

Terminology and Definitions of Racial Health Equity in Prominent Health Websites: A Systematic Review

Mahederemariam B. Dagne, Elizabeth Terhune, Miriam Barsoum, Ana Beatriz Pizarro, Anita Rizvi, Damian K. Francis, Meera Viswanathan, Nila Sathe, Vivian Welch, Tiffany Duque, Robert W. Turner II, Tamara A. Baker, Patricia C. Heyn

Submitted to: Journal of Medical Internet Research
on: July 30, 2024

Disclaimer: © The authors. All rights reserved. This is a privileged document currently under peer-review/community review. Authors have provided JMIR Publications with an exclusive license to publish this preprint on its website for review purposes only. While the final peer-reviewed paper may be licensed under a CC BY license on publication, at this stage authors and publisher expressly prohibit redistribution of this draft paper other than for review purposes.

Table of Contents

Original Manuscript.....	5
Supplementary Files.....	32
Figures	33
Figure 1.....	34
Figure 2.....	35
Figure 3.....	36
Figure 4.....	37
Figure 5.....	38
Figure 6.....	39
Multimedia Appendixes	40
Multimedia Appendix 1.....	41
Multimedia Appendix 2.....	41
Multimedia Appendix 3.....	41
Multimedia Appendix 4.....	41

Terminology and Definitions of Racial Health Equity in Prominent Health Websites: A Systematic Review

Mahederemariam B. Dagne¹ MSc; Elizabeth Terhune¹ MSc; Miriam Barsoum¹ BSc; Ana Beatriz Pizarro^{2,3} BSc; Anita Rizvi⁴ PhD; Damian K. Francis⁵ PhD; Meera Viswanathan⁶ PhD; Nila Sathe⁶ MA, MLiS; Vivian Welch^{7,8} PhD; Tiffany Duque³ MPH; Robert W. Turner II⁹ PhD; Tamara A. Baker¹⁰ PhD; Patricia C. Heyn¹ PhD, FGSA, FACRM

¹ Center for Optimal Aging Marymount University Arlington US

² Clinical Research Center Fundación Valle del Lili Cali CO

³ Cochrane Collaboration Central Executive Team London GB

⁴ School of Psychology University of Ottawa Ottawa CA

⁵ School of Health and Human Performance Georgia College and State University Milledgeville US

⁶ RTI International RTI-UNC US Cochrane Affiliate Durham US

⁷ Bruyere Research Institute Ottawa CA

⁸ School of epidemiology and public health University of Ottawa Ottawa CA

⁹ Department of Clinical Research and Leadership George Washington University Washington US

¹⁰ Department of Psychiatry University of North Carolina Chapel Hill US

Corresponding Author:

Patricia C. Heyn PhD, FGSA, FACRM

Center for Optimal Aging
Marymount University
1000 N Glebe Rd.
Arlington
US

Abstract

Background: The websites of prominent public health and healthcare organizations play pivotal roles in ensuring access to quality health information, including information guiding health equity. Several initiatives have been developed in the United States to promote equitable, fair, and inclusive health information and practices across prominent health websites. Currently, health disparities across racial groups are recognized as a critical public health problem. Simultaneously, the use of the term “racial health equity/equities” has been rising in academic literature. However, the definition and findability of “racial health equity/equities” information has not yet been evaluated in health websites. Thus, we utilized a systematic review approach to assess the findability and availability of racial health equity terminology and definitions across prominent health organization websites.

Objective: The objective of this study was to systematically evaluate the definitions and findability of “racial health equity/equities and related terms” on prominent health organizations’ websites.

Methods: We conducted a systematic review of websites from government agencies, professional organizations, and selected health care organizations with relevance to the United States healthcare system. Google and the US Digital Analytics program were used for initial searches. Definitions, terms, and accompanying citations for racial health equity terms, including “racial health inequity” or “racial health disparities,” were extracted from all websites. A findability tool was developed to evaluate the ease of finding the terms and definitions, with ratings ranging from “very easy” to “very difficult.” Additionally, we analyzed the themes and sentiments of the retrieved definitions.

