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Patient and Clinician Level Strategies to Address Racial and Ethnic Disparities in Health and Healthcare: An Evidence Map

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Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-based Practice Centers (EPCs), sponsors the development of evidence reports and technology assessments to assist public- and private-sector organizations in their efforts to improve the quality of healthcare in the United States. The reports and assessments provide organizations with comprehensive, science-based information on common, costly medical conditions and new healthcare technologies and strategies. The EPCs systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments.

This EPC evidence report is a Technical Brief. A Technical Brief is a rapid report, typically on an emerging medical technology, strategy or intervention. It provides an overview of key issues related to the intervention—for example, current indications, relevant patient populations and subgroups of interest, outcomes measured, and contextual factors that may affect decisions regarding the intervention. Although Technical Briefs generally focus on interventions for which there are limited published data and too few completed protocol-driven studies to support definitive conclusions, the decision to request a Technical Brief is not solely based on the availability of clinical studies. The goals of the Technical Brief are to provide an early objective description of the state of the science, a potential framework for assessing the applications and implications of the intervention, a summary of ongoing research, and information on future research needs. In particular, through the Technical Brief, AHRQ hopes to gain insight on the appropriate conceptual framework and critical issues that will inform future research.

AHRQ expects that the EPC evidence reports and technology assessments will inform individual health plans, providers, and purchasers as well as the healthcare system as a whole by providing important information to help improve healthcare quality.

If you have comments on this Technical Brief, they may be sent by mail to the Task Order Officer named below at: Agency for Healthcare Research and Quality, 5600 Fishers Lane, Rockville, MD 20857, or by email to epc@ahrq.hhs.gov.

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Patient and Clinician Level Strategies to Address Racial and Ethnic Disparities in Health and Healthcare: An Evidence Map

Structured Abstract

Background. Health disparities are a major challenge in the United States. Despite a vast literature on interventions to address racial and ethnic disparities in health and healthcare, these disparities persist for chronic conditions. Healthcare systems need interventions that focus on the patients and clinicians to address disparities and improve health outcomes in the treatment of chronic conditions in adults.

Purpose. The purpose of this Technical Brief is to provide an evidence map to inform researchers and research funding agencies on the gaps in knowledge and research needs for future systematic reviews, as well as to identify existing patient-level and clinician-level interventions that could be considered for implementation by healthcare system leaders and policy makers.

Methods. We searched MEDLINE, CINAHL, and Scopus through February 2023 for U.S.-based peer-reviewed published literature. Reference lists of included articles were manually screened to identify additional studies. Our gray literature search focused on organizations, foundations, and institutes. Relevant systematic reviews were hand searched. We interviewed Key Informants representing stakeholders in healthcare disparities, and used themes identified from Key Informant interviews to contextualize findings from published searches.

Findings. Our evidence map includes 107 studies from 112 publications. Most of the studies used randomized controlled trial design, were clinic based, and included a combination of racial and ethnic populations (among those that enrolled a single race/ethnicity, African Americans/Black persons were most common). The overall effectiveness of interventions were nearly equally distributed across categories of effects. The majority of the interventions were single-level interventions at the patient level targeted at cancer, and most enrolled multiple race/ethnic groups. The most common types of patient-level interventions, directed at almost all chronic conditions, were self-management support, prevention/lifestyle support, and patient navigation interventions. Studies of self-management support and of prevention/lifestyle support mostly targeted diabetes, and patient navigation mostly targeted cancer across all race/ethnic groups. We found very limited information on clinician-level interventions. Additionally, potential end users (such as healthcare managers or policy makers) of interventions are unclear; effectiveness is still in question (particularly because of the ambiguity of intervention terms); equity and patient experience outcomes are nearly absent; sustainability, applicability, and harms and adverse events are not prioritized; and culturally-adapted interventions and the role of community is still developing; indigenous groups are absent; and no information on intersectional factors is provided. Key informants provided supplementary information on potential sustainability of interventions. A great deal of uncertainty persists within the literature, and further research is needed to inform implementation in a real-world setting.

Contents

Tables

Figures

Appendices

Executive Summary

Main Points

- Studies with single focus racial groups mostly enrolled African Americans/Blacks. There were very few studies of Asian people and no studies of Native American/Alaskan Natives.
- Terms used to describe interventions were loosely defined and appear not to have reached a point of operationalization (i.e., standardized stage involving distinct and mutually exclusive definitions).
- Most of the interventions were single level, patient level interventions (i.e., targeted only patients).
- Overall effectiveness of interventions were nearly equally distributed across categories of effects (i.e., positive effect, no effect, and mixed effect).
- The most common types of patient level interventions—self-management support, and prevention/lifestyle support studies mostly targeted diabetes, and patient navigation—mostly targeted cancer across all race/ethnic groups.
- We found no information on single level, clinician level interventions.
- Studies reported nothing about intersectional factors and their influence on the effects of the interventions.
- Health equity approach (reported changes in equity of outcomes/disparities outcomes) was rarely reported.
- Harms and adverse events, sustainability, and applicability information of interventions were particularly lacking.

Background and Purpose

Racism among clinicians at the point of care degrades quality of care for racial and ethnic minority patients, and contributes to poorer health outcomes, including for chronic conditions.[1] Addressing these health disparities requires confronting the complex past and present influences of racism as exerted through institutions, including the healthcare system. Healthcare systems need interventions that focus on the patients and clinicians to address disparities and improve health outcomes in the treatment of chronic conditions in adults. Currently, the evidence on patient level and clinician level interventions is unclear, signaling a need for an overview of the body of evidence.

We present an evidence map to inform researchers and research funding agencies on the gaps in knowledge and research needs for future systematic reviews, as well as to identify existing patient-level and clinician-level interventions that could be considered for implementation by healthcare system leaders and policymakers.

Methods

We used methods consistent with those outlined in the AHRQ EPC Program Methods Guidance (https://effectivehealthcare.ahrq.gov/topics/cer-methods-guide/overview), and we describe these in the full report [include a hyperlink/URL to the full report on the AHRQ website]. Briefly, we searched MEDLINE, CINAHL, and Social Sciences Citation Index through February 2023 for U.S.-based published literature. Our gray literature search focused on pertinent organizations, foundations, and institutes. Relevant systematic reviews were hand searched. We interviewed Key Informants representing stakeholders in healthcare disparities.

Findings

We briefly describe our findings below. Our full report contains additional findings such as study design, study setting, study funding information; chronic conditions, ambiguity of intervention terms and categories; key informant supplementary information on sustainability of interventions; multidisciplinary approach, community involvement, and cultural adaptation; and important links between public health and healthcare providers.

Table ES-1. Summary of evidence map findings

Categories	Findings
Number of studies	107 unique studies from 112 reports.
Populations	Studies mostly enrolled a combination of race and ethnic populations (44%). African Americans/Blacks accounted for the highest proportion of studies with a single racial or ethnic group (32%). Asian groups were scarcely enrolled (7%). No studies enrolled American Indian/Alaskan Native and Asian groups.
Types of outcomes	Outcomes identified were heterogeneous. Equity outcomes that specifically address health equity/disparity was particularly lacking (outcome reported in only one study), as well as patient experience of care.
Types of interventions and reported effects	About the same number of studies showed positive effects, no effects or mixed effects. Interventions were mostly single level patient level (89%) aimed at cancer and most enrolled multiple race/ethnic groups. Multilevel interventions (that is both patient-and clinician-level interventions) were notably limited. No studies reported on single level interventions targeted solely at the clinician. The most common types of patient-level interventions, directed at almost all chronic conditions were self-management support, prevention/lifestyle support, and patient navigation interventions. Self-management support, and prevention/lifestyle support studies mostly targeted diabetes, while patient navigation mostly targeted cancer across all race/ethnic groups. No information on intersectional factors.
Harms and adverse events, sustainability, and applicability	Not prioritized in the published literature. Only one study reported harms and adverse events – fall. Key informants provided supplementary information on sustainability.

Summary and Implications

First, a notably high proportion of included studies enrolled only African American/Black participants, indicating a high level of interest in this group. Meanwhile, research specifically focused on other single racial/ethnic groups was glaringly lacking, especially for American Indian/Alaska Native and Asian people. The limited research attention highlights the challenges of meeting the health needs of diverse race/ethnic minority groups. Second, we found an important absence of clinician targeted interventions. This may indicate a concerning trend toward placing the ultimate responsibility for reducing disparities in health and healthcare on patients themselves. Third, the overall effectiveness of interventions were nearly equally distributed across categories of effects; thus, indicating uncertainty of the effectiveness of the current existing interventions. Fourth, we found considerable heterogeneity in terms used to describe the interventions in the literature. These terms seem not to have reached a standardized stage involving distinct and mutually exclusive definitions. This makes it challenging to determine the effects of patient or clinician level interventions. Fifth, while studies often enrolled patients of race/ethnic groups and framed the interventions as intended to reduce health

disparities, the studies often lacked explicit health equity/disparities outcomes. This creates uncertainty around whether the interventions can actually reduce health disparities. Lastly, the lack of information on the harms and adverse events, sustainability, and applicability of interventions indicates a need for a more pragmatic approach to interventions.

Next Steps

Our findings suggest that patient and clinician level interventions that target racial and ethnic health and healthcare disparities are still in preliminary testing phases. Much work remains to move them from research to practice. Areas for future research consideration include: systematic review that fully investigates patient- and clinician-level interventions and captures the varied defined intervention components; studies that are inclusive of or restricted to Native American Indian/Alaska Native and Asian groups; studies that focus on clinician level interventions, with reports on the direct effect on health and healthcare outcomes; studies that incorporates outcomes that directly measure equity/health disparity and patient experience; and studies that empirically evaluate the harms, applicability and sustainability of the patient- and clinician-level strategies/interventions. Our full report highlights other potential research opportunities.

References

1. Churchwell K, Elkind MSV, Benjamin RM, et al. Call to Action: Structural Racism as a Fundamental Driver of Health Disparities: A Presidential Advisory From the American Heart Association. Circulation (New York, NY). 2020;142(24):e454-e68. doi: 10.1161/CIR.0000000000000936.

