ communities where relevant health information can be suppressed by healthcare authorities.[61,212,214] Zines have also been used as participatory tools for participants

to express themselves and nurture empowerment.[192,209] This study adds to this growing literature on zines and health. It affirms findings that zines have been used as tools to share trusted health information. In this way, zine authors can be seen as playing the role of community-based health workers, who use their status as trusted members of a marginalized community to engage in health promotion activities.[234]

The sharing of health information is just one example of how zines in this analysis are a material example of flourishing on the margins. The autonomous nature of zines allows intentional communities of care to develop outside the mainstream, where stories and art can be shared genuinely with the goal of supporting other members of a community.[61,212,214,215] Such spaces improve community resilience and resistance, which is linked to positive health outcomes.[235] Although systems of oppression are always present, the self-determination of zines allows it to be a freer channel of communication, expression, and connection. As bell hooks states in her essay, "Choosing the Margin as a Space of Radical Openness,"

> "Understanding marginality as a position and place of resistance is crucial for oppressed, exploited, colonized people… marginality [that] one chooses as a site of resistance [is a] location of radical openness and possibility."[199]

In this, hooks expresses the idea that those in the margins need not always desire to be at the center. There is strength in the margins themselves when oppressed people create their own independent communities because they can choose to intentionally operate outside of white supremacy norms. As such, zines can be a tool for social justice change. This analysis is a key example of this.

In conclusion, this study demonstrates that zines not only offer health researchers a naturalistic data source to understand the lived experiences of marginalized communities, but that zines are also a balm against structural racism and oppression. They represent strength on the margins, self-determination, intentional communities, and resistance.

Limitations

One limitation of this aim is its generalizability; as a purposive sample, the results should not be presumed to represent to the experience of all QTBIPOC people. QTBIPOC who make zines are not the same as all QTBIPOC. Furthermore, QTBIPOC who make zines which were

preserved in these digital archives are not the same as all QTBIPOC who make zines. Instead, we aim to explicate the diverse lived experiences of those within our dataset. QTBIPOC are not a monolith; therefore, this analysis offers unique insight into themes of health, strength, oppression, and intersectionality in this community.

Our sample of zines is biased towards the Pacific Northwest region of the US, due to our use of the Seattle Public Library ZAPP Zine Collective. In addition, zines in this dataset skewed older, with most before 2015. There is less representation from certain QTBIPOC identities, particularly Middle Eastern/North African LGBTQ+ people and Two-Spirit-identifying individuals. Future projects will aim to close these gaps in our sample.

Although the approach for data collection and analysis for this aim may be non-traditional by public health standards, we believe this work to be impactful on many fronts. We plan to use our qualitative findings to outreach with community organizations, advocates, and policymakers. Beyond this paper, the QTBIPOC Zine Research Salon team will develop a participatory dissemination process for the study's findings. Additional dissemination products may include zines, policy briefs, or social media posts. The success of the Research Salon may also lead to additional iterations of the capacity building training for future cohorts of public health students.

Conclusion

This analysis sheds light on several key takeaways related to the critical pursuit of health equity for multiply marginalized populations. The results detail key findings related to themes of health, strength, oppression, and intersectionality. QTBIPOC discussed both negative and positive aspects of health, with both strength and oppression acting as multi-level determinants of health and wellbeing. QTBIPOC were able to articulate intersectionality and how it was central to health and oppression. We firmly believe that the analysis of zines, combined with qualitative content analysis and a theoretical grounding in critical, emancipatory praxes, can be a tool for social justice and change.