Results: We analyzed 69 websites from prominent health organizations. Approximately half (31) of the websites lacked any definitions for racial health equity and related terms, and of the 38 that included definitions, most did not include citations. The definitions varied across websites, and most were rated as “very difficult” to find.

Conclusions: This study highlights the absence of a systematic, standardized, and accurate approach to organizing, defining, and presenting racial health equity information on prominent health websites. Specifically, there is a lack of consistent definitions for racial health equity and related terms across prominent health organization websites. Clinical Trial: N/A

(JMIR Preprints 30/07/2024:64868)

DOI: <https://doi.org/10.2196/preprints.64868>

Preprint Settings

1) Would you like to publish your submitted manuscript as preprint?

✓ **Please make my preprint PDF available to anyone at any time (recommended).**

Please make my preprint PDF available only to logged-in users; I understand that my title and abstract will remain visible to all users.

Only make the preprint title and abstract visible.

No, I do not wish to publish my submitted manuscript as a preprint.

2) If accepted for publication in a JMIR journal, would you like the PDF to be visible to the public?

✓ **Yes, please make my accepted manuscript PDF available to anyone at any time (Recommended).**

Yes, but please make my accepted manuscript PDF available only to logged-in users; I understand that the title and abstract will remain visible to all users.

Yes, but only make the title and abstract visible (see Important note, above). I understand that if I later pay to participate in <http://www.jmir.org>, I will be able to make my accepted manuscript PDF available to anyone.

No. Please do not make my accepted manuscript PDF available to anyone.

Original Manuscript

Original Paper

Mahederemariam B. Dagne¹, Elizabeth Terhune¹, Miriam Barsoum¹, Ana B. Pizarro^{2, 7}, Anita Rizvi³, Damian K. Francis⁴, Meera Viswanathan⁵, Nila Sathe⁵, Vivian Welch⁶, Tiffany Duque⁷, Robert W. Turner II⁸, Tamara A. Baker⁹, Patricia C. Heyn¹

¹ Center for Optimal Aging, Marymount University, Arlington, VA, USA

² Clinical Research Center, Fundación Valle del Lili, Cali, Colombia

³ School of Psychology, University of Ottawa, Ottawa, ON, Canada

⁴ School of Health and Human Performance, Georgia College and State University, Milledgeville, GA, USA

⁵ RTI International, RTI-UNC US Cochrane Affiliate, Durham, NC, USA

⁶ Bruyere Research Institute, Ottawa, Canada; and School of epidemiology and public health, University of Ottawa

⁷ Cochrane Collaboration, Central Executive Team, London, UK

⁸ Department of Clinical Research and Leadership, George Washington University, Washington, DC, USA

⁹ Department of Psychiatry, University of North Carolina, Chapel Hill, NC, USA

Corresponding author:

Patricia C. Heyn, PhD, FGSA, FACRM

Founding Director, Center for Optimal Aging

Marymount University

2807 N. Glebe Road

Arlington VA 22207

Office Phone: 703.284.3810

Patricia.Heyn@Marymount.edu

Terminology and Definitions of Racial Health Equity in Prominent Health Websites: A Systematic Review

Abstract

Background: The websites of prominent public health and healthcare organizations play pivotal roles in ensuring access to quality health information, including information guiding health equity. Several initiatives have been developed in the United States to promote equitable, fair, and inclusive health information and practices across prominent health websites. Currently, health disparities across racial groups are recognized as a critical public health problem. Simultaneously, the use of the term “racial health equity/equities” has been rising in academic literature. However, the definition and findability of “racial health equity/equities” information has not yet been evaluated in health websites. Thus, we utilized a systematic review approach to assess the findability and availability of racial health equity terminology and definitions across prominent health organization websites.

Objective: The objective of this study was to systematically evaluate the definitions and findability of “racial health equity/equities and related terms” on prominent health organizations’ websites.

Methods: We conducted a systematic review of websites from government agencies, professional organizations, and selected health care organizations with relevance to the United States healthcare system. Google and the US Digital Analytics program were used for initial searches. Definitions, terms, and accompanying citations for racial health equity terms, including “racial health inequity” or “racial health disparities,” were extracted from all websites. A findability tool was developed to evaluate the ease of finding the terms and definitions, with ratings ranging from “very easy” to “very difficult.” Additionally, we analyzed the themes and sentiments of the retrieved definitions.