Introduction

Background

Racism is a false belief that what we call "race"—which is actually a social interpretation of how a person looks—is a fundamental determinant of human traits and capacities, and that "racial" differences produce inherent superiority among specific groups. This false belief underlies a destructive system of structuring opportunity.[1] Discrimination refers to the unequal treatment of members of different ethnic, religious, national, or other groups. As the behavioral expression of prejudice, discrimination usually involves negative, hostile, and injurious treatment of members of rejected groups.[2]

Racism and discrimination have been declared a public health crisis, because they directly and indirectly worsen health outcomes among racial and ethnic minority groups. These differential health outcomes are called health disparities—i.e., preventable differences in disease burden, injury, violence, or opportunities to achieve optimal health among socially disadvantaged populations.[3] Racism and discrimination create inequities across a range of systems—social, political, economic, environmental, and healthcare, by affecting and creating conditions in the environments where people are born, live, learn, work, play, worship, and grow older. Ultimately, racism and discrimination influence an array of social and economic resources including housing, education, and employment (also known as social determinants of health).[3] Racism and discrimination can also cause stress, leading to the activation of the stress-response cycle and physiologic wear and tear associated with chronic diseases.[4-7] Finally, discrimination and bias among healthcare professionals can degrade the point-of-care experience for racial and ethnic minority patients, and contribute to poorer health outcomes, including for chronic conditions.[8]

Data shows that racial and ethnic minority groups have higher rates of morbidity and mortality across many health conditions, including chronic conditions such as mental health disorders, cardiovascular disease (including hypertension), cancer, asthma, HIV/AIDS, renal disease, COPD, and diabetes.[9] For example, African American/Blacks Americans have more than twice the odds of having hypertension than white Americans.[10]

Effectively addressing these disparities requires confronting the complex past and present race and discrimination influences of institutions, including those within healthcare systems. Healthcare system disparities are multifactorial, arising from patient, clinician, and healthcare system-level factors. Figure 1 provides a framework drawn from the National Institute on Minority Health and Health Disparities (NIMHD) Research Framework[11] and the work of Purnell and colleagues,[12] both of which consider the multilevel factors that influence disparities in health and healthcare. Addressing health disparities in the United States would not only eliminate unnecessary human suffering, but also decrease healthcare expenditures; health disparities account for $93 billion in excess medical care costs and $42 billion in untapped productivity.[13]

Figure 1. Understanding the drivers of and interventions to reduce health and healthcare disparities
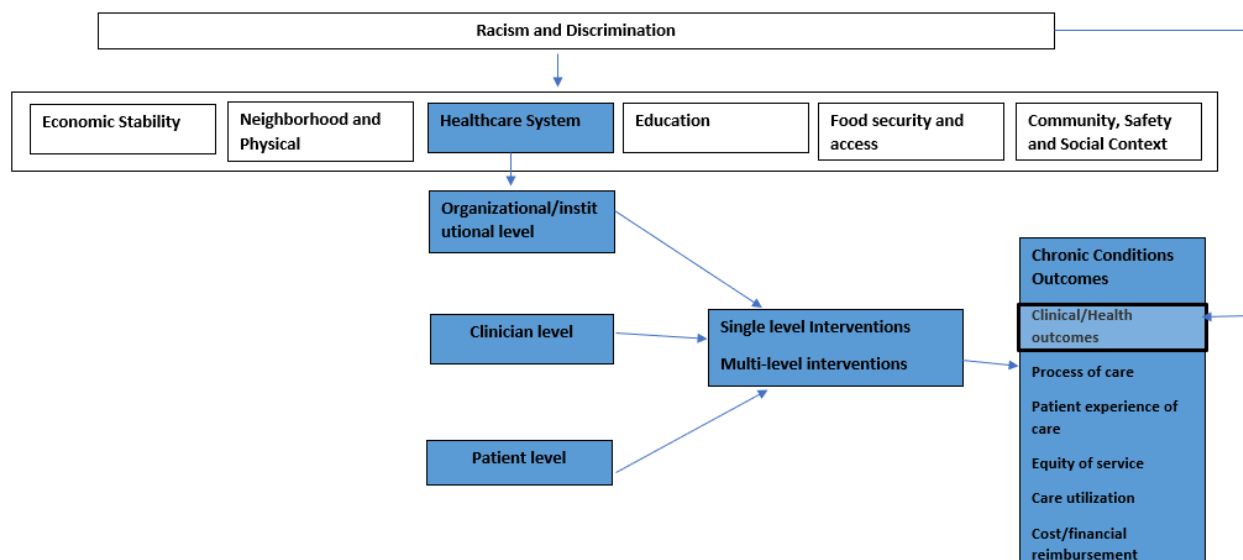
The need to eliminate disparities is underscored by the Department of Health and Human Services (HHS)'s Healthy People 2000 report,[14] which establishes national objectives for improving health and well-being. Since the release of Healthy People 2000, HHS has further increased efforts towards eliminating disparities. The President's Office recently signed an executive order on "*Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*",[15] after which the Health Equity Task Force report released actionable recommendations.[16]

Healthcare systems need interventions that focus on the patients and clinicians to address disparities and improve health outcomes in the treatment of chronic conditions in adults. Our conceptual framework in Figure 1 suggests that interventions to reduce racial and ethnic health and healthcare disparities may occur at a single level or multiple levels of the healthcare system. One recognized model for considering key elements of a healthcare system that encourage high-quality chronic disease care is the Chronic Care Model.[17] Interventions at various levels of the healthcare system could be mapped to this model, because it spans the continuum of the patient to the healthcare system. For example, at the patient level, self-management support intervention aims might include improving health and lifestyle behaviors or delivering culturally and linguistically tailored health programs.

In addition to race and ethnicity, consideration should be given to the overlap of marginalized or disadvantaged social factors (such as gender, LGBTQIA+ status, disability status, geographic location [rural vs. urban]) and how these overlaps affect patient level and clinician level interventions.[18] Intersectionality offers a valuable framework for understanding how certain social factors interact and how people and their health are affected by social position and access to resources (e.g., racism) and experience (e.g., discrimination).[19]

Purpose and Scope

Currently, the evidence on patient-level and clinician-level interventions is unclear, signaling a need for an overview of the body of evidence. Our report will supplement an Agency for Healthcare Research and Quality (AHRQ) 2012 report,[20] which examined the effectiveness of

quality improvement interventions in reducing disparities in health and healthcare on a limited set of clinical conditions. Here, we expand the scope of that report by including an unrestricted set of common chronic conditions in adults and strategies/interventions targeted more broadly at patients and clinicians.

This technical brief was designed to present an evidence map on patient-level and clinician-level interventions to address racial and ethnic disparities in health and healthcare in the treatment of common chronic conditions in adults. The aim is to inform researchers and research funding agencies on the gaps in knowledge and research needs for future systematic reviews, as well as to identify existing interventions that could be considered for implementation by healthcare system leaders and policymakers.

Guiding Questions

The questions below were developed in collaboration with AHRQ and guided our work on mapping the available evidence on patient- and clinician-level strategies/interventions to reduce racial and ethnic disparity in health and healthcare.

What is the current evidence for strategies targeted at patients and clinicians and designed to reduce racial and ethnic disparities and improve health outcomes in the treatment of common chronic conditions in adults?

a. What interventions have been studied?
b. What racial and ethnic populations have been studied?
c. What common (multiple and single) chronic conditions have been studied?
d. What primary outcomes have been studied?
e. What are the reported effects (that is, a summary of the direction of effects) of the strategies used in studies of interventions to reduce disparities?
f. What are the reported unintended consequences, harms, or adverse events of the strategies used in studies of interventions to reduce disparities?
g. Within race/ethnic groups, what other intersectional influences (e.g., income, sexual orientation, geographic location, language, gender) have been targeted in studies of interventions to reduce disparities?
h. What study designs have been used?
i. What information is available on the applicability and sustainability of interventions?
j. What gaps exist in the current research?

Methods

To address the Guiding Questions listed above, we created an evidence map of primary studies (from the peer reviewed published literature) focused on patient- and clinician-level strategies/interventions to reduce racial and ethnic disparities in health and healthcare. Where applicable, we supplemented information from the published literature with information from the gray literature and Key Informant interviews.

Evidence maps are an approach to systematically identify and report the range of research activity in broad topic areas.[21] Because they describe the quantity, design and characteristics of relevant research,[22] evidence maps are best used to inform research priority setting, and help to define the focus of evidence synthesis such as systematic reviews when an abundant and diverse research base is available.[21] Despite these conventions, no widely accepted standards exist for evidence mapping; instead, products and methods vary based on project goals.[23]

Published Literature

Search Strategies

We conducted a comprehensive literature search from January 2017 through February 2023, searching MEDLINE (Ovid), CINAHL (EBSCOHost), and Scopus (Elsevier B.V.). We also scanned the references cited by included studies and relevant existing systematic reviews. The search was limited to publications from 2017 to the present due to resource constraints and given that in 2017 the National Academy of Medicine called for innovations in health disparities interventions, including multisectoral partnerships, to address social determinants of health. For further details on the search methods,[24] see the review protocol [https://effectivehealthcare.ahrq.gov/products/patient-provider-level-strategies/protocol] and Appendix A.

Study Selection

We developed criteria for study inclusion and exclusion based on the Guiding Questions and adapted the standard PICOTS framework (Population, Intervention, Comparators, Outcomes, Timing, and Setting) to outline our eligibility criteria. Study populations needed to focus on specific racial/ethnic minority groups, or the combination of racial/ethnic minority groups needed to constitute the majority of the study population. We included only U.S.-based studies with randomized controlled trial study design, non-randomized study designs (non-randomized controlled trials, cohort studies with comparator arms, pre-post, and quality improvement or single-arm studies of implemented strategies with outcomes captured before and after implementation), mixed-method study designs. In addition, we included studies where the reported strategies/interventions clearly focused on patients and/or clinicians. We excluded studies where patient- and/or clinician-level strategies/interventions were incorporated with healthcare-system-level interventions (these studies are examined in [Tech Brief 2 citation]). Further, we included studies with aims relevant to racial/ethnic health disparities, and settings where clinical care was provided, or showed strong linkages to health care systems that provided such care. We excluded studies of medical interventions with exploratory racial sub-group analyses. We detail our inclusion and exclusion criteria in Appendix B. Appendix C provides a detailed list of studies excluded at full text screening.

We screened the literature using PICO Portal software[25] at title/abstract and full text. We used PICO Portal's machine learning algorithm to prioritize the literature most likely to be included. Two independent reviewers screened for possible inclusion at title/abstract as well as full text. We resolved conflicts through discussion and consensus with a third reviewer. Content expert team members provided advice where design features were unusual or ambiguous. To ensure that included studies would be reproducible, we confirmed that exclusion reasons were clearly captured. To ensure consistency in interpreting eligibility criteria, our review team met at least weekly to discuss questions arising from screening.

Data Extraction and Data Management

To answer the Guiding Questions, we extracted data from eligible studies into a data evidence table (Appendix D). Review team members met at least weekly to discuss questions arising from data extraction and to ensure consistency in abstraction.

Data Presentation

We used information reported in the included studies to group interventions, outcomes, and reported effectiveness; we list and define those groupings in the Findings section of this brief. To develop categories for intervention types, we reviewed the author's descriptions of the interventions, and finalized the categories through discussion and consensus with Content Expert team members. We repeated these steps to also categorize outcomes and effectiveness categories.

When reporting, we used wherever possible the exact terms used by study authors. When the studies used uncommon terms to name interventions, we grouped them into relatively similar categories based on the description of the interventions. We used bar charts, pie graphs, heat maps, and bubble plots to summarize information relevant to the Guiding Questions. The graphics summarize characteristics of our evidence dataset. Bubble plots provide the ability to display three-dimensional study characteristics data.[26]

Evidence tables of data from all included studies are presented in Appendix D.

Gray Literature

We performed supplemental gray literature searches to locate relevant articles that may have been poorly or inaccurately indexed or unindexed. We browsed the first 200 results from Google and Google Scholar for each search string using a combination of terms and word variations. We also browsed relevant organizations including the Culture of Health Program, the Johns Hopkins Center for Health Equity, the American Hospital Association HEAL Health Equity Action Library, the Robert Wood Johnson Foundation Culture of Health Partnerships, the Patient Centered Outcomes Research Institute Portfolio, and the Dissemination & Implementation Models In Health website to help contextualize our search results. We provide additional details in Appendix A, including a table of the organization websites that were browsed.