Tables & Figures

Table 4.1. QTBIPOC-Authored Zine Entries Included for Analysis (n=33)

Zine	Entry Title	Author	Year	Archive
Asian Pacific Islander Pride Zine	A Memoir	Roger	2010	ZAPP Zine Collection
Asian Pacific Islander Pride Zine	Sounds of Silence	Nikita	2010	ZAPP Zine Collection
Asian Pacific Islander Pride Zine	In/Visibility	Cat Cheng	2010	ZAPP Zine Collection
Asian Pacific Islander Pride Zine	*Untitled Comic*	Sally Moon Lee	2010	ZAPP Zine Collection
Asian Pacific Islander Pride Zine	Internet-Search Engineering the Gay Asian Identity	Dennis Lo	2010	ZAPP Zine Collection
Asian Pacific Islander Pride Zine	Interview with Romen Lu	Romen Lu, Sally Moon Lee	2010	ZAPP Zine Collection
Crosshairs	Goals of this zine	Crosshairs	2012	ZAPP Zine Collection
Crosshairs	Name Me	Mariah Leewright	2012	ZAPP Zine Collection
Crosshairs	Untitled	Anonymous Until Proven Valid	2012	ZAPP Zine Collection
Crosshairs	Kino	Jess Kealiihoalani Toshea Mease	2012	ZAPP Zine Collection
Crosshairs	Oxygen	李美雲 (Li Mei Wan)	2012	ZAPP Zine Collection
Crosshairs	Three Strikes	Julie Harrison	2012	ZAPP Zine Collection
Crosshairs	I Cannot Date White Men Columbus	Josué Abrahan Peña-Juárez	2012	ZAPP Zine Collection
Crosshairs	Dreaming with Eyes Open	Amira Caluya	2012	ZAPP Zine Collection
Crosshairs	Queer Historia	Cory Lira	2012	ZAPP Zine Collection
Crosshairs	Welcome to Our Family	Mika	2012	ZAPP Zine Collection
Crosshairs	Dear QTPOC Holding This Zine	Amira Caluya	2012	ZAPP Zine Collection
Evolution of a Race Riot	For Colored Girls Who Have Considered Homicide...	Selena Wahng	1997	ZAPP Zine Collection
Evolution of a Race Riot	*Untitled*	Mimi Nguyen	1997	ZAPP Zine Collection
Lost I.D.	Lost I.D.	Caludia Natalia	nd	ZAPP Zine Collection
Memoirs of a Queer Hapa #2	Why Love is Important for Mixed-Race Queer People (And Everyone Else)	Jackie Wang	2007	POC Zine Project
Memoirs of a Queer Hapa #2	The Interplay and Intersections between Queer Identity and Mixed-Race Identity	Jackie Wang	2007	POC Zine Project
Reflection: An Uncommon Identity Analysis	I am Butch; I am Femme; It's Not Just Brown and White	Tobi Hill-Meyer	nd	ZAPP Zine Collection
TransLash Zine Vol 1	5 Tips for Surviving the Holidays	TransLash	2019	POC Zine Project

TransLash Zine Vol 1	Honoring Trans Women Isn't Enough. We Must Stop the Killing	Imara Jones	2019	POC Zine Project
TransLash Zine Vol 1	#Translash Familia Art & Writing	Anonymous submissions, curated by TransLash	2019	POC Zine Project
TransLash Zine Vol 2	Girls	Xoai Pham	2020	POC Zine Project
TransLash Zine Vol 2	Getting through the Holidays (and Life) during a Pandemic	Yannick Eike Mirko	2020	POC Zine Project
TransLash Zine Vol 2	Celebrating Trans Art featuring J. Mack	J. Mack	2020	POC Zine Project
TransLash Zine Vol 2	Trans-Owned Business Directory	TransLash	2020	POC Zine Project
TransLash Zine Vol 2	COVID-19 Resources for Trans/Non-Binary/Intersex/TGNC Communities	TransLash	2020	POC Zine Project
TransLash Zine Vol 2	I'm Tired	Mojo Disco	2020	POC Zine Project
TransLash Zine Vol 2	What Will My Children Call Me?	Daniela Capistrano	2020	POC Zine Project

Figure 4.6. Zines included in Final Study Sample (From top left to bottom right: Asian Pacific Islander Pride Zine, Lost I.D., Crosshairs, TransLash Zine Vol. 1, TransLash Zine Vol. 2, Memoirs of a Queer Hapa, Evolution of a Race Riot, and Reflection: An Uncommon Identity Analysis.