Results: We analyzed 69 websites from prominent health organizations. Approximately half (31) of the websites lacked any definitions for racial health equity and related terms, and of the 38 that included definitions, most did not include citations. The definitions varied across websites, and most were rated as “very difficult” to find.

Conclusions: This study highlights the absence of a systematic, standardized, and accurate approach to organizing, defining, and presenting racial health equity information on prominent health websites. Specifically, there is a lack of consistent definitions for racial health equity and related terms across prominent health organization websites.

Keywords: health equity, race, online health information, definitions, websites, thematic analysis, sentiment analysis, racial health equity, public health websites

Running title: Defining Racial Health Equity in Prominent Health Websites

Introduction

Significant disparities in healthcare access ^{1,2}, health outcomes ², and health literacy ^{3,4} exist across racial and ethnic groups within the United States. Although racial health disparities have been discussed for decades, there has been renewed attention for improving the health of underserved populations in recent years, particularly in the wake of racial justice protests ⁵ and the Covid-19

pandemic, which disproportionately affected Black, Hispanic/Latino, and Indigenous populations ⁶. The recent call for advancing racial equity by the White House ^{7,8} has increased initiatives addressing inequities.

Subsequently, there has been a significant rise in the use of “health equity/equities” terminology across health websites ⁹ and academic literature ^{10, 11}. Public health and healthcare organizations such as the Center for Disease Control (CDC) and the American Public Health Association (APHA), use their websites to disseminate crucial health information ¹², including guidance on health equity practices ^{7,8}. As most adults in the United States report that internet searches are their first sources of health information ¹³, the ability to easily find health information online is critical for patients and their caretakers ¹⁴.

Ambiguous health equity definitions can create variability in understanding across disciplines, demographics, and contexts, leading to confusion and misinterpretation ^{15,16}. This ambiguity presents a challenge in formulating, monitoring, and evaluating equitable health policies and practices, particularly those addressing racial disparities. Therefore, establishing clear definitions on websites serves multiple crucial functions, including fostering shared comprehension, avoiding ambiguity, and facilitating the assessment of intervention efficacy ¹⁷.

Despite comprehensive reporting guidelines for health research in peer-reviewed journals ^{18,19}, no current widely accepted guidelines have been developed for websites of health institutions ^{20,21}. Even though the American Medical Association (AMA) developed guidelines for websites that provide medical and health information in the early 2000s ²¹, most organizations have their own standards and practices for displaying health information, including website design. Additionally, while there are tools for consumers to evaluate the accuracy and legitimacy of information presented on health websites, most do not address findability of the information ^{22,23}. Furthermore, most tools are designed to guide the end-user on how to evaluate websites ^{24,25}, placing a higher burden on the website user. This lack of comprehensive guidance results in significant variability in the reliability and accuracy of web-based health information, making it challenging for the public to identify credible sources ^{26, 27}. Therefore, it is essential that prominent health websites provide clear and easily findable information ²⁸⁻³⁰.

Thus, we use a systematic review approach to understand how prominent US and worldwide health organizations' websites adopt and display definitions and terms informing the public about racial health equity. For this study, *“prominent health organizations” are defined as reputable public health and healthcare organizations that are known to provide evidence-based health information to the public, have high website traffic, and promote public health as part of their mission.*

The Key Questions (KQs) for this study are:

KQ1: How easy is it to find definitions of racial health equity/equities and related terms on prominent health organization websites?

KQ2: How are racial health equity/equities and related terms included and defined on prominent health organization websites?

KQ3: What common definitions, terms, themes, sentiments, and citations related to racial health equity/equities and related terms will emerge from the identified health organization websites?

Methods

We employed a systematic review approach in accordance with guidelines established by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement to evaluate how prominent health organizations display, define, and use health- and racial health equity terminology within their websites^{31,32}.