Discussions with Key Informants

At the beginning of the project, we identified Key Informants representing a broad range of perspectives on patient-level and clinician-level strategies/interventions to inform our review process. We identified potential Key Informants from frequently listed and cited authors of relevant peer-reviewed literature, internet searches for people with relevant viewpoints, AHRQ Learning Health System partnerships and stakeholder lists, and nominations by review team

members. We included patient advocates/representatives, advocacy organizations, clinicians, provider organizations, and researchers as Key Informants. When we could not identify a specific individual to represent a specific organization, we invited the organization to nominate an individual.

We conducted semi-structured interviews (60 – 90 minutes) via teleconferences in September and October 2022. These interviews helped us to: identify important strategies/interventions to include in the evidence map; classify types of strategies/interventions; identify potential promising interventions; and inform our navigational strategy for the gray literature and peer-reviewed literature sources.

Appendix A provides example interview questions. We tailored questions to the unique expertise and perspectives of our Key Informants. Prior to the discussions, the Key Informants received invitation letters briefly explaining the project, and their expected role, appropriate disclosure forms for conflict of interest, and discussion questions. We assigned Key Informants to conference calls based on two affiliation groupings: 1) patient advocates/representatives, and 2) advocacy organizations, clinicians, provider organizations, and researchers. We did this to maximize the synergy of group discussions and minimize unhelpful conflict. We recorded all calls and circulated call summaries (including themes from individual calls and the overall Key Informant discussions) to participants could confirm the content. In addition, we incorporated the themes from the Key Informant interviews as supporting information in the discussion section (Summary and Implications of Findings and Next Steps) in this brief.

Findings

This section addresses the findings of our evidence map from the published literature based on our Guiding Questions. Where relevant, we incorporated findings from the gray literature and Key Informant interviews as discussed in the Methods section of this brief.

Results of Published Literature Searches

Figure 2 presents the literature flow of the search results. Database searches of published literature resulted in 8,180 potentially relevant articles. After dual review of abstracts and titles, 471 articles were assessed for eligibility at full text. Of these, we determined that 112 articles reporting on 107 unique studies met the inclusion criteria, and we included those in the evidence map. Appendix C provides a list of the articles excluded at full-text screen, sorted by the reason for exclusion. There were 202 reports that were not relevant to patient/clinician interventions.

Figure 2. Literature flow PRISMA diagram: search results to included studies
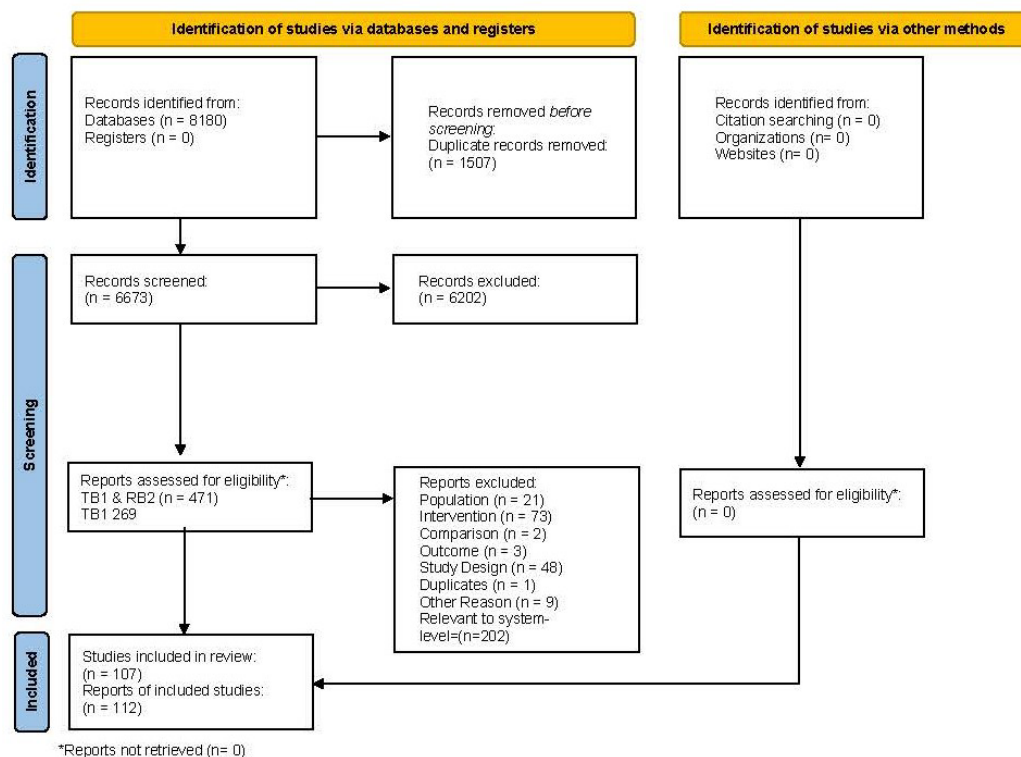
From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/

Descriptive Evidence Map

Below, we summarize descriptive characteristics of the eligible studies. Appendix D provides a table with detailed information for each included study. We grouped these summarized descriptive results by study design, setting, population (race/ethnic group), targeted chronic conditions, interventions, and outcomes.

Study Design

Intervention strategies to address disparities were generally examined with study designs that strive for rigorous examination of causal effects. A notably large number (69%) of the included studies used a randomized controlled study design. of studies. The remaining few studies used a mix of designs that authors described as intended to improve understanding of how to implement interventions or improve care through quality improvement approaches.

Study Setting

Interventions were implemented in a wide array of healthcare settings (Figure 4), indicating that many different segments of the public and healthcare sectors have been engaged in addressing health disparities. Because the types of and reasons for disparities can be many and varied, including social determinants of health, the settings capture a continuum of public health to highly specialized medical care. Most studies were carried out in clinic-based settings. Ownership or size of clinics vary from large health systems to community-based non-profits. Federally qualified health centers receive federal funding to provide comprehensive health services to underserved populations, thus may conceptually overlap with clinics, but may also provide hospital or specialty care. Community-based settings were used for strategies that reach out to the patient communities, such as interventions based out of churches, local libraries, or community centers. State or large city governments may provide preventive or other health services through public health systems. Other settings may include communication platforms such as telehealth, websites, mobile platforms, or the use of multiple setting. Only five studies reported a rural setting.[27-31]

Within these settings, interventions to address disparities were delivered by a wide array of personnel. Clinicians, including physicians, nurses, pharmacists, and other allied health professionals, were the most common (Figure 3). Personnel chosen for their ability to represent or reach patient populations are even more varied, with variable titles and job descriptions provided by study authors, including peer/lay navigators drawn directly from the target population, peer navigators recruited as employees, community health educators, and community health workers (CHWs). Several studies used researchers and implied job duties would transfer to administrative staff. A few studies bypassed personnel by using mobile health, or m-Health interventions.[31-35]

Figure 3. Number of studies by study setting and delivery personnel

Intervention Delivery Personnel

Study Setting	Provider/ Clinician	Peer/Lay community outreach	Researcher/ Admin	Community health worker	Patient navigator (employee)	Other	Multiple	NR
Clinic	12	6	6	5	1	9	2	
Community-based	4	5		3	3		3	2
Hospital	4	3	4	2	5	1	1	
FQHC	4		3	3	1	2	1	
Public health system		1	2					
Non-profit system	1							
Other	1	2	1	1			3	

Count of Studies

1   12

Abbreviation: CHW=community health worker; FQHC=Federal Qualified Health Center; NR=not reported

*Note: The categories for study setting were the exact information reported by the study authors. The definition of these categories may overlap between studies.

Population

Study populations were diverse in size and composition. Population sample sizes ranged from 32 to 9,119. Of the 95 studies that reported an average age of their sample, most participants were middle aged (median age 54 years, ranging from 21 to 68 years). Of the 98 studies that reported gender identity, 62 percent of participants were female. Almost half the included studies enrolled participants from more than one racial/ethnic group (Figure 4). Of the studies that included a single racial and ethnic group, African Americans/Blacks accounted for the highest proportion, followed by the Hispanic people then Asians (Figure 4). No study included exclusively American Indian/Alaska Native people.

Figure 4. Percentage of studies by race/ethnicity
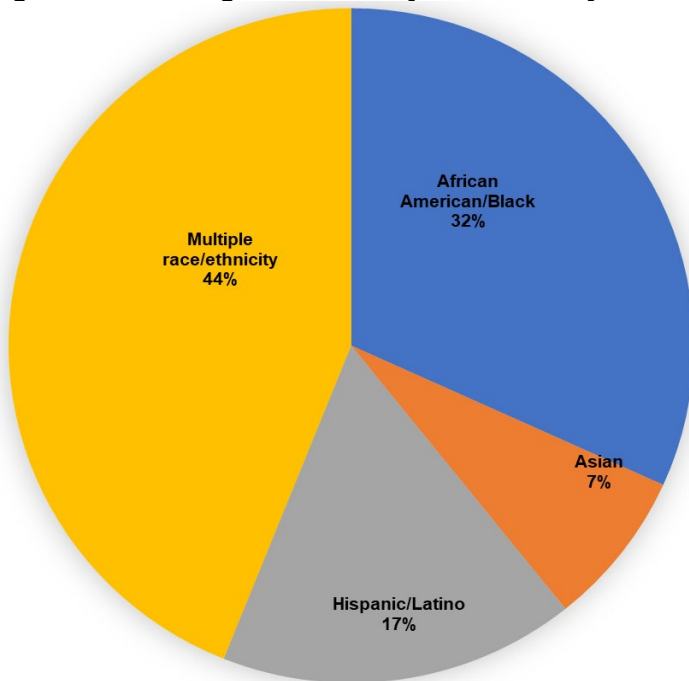
*Note: The race/ethnicity groups represent studies that comprise a single racial group, and the multiple race/ethnicity group represents studies that comprise more than one racial or ethnic group

Interventions

Intervention Target Level

Interventions can be implemented in many levels of a complex healthcare system. Patient level interventions are those targeted at patients, such as patient education. Clinician level interventions are those targeted at clinicians, such as clinician reminders for medication adherence. Single level interventions target only one level of the healthcare system, in this case the clinician or the patient. Multilevel interventions are those with components that overlap more than one level of the healthcare system, such as a self-management support intervention targeting both patients and clinicians.

The majority (89%) of studies reported on single-level interventions targeted solely at patients. Eleven percent of the studies reported on multilevel interventions (studies with both patient and clinician level interventions). No studies reported on single-level interventions targeted solely at clinicians (Figure 5).