Table 4.2. Key Theories and Definitions used in Coding

Theory	Description	Key Definitions (Adapted from Cited Articles)	Coding Stage
Public Health Critical Race Praxis (PHCRP) (*Ford & Airhihenbuwa, 2010*)	A framework to guide researchers in applying race consciousness to public health research, centering the understanding of how racism and racialization impact both health outcomes and the research process	Race Consciousness: Deep awareness of one's racial position; awareness of racial stratification processes operating in colorblind contexts. Structural Determinism: The fundamental role of macro-level forces in driving and sustaining inequities across time and contexts; the tendency of dominant group members and institutions to make decisions or take actions that preserve existing power hierarchies. Critical Approaches: To dig beneath the surface; to develop a comprehensive understanding of one's biases.	Primary, Memo
Gardener's Tale (*Jones, 2000*)	An allegory about flowers in a garden, used to highlight the	Internalized: Acceptance by members of stigmatized races or other marginalized identities of negative messages about their own abilities and intrinsic worth.	Primary

	multi-level nature of racism and oppression.	Interpersonal (Personally Mediated): Prejudice and discrimination. Prejudice means differential assumptions about others based on race or social identity, while discrimination means differential actions according to that prejudice. Structural (Institutionalized): Differential access to goods, services, and opportunities of society that is normative and structural.	
Intersectionality (*Collins & Bilge, 2020*)	Framework and approach for understanding interlocking systems of oppression.	Social Inequality: Investigation of social inequality, and the systems of power that create these inequalities, is the primary purpose of intersectionality. Intersecting Power Relations: Intersectionality is structural, examining interlocking systems of power and oppression which are mutually constituted and multi-level. Social Context: The use of intersectionality must be contextualized in its specific social, historical, political, and global context. Relationality: Things which seem separate are actually interconnected; this includes power structures, ideas, movements, and communities. Complexity: Intersectionality grapples with complex ideas and therefore should be expansive and inclusive. Social Justice: The ultimate goal of intersectionality is socially just, equitable, and transformative society.	Primary, Secondary, Memo
Community Cultural Wealth (CCW) (*Yosso, 2005*)	Framework guided by Critical Race Theory which describes the unique forms of community strengths and assets demonstrated by students of color.	Aspirational Capital: The ability to maintain hopes and dreams for the future, even in the face of real and perceived barriers. Linguistic Capital: The intellectual and social skills attained through communication experiences in more than one language and/or communication style. Familial Capital: Cultural knowledges nurtured among families and kin that carry a sense of community history, memory, and cultural intuition. Social Capital: Networks of people and community resources. Navigational Capital: Skills of maneuvering through social institutions, particularly those not created with communities of color in mind. Resistant Capital: Knowledges and skills fostered through oppositional behavior that challenge inequality.	Primary, Secondary

Table 4.3. Qualitative Analysis Codebook and Memo Prompts	
Analysis Tool	**Description**

Rapid Qualitative Analysis Coding Template	Brief Description of Entry: Positionality of Author, if available: Key Takeaways/Themes: Coding Domains: 1. Description of Strengths and Resources, and level they occur on (i.e., internalized, interpersonal, structural) 2. Name and describe form of Oppression (i.e., racism, heterosexism, cissexism, sexism, nativism, colonialism, ableism, classism, etc.) and level it occurs on (i.e., internalized, interpersonal, structural) 3. Description of Intersectionality 4. Description of Health and Wellbeing 5. Description of Health Services and Systems 6. Other observations Exemplar Quotes/Images:
Memo Prompts	• How did you feel while reading/coding this zine entry? What were your reactions? • Did the contents of this zine entry overlap with your own identities and/or lived experiences? How so? • Whether yes or no, how did your positionality influence how you analyzed the zine entry? • How did this zine entry add to your understanding of structural racism + oppression, community strengths, and health among QTBIPOC communities? • Did any questions emerge while you were coding?