Protocol registration

This study was part of a project titled “Centering Racial Health Equity in Evidence Syntheses” funded by the Robert Wood Johnson Foundation^{10,33}, intending to evaluate and provide recommendations for centering racial health equity within evidence syntheses³⁴. The protocol was reviewed and guided by an external steering committee composed of interest holders and is available through Open Science Framework (<https://osf.io/7pvzq>) and was published³⁵.

Inclusion/exclusion criteria

The scope of this study was to systematically evaluate how racial health equity and related terms are defined and displayed on prominent health organizations' websites^{12,36}. US-specific and global health websites (e.g. World Health Organization) were included, which included websites from federal health organizations, non-profit organizations, private foundations, associations, and professional societies. Included websites had to include public health as part of their mission, as determined from the “About” page. Websites that focused exclusively on one state or a particular geographic area were excluded (e.g. state health organizations, for-profit health organizations, universities, and hospitals). Websites from for-profit companies were also excluded (see Multimedia Appendix Table 1).

Website search

A Google search was first used to identify a list of websites for review using the search terms “public health organizations” and “health organizations in the US” from March until May 2023. The 51 organizations listed on Google were assessed and screened according to our inclusion criteria. Additionally, we screened the top 20 U.S. government health websites with the highest traffic (number of monthly visitors to a website) according to the US Government Google Analytics Digital Analytics Program³⁷ (Multimedia Appendix Figure 1). We also reviewed the 27 National Institutes of Health and the 16 Health and Human Services organizations. Finally, we reviewed 7 additional relevant health organizations' websites based on experts recommendations. A total of 121 websites were included for systematic synthesis.

Website selection

A website list was generated and two members of the study team (MBD plus ET or MB) reviewed the website homepage to determine final inclusion. Disagreements were resolved by discussion with a third reviewer (PH).

Search terms for definitions

A comprehensive list of terms representing racial health equity concepts were compiled for analysis. The terms included: health equity/equities, health inequity/inequities, health disparity/disparities, racial health equity/equities, racial health inequity/inequities and racial health disparity/disparities.

Data extraction

The data extracted included website demographics (website URL, country, and organization type), inclusion of key terms and word-for-word definitions of racial health equity terms and concepts, including citations used for the definitions. An Excel spreadsheet was used to store the data from all included websites. The data extraction process and tool was first tested for congruity between two independent reviewers. A second reviewer verified all extracted data.

Racial health equity and related terms' definitions findability assessment

Findability within a website is determined by the user ability to find specific information easily, which enhances the user experience and increases interaction with the website^{38, 39, 40}. As there were no existing website findability tools applicable to our research questions, we developed a project-specific findability tool for definitions. The findability tool was used to classify the ease of finding definitions for all terms identified for extraction in each website using a Likert scale⁴¹ of "very difficult/no definitions found," "somewhat difficult," "somewhat easy," or "very easy," through a stepwise approach (Figure 1).

In the stepwise approach, we assigned a score from 0 (very difficult/no definitions found) to 3 (easy) for each reviewed term on all websites. If the definition for the reviewed term was found on the website homepage, the findability for the definition was assigned as "very easy" with a score of 3 for the term. Following this initial review, a search for each term was performed by utilizing the search bar and opening and reviewing the intra-site links of the resulting pages. If a definition was retrieved, findability was assigned as "somewhat easy" with a score of 2. Third, we reviewed any reports that included the terms from the previous search result. We then documented definitions. If a definition was located at this stage, the findability was designated as "somewhat difficult" with a score of 1. Finally, a findability designation of "very difficult /no definitions" with a score of 0 was assigned if no definitions were located following the completion of the stepwise search procedure.