Figure 5. Percentage of studies by intervention target level
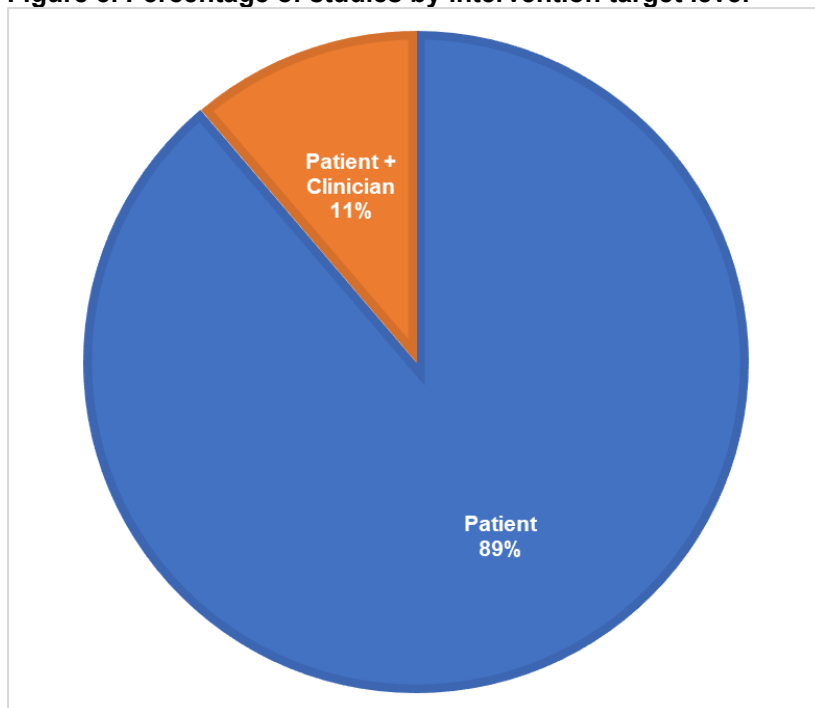
*Note: Patient-level interventions refer to interventions that are targeted at the patients only. Clinician-level interventions refer to interventions that are targeted at clinicians only. Patient+clinician level interventions refer to interventions targeted at both patients and clinicians.

Types/Categories of Interventions

Interventions examined in the included studies did not fall into clean categories. We used study author intervention labels where provided, but often had to rely on study intervention descriptions to categorize the interventions. In these instances, we categorized studies based on our estimation of the primary purpose or approach. Since many of the interventions were multifaceted, they may include components that overlap with one or more other intervention categories. Ultimately, we grouped the interventions into eight major categories.

The largest category, **Self-management Support,** included interventions with the purpose of helping patients take responsibility for managing their health conditions.[29, 36-64] The interventions may incorporate patient education, appointment reminders, adherence to medication and care plans, behavioral skills training, and group-based counseling, including peer-led support. One example of a self-styled study of self-management support study was a multi-arm trial that randomized African Americans to receive (1) a community health worker intervention, including the provision of a home BP monitor; (2) the CHW plus additional training in shared decision making skills ("DoMyPART"); or (3) the CHW plus additional training in self-management problem-solving ("Problem Solving").[64]

The **Prevention/Lifestyle Support** category included interventions with the purpose of risk reduction/health promotion, usually for a specific condition, such as diabetes or hypertension. They may incorporate exercise coaching, diet coaching, screening, or referral for treatment.[27, 28, 65-79] One study describes a randomized controlled trial of a multifaceted, culturally-derived diabetes prevention intervention for Cambodian Americans with depression.[77]

The **Patient Navigation** category included interventions focused on facilitating and maintaining patient/clinician communication and access to care for chronic conditions, including

11

attending appointments with the patient.[80-95] Peer navigators were often used to improve cultural awareness, but navigators could also be staff or allied healthcare professionals. One study assessed the impact of a patient navigator program on adherence to attending follow-up appointments and psychosocial outcomes of Vietnamese-American women who receive an abnormal mammogram finding. The patient navigator provided emotional support, education, translation, and assistance with medical bills and doctor's appointments.[94]

Patient Education interventions focus on direct patient health education, such as group asthma education, and often through culturally tailored media or tools.[96-106] One community health worker-led intervention examined whether group education is as effective as individual culturally tailored education in improving cervical cancer screening among underserved Hispanic women.[97]

Care coordination interventions focus on systematic organization of care activities and assuring shared information between all clinicians or other allied health involved with a patient's care.[107-112] They may include clinicians or other allied health professionals to support medication management. One example of a care coordination intervention was a community health worker providing home visits, telephone calls, and group-level activities, health education, patient navigation, linkage to behavioral health, health coaching to Latinos with poorly controlled type 2 diabetes.[113]

Transition of Care interventions focus on intensive care coordination, discharge planning, and ma incorporate home-based care.[114, 115] One study compared the effectiveness of (1) usual home care, with (2) a nurse practitioner transitional care program, or (2) usual home care plus nurse practitioner plus a 60-day health coach program to reduce hypertension in a poststroke Black and Hispanic home care population.[114]

The **m-Health single component** category included interventions focus on mobile health, or m-Health as a single intervention (i.e., the only component of the intervention), such as text messaging, wireless data transmission, and smartphone applications to send health-related information or direct care.[31-35, 116] One example of an m-Health intervention examined Hispanic people with type 2 diabetes receiving up to three motivational, educational, and/or call-to-action text messages per day over 6 months.[34]

The **Other single component** category captured interventions examining a single component but not otherwise easily grouped.[30, 117-131] These interventions examinations of language concordance, a screening decision aid, risk calculator counseling, training in web portal use, and automated appointment reminders.

Figure 6 provides the number of studies in each category.

Figure 6. Number of studies by intervention type by intervention target level

Intervention Categories	Intervention Target	
	Patient	Patient + Clinician
Self-management support	26	4
Prevention/ Lifestyle support	17	1
Patient navigation	16	1
Patient education	9	2
Care coordination	5	1
M-Health single component	4	2
Transition of care	2	
EHR-based	1	
Other single component	15	1

Count of Studies

1   26

Abbreviation: EHR=Electronic Health Record

Most of the patient-level interventions focused on self-management support, followed by prevention/lifestyle support, patient navigation and then patient education (Figure 7). Half of included studies reported some form of cultural adaptation, such as availability of an interpreter, information offered in several languages, and use of culturally-aware peers to deliver the interventions. Thirty-eight percent of studies reported collaborations with community partners.

Chronic Conditions

Figure 7 depicts the distribution of targeted chronic conditions for the included studies. The most common chronic condition studied was cancer (36 studies), [33, 36, 48, 60, 63, 70, 75, 81, 85-87, 89-94, 97-101, 103, 104, 106, 117-121, 124, 126-128, 130, 132] followed by diabetes (20 studies),[28, 31, 42, 44, 47, 49-51, 55, 67, 71, 72, 77, 88, 109, 111-113, 123, 125] and HIV(15 studies).[35, 38, 45, 56, 57, 59, 66, 69, 73, 82, 115, 116, 131, 133, 134]

Figure 7. Number of studies by target chronic conditions
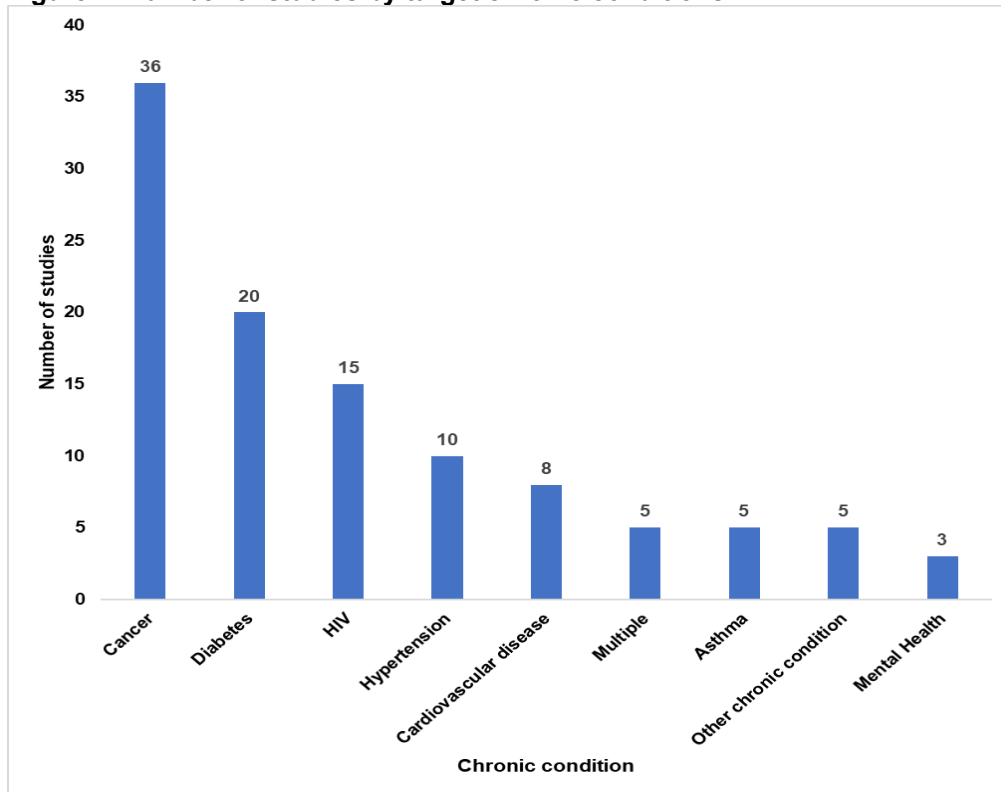
*Note: The categories for target chronic condition were the exact information reported by the study authors.

Intersectional factors

We identified the intersectional factors addressed within studies by documenting when studies reported the distinctive effect of patient- and clinician-level interventions on populations that are characterized by marginalized social factors (such as gender, LGBTQIA+ status, disability status, geographic location [rural vs. urban]),[18] in addition to race and ethnicity. Our included studies reported no important information on intersectional factors.

Outcomes

We classified the included studies according to the authors' reported outcomes. In creating the outcome categories, we considered the practicality for researchers, research funding agencies, health professionals, managers, and policymakers. Table 1 provides information on the outcome categories used.

Table 1. Outcome categories

Outcome category	Definition and Example outcomes
Clinical Outcomes	Change in symptoms, overall health, ability to function, quality of life and survival outcomes that result from giving care to patients. Example: Disease specific morbidity and mortality, blood pressure control, blood sugar control
Process of care	Execution and compliance with recommended best patient care practice. Example: Turnaround time, physician implementation of specific recommendation
Care utilization	How much healthcare people use, the type of healthcare and the timing of that care. Example: Uptake of services, completing screening, primary care clinic visits, inpatient hospitalizations, emergency department visits

Equity of service	Promotion of health for all individuals by adapting services to eliminate disparities in the delivery of services. Example: Treatment completion assessed between a minority racial group (such as African American/Black group) and non-minority racial group (such as White group).
Patient experience of care	Individual patient experience of how healthcare intervention works for them. Example: Patient satisfaction, patient-reported measures of health care access and quality, acceptability (such as confidence in using information given in an intervention)
Multiple outcomes	No one primary outcome was identified, or specifically stated that more than one outcome was a primary outcome. Example: Clinical outcome (such as blood pressure control) and care utilization outcomes (such as primary care clinic visits) reported together in a study with no specifically stated primary outcome.