Table 4.4. Selected Quotes on Health from QTBIPOC-Authored Zines

Zine Entry, Author	*Zine, Year*	*Quote*	*Theme*
"Oxygen," 李美雲 (Li Mei Wan)	Crosshairs, 2012	"… [I] filled my air with the toxic air they provided. This I did to survive."	Mental Health
"The Interplay and Intersections between Queer Identity and Mixed-Race Identity," Jackie Wang	Memoirs of a Queer Hapa #2, 2007	"You have been told you must be full of self-loathing or hatred because of how you racially identify yourself."	Mental Health
"I'm Tired," Mojo Disco	TransLash Zine Vol. 2, 2020	"So I will rise above this administration that is curating my demise. We need access to healthcare. We need access to safe spaces. We need employment opportunities. We need housing. We need people willing to stand up and educate the ignorant so the labor ain't always on us."	Healthcare Access; Social Determinants of Health
"5 Tips for Surviving the Holidays," N/A	TransLash Zine Vol. 1, 2019	"If you are feeling overwhelmed or unsafe, change your environment…Pay attention to your feels and honor every single one of them! All of these feelings are valid."	Mental Health; Harm-Reduction; Drug and Alcohol Use
"Honoring Trans Women Isn't Enough.	TransLash Zine Vol. 1, 2019	"…the grim reality for those of us who are trans, estimated to be 1 percent of the U.S. population, is that the specter of violence is all too present…The situation for trans life	Violence; Healthcare Access

We Must End the Killing.," Imara Jones		and death is so acute that the American Medical Association this year declared anti-trans violence to be an epidemic." "[the current administration' is also fighting for the right to deny trans patients equal access to health care..."	
"Wellness Tips," Xaria James	TransLash Zine Vol. 2, 2020	"At least 30 minutes of exercise per day: whether it's going for a walk, gym classes, etc. Moving your body is a great way to reduce stress... Everyone should have their own wellness plan based on their own body type and capacity!"	Physical Activity; Accessibility
"COVID-19 Resources for Trans/ Non-Binary/ Intersex/ TGNC Communities", N/A	TransLash Zine Vol. 2, 2020	- COVID-19 Guide by the National Center for Transgender Equality - Transgender Legal Defense & Education Fund's Know Your Rights Guide - The Trans LifeLife for peer support for trans folks - COVID-19 Resources for Undcoumented Immigrants - El/La Para La Trans Latina Mutual Aid - Callen-Lorde TransAtlas - Tips for When Staying Home Isn't the Safest Plan (The Anti-Violence Project)	COVID-19, Mental Health, Social Determinants of Health, Violence

Table 4.5. Selected Quotes on Strengths from QTBIPOC-Authored Zines

Zine Entry, Author	*Zine, Year*	*Quote*	*Theme*
"I Cannot Date White Men Columbus," Josué Peña-Juárez	Crosshairs, 2012	"Seeing and meeting brown people like me that were on this journey of healing and stopping so many traditions of violence in our families because of things left since outsiders came to our lands."	Resistant Capital, Familial Capital
Untitled Comic, Sally Moon Lee	Asian Pacific Islander Pride Zine, 2010	"Wear a Korean hanbok that moment, marching in my 1st Pride Parade was Super AWESOME"	Social Capital, Linguistic Capital
"5 Tips for Surviving the Holidays," N/A	TransLash Zine Vol. 1, 2019	"Sometimes the best thing you can do for YOU is to be around your chosen family; people who aren't blood relatives but who understand and affirm you"	Familial Capital
"Girls," Xoài Pham	TransLash Zine Vol. 2, 2020	"The best part about being a trans girl is keeping the world's secret in your chest...You see yourself in us...In the beginning there was us. In the end, here we are."	Aspirational Capital, Linguistic Capital
"COVID-19 Resources for Trans/ Non-Binary/ Intersex/ TGNC Communities", N/A	TransLash Zine Vol. 2, 2020	- COVID-19 Guide by the National Center for Transgender Equality - Transgender Legal Defense & Education Fund's Know Your Rights Guide - The Trans LifeLife for peer support for trans folks - COVID-19 Resources for Undcoumented Immigrants - El/La Para La Trans Latina Mutual Aid - Callen-Lorde TransAtlas	Social Capital, Navigational Capital