For a systematic methodological approach to review websites, a 60 minutes maximum time was allocated for each website review process⁴²⁻⁴⁴. After compiling the terminological data from each website, we summed the individual definition term findability score to calculate an overall findability score for each site. A website where definitions were easily visible and accessible was classified as "very easy," resulting in a maximum aggregate score of 18. On the other hand, a website where definitions were very difficult to locate, or entirely absent, received a score of 0, indicating the lowest level of findability. Therefore, if the sum of the individual terms' findability score was from 13 to 18, the overall rating for the website was labeled as "very easy." If the total score was from 7 to 12, it was considered "somewhat easy." If the score ranged from 1 to 6, the findability was categorized as "somewhat difficult," and a score of 0 was classified as "very difficult/no definitions found". (Multimedia Appendix 2)

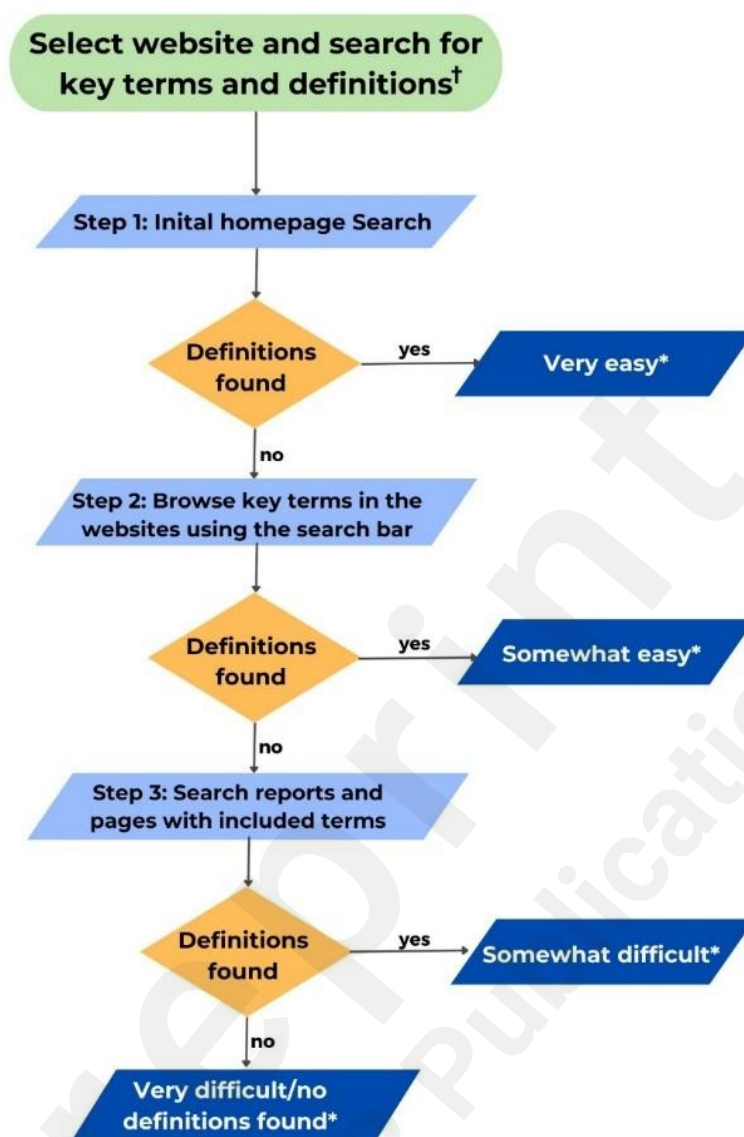


Figure 1: Procedure for browsing websites to find definitions and assigning findability. [†]Denotes terms for extraction (racial health equity, racial health inequity, racial health disparity, health equity, health inequity, health disparity); *Assigned findability score (0=Very difficult/no definitions found, 1=Somewhat difficult, 2=Somewhat easy, 3=very easy)

Inter-rater Reliability

Two researchers (MBD and MB) performed the findability assessment for each website. The Kappa statistic ⁴⁵ was used to analyze the inter-rater reliability of the findability scale for this study. Final ratings were determined by consensus.

Thematic Analysis

Thematic analysis was conducted for included definitions to identify which prominent concepts were representing the included in the definitions. The thematic analysis utilized the 2006 Braun and Clark framework ^{46,47}. The framework consists of six steps: familiarization with the definitions, initial coding, creation of themes, review of themes, definition of themes, and writing of final thematic analysis. Themes were developed separately by two members of the study team (MBD and MB) and any disagreements were resolved through discussion (Multimedia Appendix Table 2). The finalized themes were then reviewed by a third member of the team (ET).