Included studies commonly reported clinical and process of care outcomes. Twenty-seven percent (29/107) reported clinical outcomes only, and forty-eight percent (51/107) reported process of care outcomes only. Studies reported limited information on patient experience of care[36, 67, 128] and equity of service.[108] (Figure 8)

Figure 8. Number of studies by outcome type
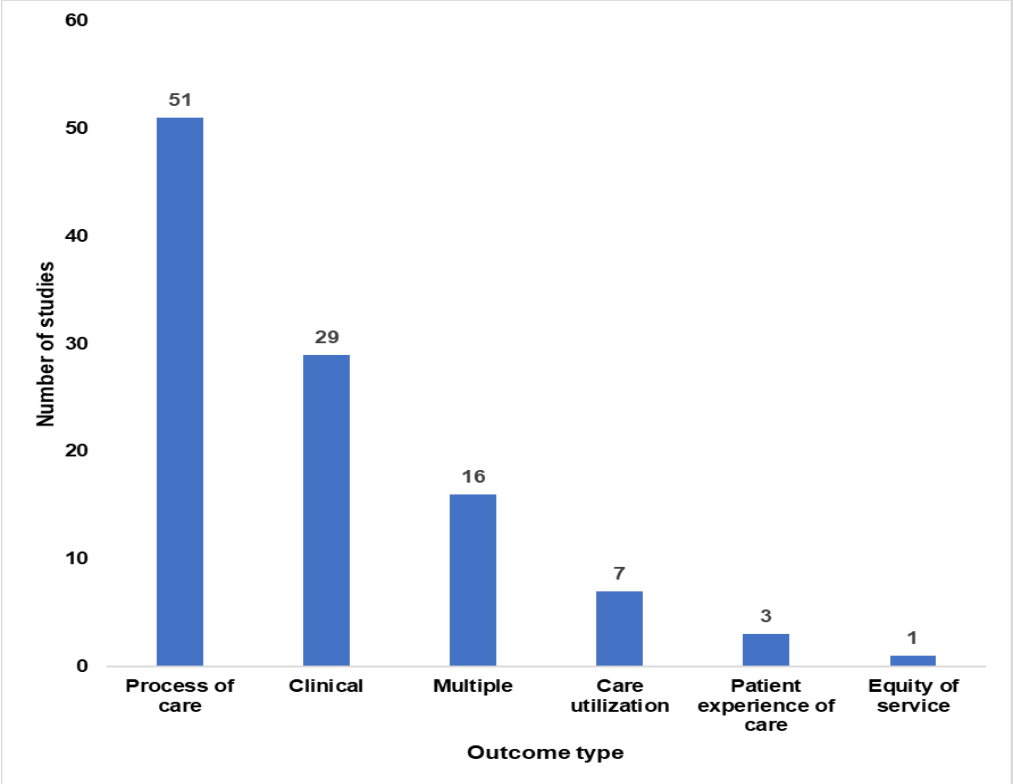
Links Between Public Health and Healthcare Organizations

Most of the studies had unclear information regarding if the interventions had connections to or partnerships with healthcare organizations in which they were studied, or if they had connections with the public health system at the time of the research.

Harms or Adverse Events

One of a chronic pain self-management educational program identified falls as an adverse event that occurred during usual activities outside the self-management program; however, authors noted that patients may have been more active than usual due to the influence of the program.[61] No other study reported harms or adverse events of interventions (such as unintended negative consequences, including misallocation of effort, decreased patient satisfaction, stigma, etc.). Similarly, we found no additional information on harms or adverse events of patient-level and/or clinician-level interventions in the gray literature or in discussions with Key Informants.

Applicability and Sustainability of Interventions

In this brief, applicability is defined as the extent to which the intervention could be implemented in a setting other than the one where it was researched.[135] Most of the studies were randomized controlled trials, which imply work and control processes not reflective of typical activities for a healthcare provider; therefore, applicability to real-world settings is uncertain. None of the included studies reported pragmatic information on the applicability of patient- and clinician-level interventions. Sustainability is defined in this brief as the continued use of program components and activities for ongoing achievement of desirable program and population outcomes.[136] Included studies did not address sustainability of patient- and clinician-level interventions.

Information From Key Informant Discussion

Several of our Key Informants mentioned finance/funding as the biggest barrier to sustaining patient- and clinician-level interventions. In addition, some Key Informants highlighted that it is challenging for clinicians to divide their attention across so many clinical areas (such as hypertension, HIV, and asthma) where disparities are present. Further, clinician motivation can be reduced if intervention impacts are so diffuse that overall improvement is difficult to observe. On the other hand, each specific intervention for a specific population with a specific health condition (such as patient navigation for HIV positive men who have sex with men) may amount to only a small improvement in the larger picture of disparities. Key Informants also noted that sustainability is threatened by the limited bandwidth for clinicians to do the extra work of carrying out the interventions. Finally, Key Informants said that no-cost local resources and community coalition building were crucial to sustainable interventions.

Study Funding Information

The biggest funder of the included studies was government (59%, 63/107), followed by multiple funding sources (12%), foundations (11%), academic (5.6%), and non-profit (5.6%). The source of funding was not reported in (6.5%, 7/107) of our included studies.

Evidence Map – Bubble plots

After examining the descriptive characteristics of our included studies above, we constructed the bubble plots in the sections below to display the relationship between three—dimensions of study characteristics[26] In our included studies, thus providing richer information that may be useful for researchers, research funding agencies, health professionals, managers, and

policymakers. We grouped bubbled plots results by intervention type and intervention target level, in relation to race/ethnic group, chronic conditions and reported effect.

Figure 9 shows a bubble plot by intervention type across targeted chronic conditions. In this plot, each bubble represents one study, and the size of the bubble represents the study sample size for the targeted chronic condition and the intervention type. The color of the bubble represents the reported effect of the intervention as presented in the literature. We did not perform further statistical analysis on the effectiveness information presented by the studies. The most common types of intervention (targeted at nearly all chronic conditions) were self-management support, prevention and lifestyle support, and patient navigation interventions. Overall, the effects of interventions were nearly equally distributed across categories of effects (i.e., positive effect, no effect, and mixed effect). Positive effects were mostly observed for patient navigation interventions targeted at cancer. No effects were mostly reported for patient education interventions targeted at diabetes. Reports of no effects were observed for all interventions except electronic health record (EHR)-based interventions. Mixed effects were mostly reported for self-management support interventions targeted at cancer. Mixed results were also observed for most interventions, except EHR-based interventions, m-Health single component, and transition of care.

Figure 9. Type of intervention by chronic condition by direction of effects

Abbreviation: CC=chronic condition; HIV=infection with human immunodeficiency virus

*Note: Each bubble represents one study. Bubble size reflects the participant sample size. Smaller bubbles indicate smaller sample sizes and larger bubbles indicate larger sample sizes. The color of the bubble represents the effect of the interventions.

For direction of effect, we classified studies as positive where all reported findings aligned in the positive direction of effect; no effect where studies reported negligible effect; and mixed where reported findings were not all aligned in the same direction of effect. None of the studies had negative effect (i.e., where reported findings were all aligned in the negative direction of effect); therefore, we do not provide that category in this brief.

Figure 10 is the bubble plot by intervention target level across targeted chronic conditions. In this plot, each bubble represents one study, and the size of the bubble represents the study sample size for the targeted chronic condition and the target level of intervention. The color of the bubble represents the reported effect of the level of interventions as presented in the literature. We did not perform further statistical analysis on the effectiveness information presented in the literature. No intervention specifically targeted clinicians. Most of the interventions were patient level interventions that targeted cancer, followed by diabetes and then HIV. Overall, the effects of interventions were nearly equally distributed across categories of effects (i.e., positive effect, no effect, and mixed effect). Patient level interventions targeted at most chronic conditions showed positive effects except for asthma. Patient plus clinician level interventions also showed positive effects, particularly the ones targeted at cancer. In addition, patient level interventions showed no effect across any chronic condition except mental health. Relatively fewer studies reported no effect for patient plus clinician level interventions across any chronic condition. Further, mixed findings were reported for patient level interventions targeted at most chronic conditions except mental health, multiple chronic conditions, and "other chronic conditions," as well as a patient plus clinician level interventions targeted at asthma.

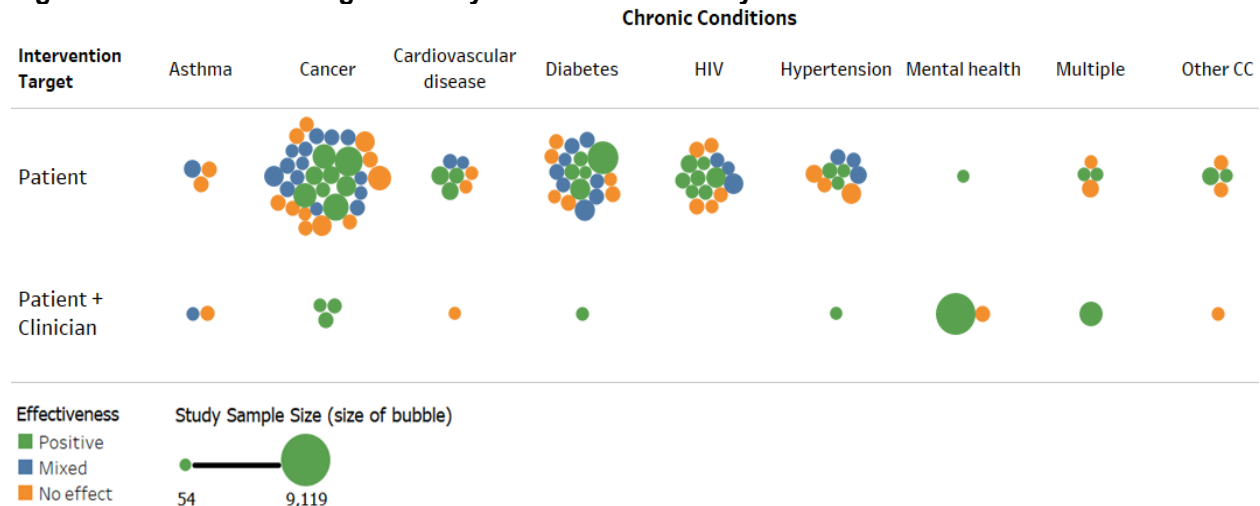**Figure 10. Intervention target level by chronic condition by direction of effect**

Abbreviation: CC=chronic condition; HIV=infection with human immunodeficiency virus

*Note: Each bubble represents one study. Bubble size reflects the participant sample size. Smaller bubbles indicate smaller sample sizes and larger bubbles indicate larger sample sizes. The color of the bubble represents the effect of the interventions. For direction of effect, we classified studies as positive where all reported findings aligned in the positive direction of effect; no effect where studies reported negligible effect; and mixed where reported findings were not all aligned in the same direction of effect. None of the studies had negative effect (i.e., where reported findings were all aligned in the negative direction of effect); therefore, we do not provide that category in this brief.