		- Tips for When Staying Home Isn't the Safest Plan (The Anti-Violence Project)	
"It's Not Just Brown and White, Tobi Hill-Meyer"	Reflection: An Uncommon Identity Analysis, n.d.	"I have been learning strategies for dealing with homophobia since I was two or three, but I only started learning how to deal with racism when I was 16."	Familial Capital, Navigational Capital

Table 4.6. Selected Quotes on Oppression from QTBIPOC-Authored Zines

Zine Entry, Author	*Zine, Year*	*Quote*	*Theme*
"Oxygen," 李美雲 (Li Mei Wan)	Crosshairs, 2012	"It is not the fear of what more could happen to me that subdues me. Cuz as a Queer womyn of color, I know more is likely waiting for me right around the corner. The fear that prolongs my willingness to cut myself open is not that they will look or look away, but that they will see and keep on walking, unfazed."	Heterosexism, Racism (Interpersonal)
"Dreaming with Eyes Open," Amira Caluya	Crosshairs, 2012	"After a long day of occupying spaces in both inside and outside worlds…where my Asian-ness queer-ness and loud-ness were not allowed to happen at the same time, sometimes by others, sometimes by me for my own survival"	Racism, Cisheterosexism (Interpersonal, Internalized)
"I Cannot date White Men Columbus," Josué Abrahan Peña-Juárez	Crosshairs, 2012	"It became clear how much I was hating my browness. The times when it was most hot during the summers, I would be wearing long sleeve or even a hoodie to avoid the sun. To prevent me from getting darker. As I got older, I started realizing how weird and to some extent wrong I felt when I articulated what I was doing to myself."	Racism, Colorism (Internalized)

Table 4.7. Selected Quotes on Intersectionality from QTBIPOC-Authored Zines

Zine Entry, Author	*Zine, Year*	*Quote*	*Theme*
"Why Love is Important for Mixed-Race Queer People (And Everyone Else)," Jackie Wang	Memoirs of a Queer Hapa #2, 2007	"Why it is sometimes hard to love ourselves… because we are taught that to live between worlds means we have no place in the world…because we are taught that if we don't choose between inadequate categories, we will not be recognized or acknowledged…"	Intersecting Power Relations, Complexity, Social Inequality
"Lost I.D.," Claudia Natalia	Lost I.D., n.d.	"I am not gender/race/class/sexuality. I am whole I am Claudia."	Complexity, Relationality
Untitled, Anonymous Until Proven Valid	Crosshairs, 2012	"My mind is harnessed in a state of being stuck…stuck in a place where my color is not the only thing that sets me apart"	Social Inequality
"Queer Historia," Cory Lira	Crosshairs, 2012	"I saw the truth of my own watered down understanding of my culture because I was shuttled away from the center of my family's roots to be safe in my queer mother's arms…And even more at the core, I felt clarity about the way my xicana roots feel unwatered, yet my queer identity feels like natural skin that has been fostered in my mother's strength."	Complexity, Relationality, Social Context

Untitled, Mimi Nguyen	Evolution of a Race Riot, 1997	"I think accusations of 'whitewashing' are way too glib and don't really describe the complicated 'why' and 'how' or negotiation and counter-appropriation we're forced to navigate and apply as non-whitestraightpunkboys."	Complexity, Social Context
"For colored girls who have considered homicide...," Selena Wahng	Evolution of a Race Riot, 1997	"...I am convinced that lesbians/queer people of color define their sexuality much differently than white lesbians/queers...race is an integral part of our sexuality."	Relationality, Complexity, Social Context