Figure 11 is the bubble plot by intervention type across race/ethnic groups. In this plot, each bubble represents one study, and the size of the bubble represents the study sample size for the race/ethnic group and the intervention type. The color of the bubble represents the reported effect of the interventions as presented in the literature. We did not perform further statistical analysis

on the effectiveness information presented in the literature. The most common type of intervention targeted at all reported race/ethnic groups were patient education, patient navigation, and prevention and lifestyle support interventions. Overall, the effects of interventions were nearly equally distributed across categories of effects (i.e., positive effect, no effect, and mixed effect). Positive effects were mostly observed for patient navigation interventions targeted at "multiple race/ethnic groups," m-Health single component targeted at Hispanic/Latino people and "multiple race/ethnic groups," and electronic health record (EHR)-based interventions targeted at "multiple race/ethnic groups." No effects were mostly reported for self-management support interventions targeted at African American/Blacks and "multiple race/ethnic groups". Mixed effects were mostly reported for prevention and lifestyle support interventions targeted at "multiple race/ethnic groups. M-Health single component and electronic health record (EHR)-based interventions" were the only interventions with no reports of no effects or mixed effects.

Figure 11. Type of intervention, by race/ethnicity group, by direction of effect
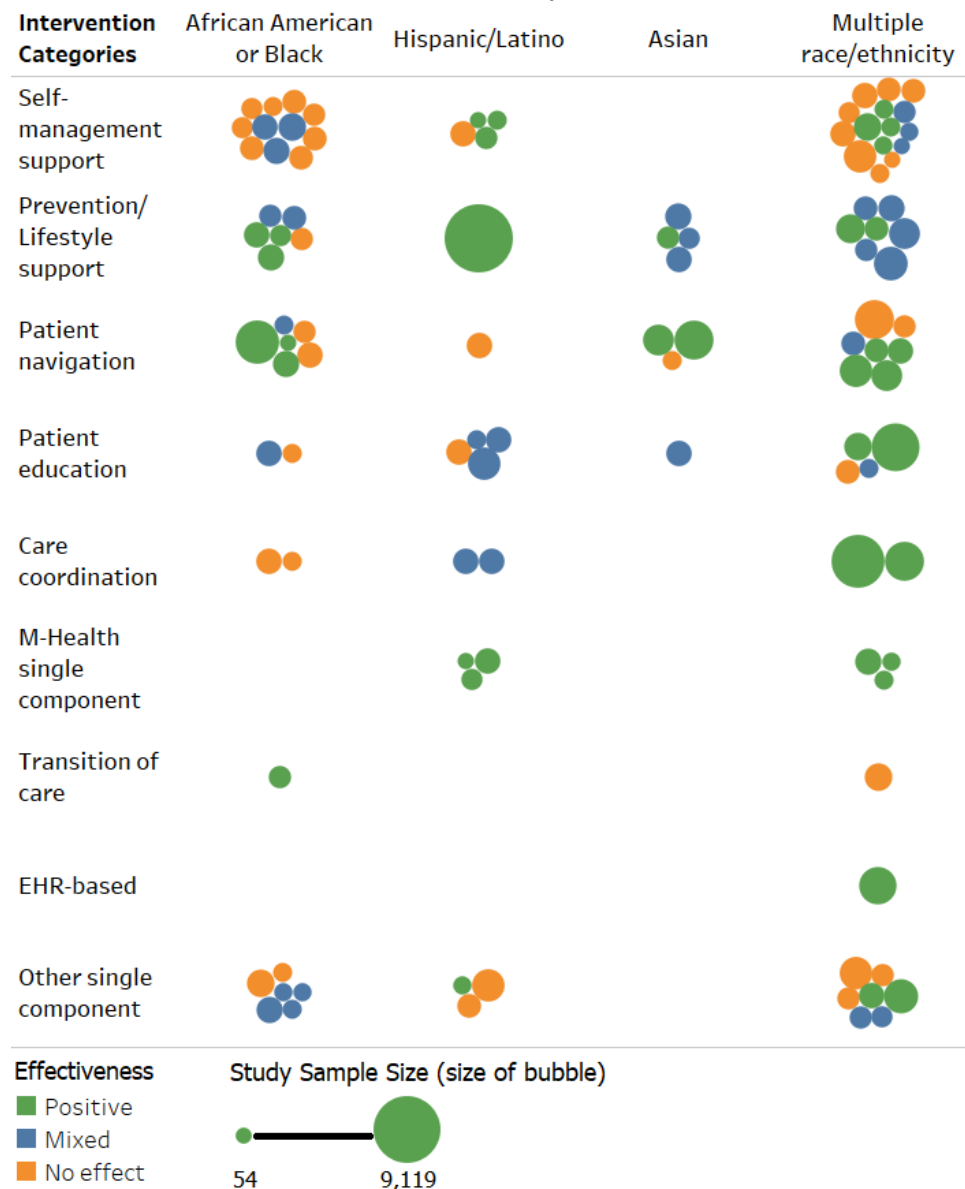
Abbreviation: EHR=Electronic Health Record

*Note: Each bubble represents one study. Bubble size reflects the participant sample size. Smaller bubbles indicate smaller sample sizes and larger bubbles indicate larger sample sizes. The color of the bubble represents the effect of the interventions. For direction of effect, we classified studies as positive where all reported findings aligned in the positive direction of effect; no effect where studies reported negligible effect; and mixed where reported findings were not all aligned in the same direction of effect. None of the studies had negative effect (i.e., where reported findings were all aligned in the negative direction of effect); therefore, we do not provide that category in this brief.

The race/ethnicity groups represent studies that comprise a single racial or ethnic group, and the multiple race/ethnicity group represents studies that comprise more than one racial or ethnic group.

Figure 12 is the bubble plot by intervention target level across racial/ethnic groups. In this plot, each bubble represents one study, and the size of the bubble represents the study sample size for the race/ethnic group and the target level of intervention. The color of the bubble represents the reported effect of the level of interventions as presented in the literature. We did not perform any further statistical analysis on the effectiveness information presented in the literature.

No intervention specifically targeted clinicians. The majority of interventions were patient-level interventions that targeted all race/ethnic groups, particularly multiple race/ethnic groups and African American/Blacks. Patient- plus clinician-level interventions targeted all race/ethnic groups except Asian people. Overall, the effects of interventions were nearly equally distributed across categories of effects (i.e., positive effect, no effect, and mixed effect). Positive effects were reported for patient level interventions, particularly the ones targeted at "multiple race/ethnic groups." Provider- plus patient- level interventions also showed positive effects, particularly interventions targeted at Hispanic people. In addition, each race/ethnic group included patient-level interventions reporting no effect. Relatively fewer studies reported no effect for patient level interventions targeted at Asian people, and patient plus clinician level interventions across any race/ethnic group. Further, each race/ethnic group included patient-level interventions reporting mixed effect. Mixed effect was also reported for patient plus clinician level interventions targeted at Hispanic/Latino people.

Figure 12. Intervention target level, by race/ethnicity group, by direction of effect
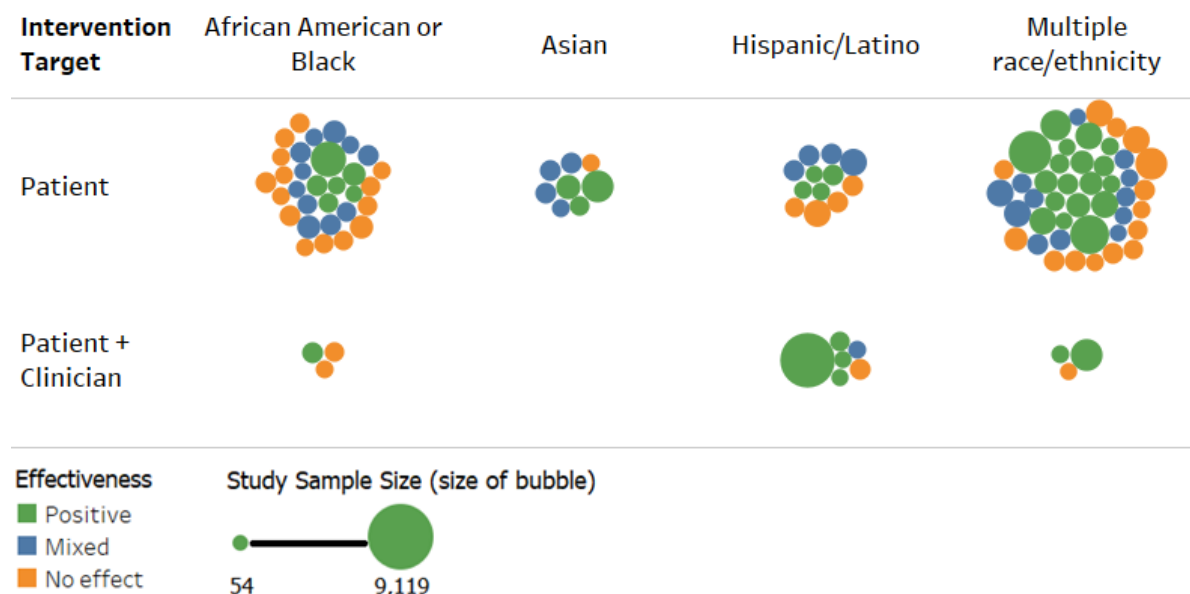

*Note: Each bubble represents one study. Bubble size reflects the participant sample size. Smaller bubbles indicate smaller sample sizes and larger bubbles indicate larger sample sizes. The color of the bubble represents the effect of the interventions. For direction of effect, we classified studies as positive where all reported findings aligned in the positive direction of effect; no effect where studies reported negligible effect; and mixed where reported findings were not all aligned in the same direction of effect. None of the studies had negative effect (i.e., where reported findings were all aligned in the negative direction of effect); therefore, we do not provide that category in this brief.

The race/ethnicity groups represent studies that comprise a single racial or ethnic group, and the multiple race/ethnicity group represents studies that comprise more than one racial or ethnic group.

Additional Information on Selected Interventions

The majority of included studies examined patient-level interventions—the most common types of interventions were self-management support, prevention/lifestyle support, and patient navigation interventions. Below, we present focused bubble plots for studies of these interventions in relation to race/ethnic group, targeted chronic condition, and reported effects. Further, we present narrative summaries of selected interventions within the bubble plots, based on the highest number of studies in relation to a targeted chronic condition and across all race/ethnic groups, with the goal of showing how diverse and multi-faceted they were, and to capture the considerable variety of terms used in the literature to describe the interventions.

Figure 13 shows self-management support interventions bubble plot by race/ethnic group, targeted chronic conditions, and reported effects. In this plot, each bubble represents one study, and the size of the bubble represents the study sample size for the race/ethnic group and the targeted chronic condition. The color of the bubble represents the reported effect of the intervention as presented in the literature. We did not perform further statistical analysis on the effectiveness information presented by the studies.

The highest number of self-management studies (7 studies) targeted diabetes across all race/ethnic groups.[42, 44, 47, 49-51, 55] Five out of these studies reported no effects,[42, 44, 47, 51, 55] one study reported positive effect,[50] and mixed effect,[49] respectively.

The interventions were distinct and included: weekly lifestyle and disease education by telephone plus patient activation and counseling on communicating with clinicians targeting

African Americans, led by two full-time masters-level health educators;[42] group sessions targeting nutrition education, physical activity, self-monitoring of blood glucose, led by a registered dietician, and social support delivered by peer supporters for urban low-income African Americans;[47] two interventions used m-Health peer support weekly calls and texts to plan and manage behavior goals for African Americans;[44, 55] community health worker home visits to low-income patients of multiple races to set health goals and behavioral self-management plans;[51] daily texts and weekly automated calls to patients from multiple racial groups delivered by trained research assistants to address patients' self-identified barriers to adherence along with medication reminders;[49] biweekly health coaching phone calls designed to assist Latino patients with diabetes self-management and in-person visits delivered by a health coach specially trained in methods of effective communication in Spanish using sociolinguistic strategies with chronically ill patients.[50]

Figure 13. Self-management support intervention by race/ethnicity group, by chronic condition, by direction of effects

*Note: Each bubble represents one study. Bubble size reflects the participant sample size. Smaller bubbles indicate smaller sample sizes and larger bubbles indicate larger sample sizes. The color of the bubble represents the effect of the interventions. For direction of effect, we classified studies as positive where all reported findings aligned in the positive direction of effect; no effect where studies reported negligible effect; and mixed where reported findings were not all aligned in the same direction of effect. None of the studies had negative effect (i.e., where reported findings were all aligned in the negative direction of effect); therefore, we do not provide that category in this brief.

The race/ethnicity groups represent studies that comprise a single racial or ethnic group, and the multiple race/ethnicity group represents studies that comprise more than one racial or ethnic group.
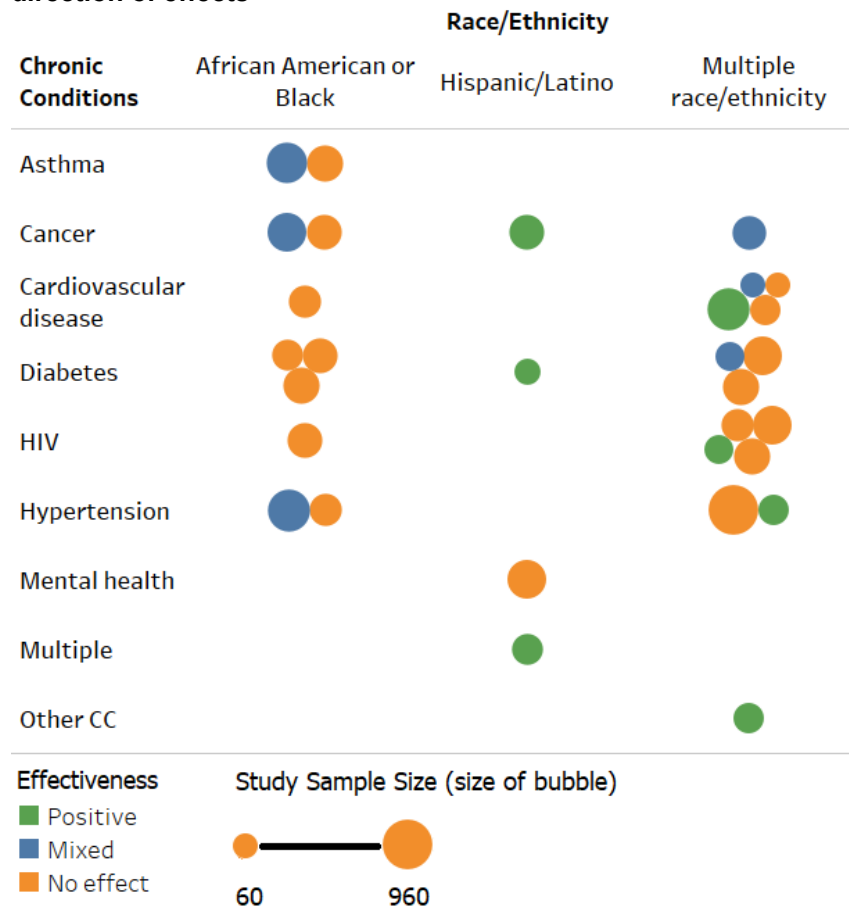
Figure 14 shows prevention/lifestyle support bubble plot by race/ethnic group, targeted chronic conditions, and reported effects. In this plot, each bubble represents one study, and the size of the bubble represents the study sample size for the race/ethnic group and the targeted chronic condition. The color of the bubble represents the reported effect of the intervention as presented in the literature. We did not perform further statistical analysis on the effectiveness information presented by the studies. The highest number of prevention/lifestyle support studies (5 studies) targeted diabetes across all race/ethnic groups.[28, 67, 71, 72, 77] Almost all of these studies reported mixed effects,[28, 67, 71, 72] except one which reported a positive effect.[77] The interventions were distinct and included: phone-based, trained same race community health worker delivered lifestyle intervention aimed at making small changes in diet and activity for African American women with type 2 diabetes[28]; culturally tailored, trained community health worker intervention for diabetes prevention for a South Asian Sikh community, involving education sessions in community settings;[71] culturally tailored, same race and culture, trained community health educators delivered lifestyle diabetes prevention interventions involving an education curriculum based on Buddhist concepts of health and disease with or without medication therapy management for Cambodian Americans with depression and elevated risk for diabetes, held in community and clinic settings, with monetary incentives;[77] language adapted, phone-based, trained lifestyle coaches delivered, diabetes prevention lifestyle program for gestational diabetes mellitus aimed at multiple races, with monetary incentives;[67] and language adapted, same socioeconomic background and health problems peer-led, diabetes prevention workshops on weight and diabetes risk, based in community settings, targeted at pre-diabetic individuals of multiple races.[72]

Figure 14. Prevention/lifestyle support by race/ethnicity group, by chronic condition, by direction of effects
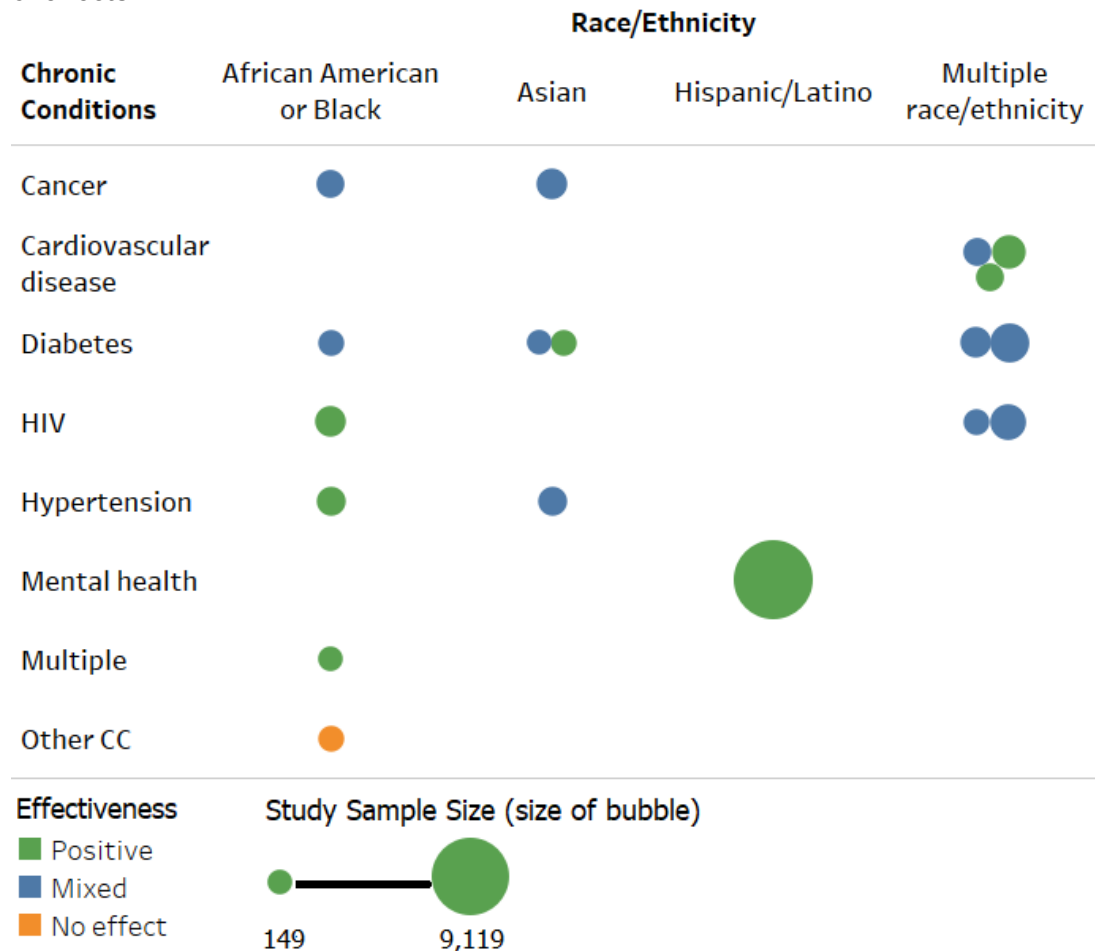

*Note: Each bubble represents one study. Bubble size reflects the participant sample size. Smaller bubbles indicate smaller sample sizes and larger bubbles indicate larger sample sizes. The color of the bubble represents the effect of the interventions. For direction of effect, we classified studies as positive where all reported findings aligned in the positive direction of effect; no effect where studies reported negligible effect; and mixed where reported findings were not all aligned in the same direction of effect. None of the studies had negative effect (i.e., where reported findings were all aligned in the negative direction of effect); therefore, we do not provide that category in this brief.

The race/ethnicity groups represent studies that comprise a single racial or ethnic group, and the multiple race/ethnicity group represents studies that comprise more than one racial or ethnic group.

Figure 15 shows patient navigation interventions bubble plot by race/ethnic group, targeted chronic conditions, and reported effects. In this plot, each bubble represents one study, and the size of the bubble represents the study sample size for the race/ethnic group and the targeted chronic condition. The color of the bubble represents the reported effect of the intervention as presented in the literature. We did not perform further statistical analysis on the effectiveness information presented by the studies.