Chapter 5: Conclusion

The public health field is beginning to recognize the complex ways in which systems of oppression impact health, and PHCRP and other anti-racism frameworks offer an approach in which to do so. Even as calls for equity grow stronger in the public health field, attacks which reify SRD continue to grow in the U.S.[236,237] There is a public health imperative to address and dismantle SRD to uplift health across race, sexual orientation, and gender. This research supports public health change-makers by providing findings that inform policy and community change to promote health across race, sexual orientation, and gender. Each aim of this dissertation targets a different interested or affected party who can make their own unique impacts on health: researchers, policymakers, and community. Aim 1 shows other health researchers how to apply anti-racist approaches to mixed methods public health research. In a time when anti-racist and other critical approaches are being suppressed, such research is crucial to continue promoting equitable and ethical research. We encourage students and researchers at any stage of their anti-racism journey to use this aim as a guide to learn strategies for applying Public Health Critical Race Praxis to their own work.

Aim 2 targets policymakers and policy advocates. The findings of this aim demonstrate how structural racism and cisheterosexism in state policy impacts health across race, gender, and sexual orientation. Not only do findings show QTBIPOC hold the greatest burden of HRQoL and healthcare access issues, but they also show how all residents are more likely to be harmed by racist and discriminatory state policies. The structural racism and structural cisheterosexism measures used in this study are operationalized through numerous domains of state policy; any of these domains offer a target area for policymakers and advocates to target to improve the health of their constituents. In addition, these findings indicate which states are most harmful for

residents of marginalized race and SOGI groups; demonstrating which states may need to be prioritized in terms of policy change.

Finally, Aim 3 is dedicated to QTBIPOC community organizations and community members. The findings from this aim reaffirm to these groups, and to other partners, that zines are a powerful tool for health promotion and community building. It shows that marginalized communities, through the spaces they create, use self-expression and trusted insider information to uplift others within their community. In addition, Aim 3 provided a group of undergraduate public health students who were part of or passionate about the QTBIPOC community the tools to engage in critical, participatory research. Through the analysis of zines, these Research Salon participants learned about themselves and their communities, while using their own lived experiences and insights to strengthen the research.

This dissertation is innovative in numerous ways, including its anti-racist research paradigm, intersectional population, focus on SRD, and mixed methods methodology. First, the project relies on PHCRP as a guiding model for its inception, design, methodology, interpretation, and dissemination. In doing so, it demonstrates how anti-oppressive frameworks can be put into action through research, serving as an important model for public health students and researchers. For instance, our participatory analysis method in Aim 3 built the capacity of public health students. Through our research salon approach, we supported QTBIPOC public health students in gaining key research skills in reflexivity, critical theory, and qualitative methods. Reflexivity was used not just as a tool to increase validity, but also as a social justice approach. Because anti-oppressive research approaches exist outside of disciplinary norms, students beginning their public health journeys are often not exposed to these theories and

practices. As such, this dissertation served to not only find impactful research results, but also to bring about real-world impact through our research process.

This study is one of few to examine QTBIPOC health nationally, particularly across subgroups of the QTBIPOC community and on a structural level. Few studies have examined the impact of interlocking systems of oppression of health, particularly the combination of structural racism and structural cisheterosexism. This study aligns with calls in the public health field to target upstream systems. Finally, the study galvanizes unique qualitative and quantitative datasets and adopts different approaches to produce meaningful data that can appeal to a variety of stakeholders, including public health scholars, policymakers, and community members.

Overall, this dissertation urges researchers, policymakers, advocates, and community to understand the depth of influence structural determinants play on health and wellbeing. This research also underscores the idea from scholar Dr. Ryan Petteway that health equity is not just an outcome, but a journey.[238] Health equity should not only guide our findings, but how we conduct research itself. Through anti-racist and anti-oppressive approaches, research can be a transformative instrument.

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