The highest number of patient navigation intervention studies (9 studies) targeted cancer across all race/ethnic groups.[81, 85-87, 89, 91-94] Five out of these studies reported positive effects.[85, 87, 89, 91, 92] One study reported mixed effect,[81] and no effect was reported in three studies.[86, 93, 94] One study targeting Korean American church-based organizations examined an intervention including interactive group education delivered by bilingual community health educators, patient

navigation that included language translation, appointment scheduling, transportation, provision of information related to the health care system, low-cost health services, and free HBV screening events provided by community health providers, and the engagement of health care providers, church leadership and church members in the medical field.[89] Another study examined a culturally-relevant education program conducted by bilingual community health educators to address individual beliefs and expectations regarding cervical cancer screening combined with provision of navigation services (help in arranging transportation, scheduling medical appointments, arranging language interpretation or translation services) for Korean American women recruited from churches.[87] One study examined a patient navigator program that paired Vietnamese-American participants with abnormal mammograms with a Vietnamese patient navigator to provide emotional support, education, translation, and assistance with medical bills and doctor's appointments.[94] One study examined a colonoscopy-promoting intervention for low-income Latino patients who were randomized to patient navigation, patient navigation plus standard CDC print materials, or patient navigation plus culturally-targeted print materials addressing four culture-based factors associated with cancer screening: acculturation, medical mistrust, fatalism, and ethnic identity.[86] In another study, individualized telephonic education for low-income adults, primarily Hispanic and non-Hispanic Blacks, provided by two bilingual lay navigators and support to reduce patient barriers and facilitate colonoscopy completion by assessing for barriers, informing and educating patients about the colonoscopy procedure and bowel preparation, addressing emotional concerns about the procedure, making appointments, and arranging for escorts and transportation services.[85] A combined patient decision aid and patient navigation intervention was examined in one study of Latino, Black participants, who viewed a CRC screening decision aid promoted screening and presented colonoscopy and fecal occult blood testing as screening options, in English or Spanish immediately before their clinician encounter. After the clinician encounter, intervention patients received support for screening completion from a bilingual patient navigator based on individual patient factors, including preferred test strategy, screening barriers, and stage of readiness for screening.[92] One study examined navigation services for primarily African American participants focused on identification of barriers to mammography screening and intervention via a shared decision-making process provided by study staff, including a patient teach back method where navigators encouraged patients to report their understanding of the information exchanged and ask questions about their appointments, care options, and selected solutions.[91] One study examined an initiative which included education about breast health and the importance of screening mammography, accompanied by bilingual (English and Spanish) breast oncology staff patient navigators to increase screening for breast cancer in high-risk minority women of multiple races in lower socioeconomic brackets who are medically underserved.[81] Finally, one study examined an outreach intervention of low-socioeconomic patients of multiple races with documented or suspected cirrhosis containing three arms: 1) opportunistic, visit-based screening for Cirrhosis for Hepatocellular Carcinoma, 2) mailed outreach invitations for screening ultrasound, or 3) mailed screening outreach plus telephonic patient navigation conducted by trained research staff in English or Spanish exploring potential barriers and using motivational education to encourage screening participation, along with appointment reminders, to address any concerns, and reschedule the appointment if needed.[93]

Figure 15. Patient navigation interventions by race/ethnicity group, by chronic condition, by direction of effects

*Note: Each bubble represents one study. Bubble size reflects the participant sample size. Smaller bubbles indicate smaller sample sizes and larger bubbles indicate larger sample sizes. The color of the bubble represents the effect of the interventions. For direction of effect, we classified studies as positive where all reported findings aligned in the positive direction of effect; no effect where studies reported negligible effect; and mixed where reported findings were not all aligned in the same direction of effect. None of the studies had negative effect (i.e., where reported findings were all aligned in the negative direction of effect); therefore, we do not provide that category in this brief.

The race/ethnicity groups represent studies that comprise a single racial or ethnic group, and the multiple race/ethnicity group represents studies that comprise more than one racial or ethnic group.

Summary and Implications

This technical brief was designed to present an evidence map by means of a systematic search of the literature on patient- and clinician-level interventions to address racial/ethnic disparities in health and healthcare in the treatment of common chronic conditions in adults. The purpose was to inform researchers and funding agencies about the gaps in knowledge and/or research needs for future systematic reviews, as well as to identify potentially effective interventions that might be considered for implementation by healthcare system leaders and policy makers. This evidence map focuses on 107 studies, published in 112 reports since 2017. The studies were conducted in several states, demonstrating the widespread national importance of this topic.

To make this summary and implications section as useful as possible, we present our observations under subheadings related to various study characteristics in this literature set.

Study Funding

Unsurprisingly, a large number of the included studies were driven by research (academic funded) or grants (government-funded), with the remaining studies funded by other funding bodies (e.g., foundations, other non-profit organizations). This indicates strong support from grant funders for this research, as well as a broad interest from other entities.

Links Between Public Health and Healthcare Providers

Most studies seemed not to consider the potential end user (such as health professionals, managers, and policymakers), since it was often unclear whether strategies/interventions had connections to or partnerships with healthcare providers in which they were studied, or if they had connections with the public health system at the time of the research. Federally Qualified Health Centers are a good example of a setting that straddles the line as a government-supported approach to providing health care to underserved populations. Yet, as crucibles of care that demand making the most out of the least resources, Federally Qualified Health Centers may offer ideas for healthcare providers acting as Accountable Care Organizations and seeking to improve health at the community level.

Ambiguity of Intervention Terms and Categories

As noted in the Methods section, the volume and heterogeneity of the evidence necessitated that we create groupings for study characteristics, including intervention types, outcomes, and reported effects. We grouped studies that did not use easily labeled interventions into relatively similar categories. For study designs and study settings, we grouped by the exact information reported by the study authors; however, these categories do potentially overlap. For example, a quality improvement study could be a pre-post study, and Federally Qualified Health Centers may be grouped as community based and/or public health hospital based.

Additionally, included studies revealed an ambiguity of intervention terms reported by the authors, such as patient navigation, and self-management. These terms appear not to have reached a stage of operationalization that results in clear, distinct, and mutually exclusive definitions. Instead, they are under-specified, and sometimes used interchangeably, yet written about in a manner that implies they have specific meaning. On the other hand, locally developed

interventions within individual healthcare systems may vary widely in composition and process if the interventions are tailored to address the locally experienced health disparities.

We acknowledge that our categorization scheme relies on broad definitions, that our assignments may be imprecise, and that other researchers may arrive at different categorizations based on their chosen theoretical or conceptual frameworks. A more in-depth approach to describing the nature of the reported interventions and the implications for our categorization would have been outside of the scope of an evidence map.

Interventions Characteristics and Reported Effect

The majority of interventions were single- level interventions at the patient-level targeted at cancer, and mostly multiple race/ethnic group. The most common types of patient-level interventions targeted at almost all chronic conditions were self-management support, prevention/lifestyle support, and patient navigation interventions. Self-management support, and prevention/lifestyle support studies mostly targeted diabetes, and patient navigation mostly targeted cancer across all race/ethnic groups. The virtually equal distribution of report overall effectiveness of interventions across categories of effects (i.e., positive effect, no effect, and mixed effect), indicates a notable uncertain of the evidence on the current patient-level and clinician-level interventions.

Patient level interventions seemed not to consider the context in which health and healthcare disparities occur in healthcare settings. Instead, they largely focused on interventions that treat the patient as the source of solutions, with little consideration of other social determinants of health (as shown in our conceptual framework). In addition, high rates of patient-level strategies in the literature suggests the attention should be on treating patients as partners in the improvement process thus truly understanding the patient experience, and how this might also inform shared decision making to create the ground for more effective responses by the healthcare system.

Our evidence map reveals a significant absence of interventions targeted at clinicians. Perhaps this is because most studies of this kind (such as physician/patient concordance and cultural competence) did not report on direct effects of the interventions on health and healthcare outcomes, and were therefore outside the scope of this brief. As reported in a commentary on racial/ethnic/gender concordance and patient outcomes, concordance is largely beneficial, and interventions aimed at improving physician behaviors relative to cultural humility and structural competency remain necessary as a strategy to address disparities in health and healthcare.[137] On the other hand, this dearth of clinician level interventions may indicate that interventions to reduce disparities are not being targeted at clinicians. This would point to a concerning trend toward placing the ultimate responsibility for reducing disparities in health and healthcare on patients themselves.

Intended Populations

A notably high proportion of included studies enrolled only African American/Black participants, indicating a high level of interest in this group. Meanwhile, research specifically focused on other single racial/ethnic groups was glaringly lacking, especially for American Indian/Alaska Native people. The limited research attention to Asian populations also highlights the challenges of meeting the health needs of the heterogeneous race/ethnic groups that comprise the Asian demographic. These groups included Koreans, Cambodians, Chinese, Indians, Vietnamese, and Hmong people in our literature set.

Intersectional Factors

Included studies did not appear to consider intersectional factors. This made it difficult to determine the effects of patient- or clinician-level interventions on populations characterized by marginalized social factors in addition to race and ethnicity.

Community Involvement and Cultural Adaptation

Our evidence map found few interventions with community involvement (either partnership or collaboration) or cultural adaptation. Such limited incorporation and buy-in from the affected groups may speak to long-standing limitations of current interventions and clinical practice.

Outcomes Characteristics

Notably, we found studies often treated race as a descriptor rather than a major variable of interest in health services research. For example, most studies did not report health outcomes by race. Almost none of the interventions in our included studies reported any explicit health equity approach (reported changes in equity of outcomes/disparities outcomes), focusing instead on improving health outcomes in their exclusively or majority sampled racial minority participants. This creates uncertainty around any reported effects of the interventions on health disparities. Only one of our included studies[108] reported changes in equity of outcomes. Further, we found few studies that reported patient experience of care. This has important implications for patient voice and feedback.

Applicability and Sustainability

Included studies did not adequately consider sustainability and applicability of interventions. This oversight may have stemmed from care delivery being treated as a "business model," and a lack of community informed/involved research. Real-world applicability will require studies that report the sustainability and applicability of interventions through pragmatic trial approaches.

Harms or Adverse Events

Virtually all included studies did not address harms or adverse events of the interventions. This gap in the literature significantly limits any ability to identify under what conditions an intervention may carry unintended consequences.

Evidence Reviews on Patient and Clinician Level Interventions

Our scope did not include an analysis of existing evidence reviews. However, to further assess the scale of the literature, present the topics/scope of the existing reviews and avoid unnecessary duplication for future reviews, we provide summary information on current published evidence reviews on patient- and clinician-level strategies/interventions. Appendix E provides detail on the 45 systematic reviews identified. Overall, most of the literature on patient- and clinician-level strategies has focused on strategies related to patient navigation, clinician–patient racial and/or ethnic concordance, decision aids, self-management, patient education, prevention/lifestyle interventions, care coordination, and m-Health (text or app-based approaches) to improve health and healthcare outcomes in the treatment/prevention of chronic

conditions (such as cancer, cardiovascular disease, diabetes, HIV, and mental health) in African American/Black, Hispanic, and Asian adults.

Interventions that target racial and ethnic health and healthcare disparities are still in preliminary testing phases. Much work remains to move them from research to practice. Currently, the potential end-user is unclear; effectiveness is in question; intersectional factors are not addressed; equity and patient experience outcomes are nearly absent; sustainability, applicability, and harms are not identified; and American Indian/Alaskan Native groups are absent. In combination with the ambiguity of intervention terms and labels, all of this underscores an ever-greater need for outlining a comprehensive research agenda. The next section highlights possible areas for future research.

Next Steps

Our evidence map highlighted several areas for future research needs, especially patient and clinician level strategies/interventions where the researchers consider the end users and specify the connections or partnership with healthcare systems. Below we describe the specific areas in need of attention (in no particular order):

- Future systematic reviews will be needed to investigate more fully what is known about patient and clinician level interventions. This investigation will need to expend resources considering how to capture the varied intervention components and groupings.
- Focused research is needed on American Indian/Alaska Native groups, given the fact that no information was captured for this group in our evidence map.
- More research needs to focus on clinician level interventions (such as racial/gender concordance, and cultural humility), with reports on the direct effect on health and healthcare outcomes.
- Focused research is needed on the impact of intersectional factors on the effect of interventions to address racial and ethnic disparities in health and healthcare.
- Studies of patient and clinician level strategies/interventions need to empirically consider sustainability and applicability.
- Studies need to incorporate direct measurement of equity/health disparity and patient experience outcomes.
- More studies are needed that assess the impact of community involvement and cultural adaptation on patient level and clinician level interventions.

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