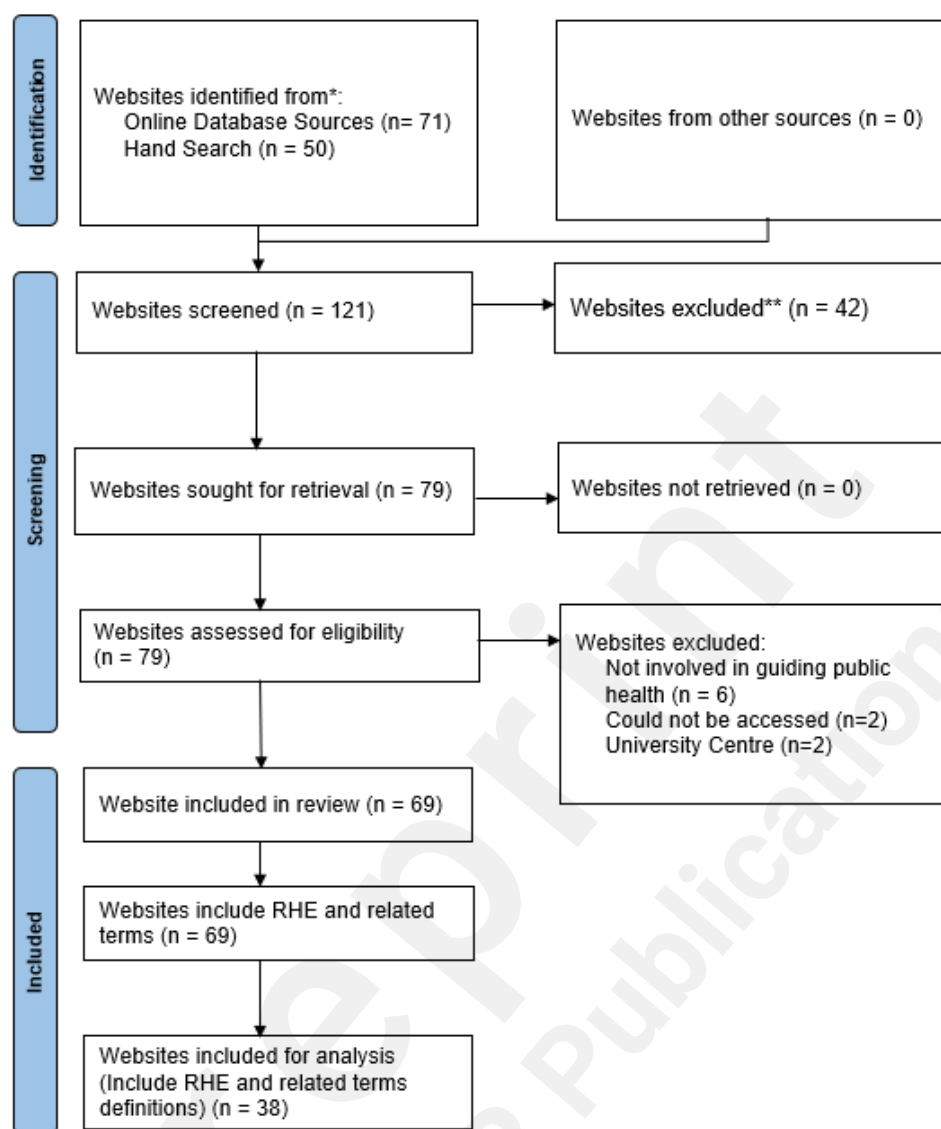
Sentiment analysis

A sentiment analysis is a text analysis tool used to evaluate emotion and impartial tone in words indicated by polarity and subjectivity respectively. Polarity is classified as positive, negative, or neutral. The scores range from -1 (completely negative) to 1 (completely positive) and a neutral range -0.05 to 0.05⁴⁸. Subjectivity is ranked by the level of impartiality found in the language ranging from 0 (objective) to 1 (subjective). The Vader and Textblob Natural Language Processing (NLP) tools were utilized for sentiment analysis. The Vader Natural Language Processing (NLP) tool was used to measure polarity⁴⁹ and Textblob was utilized for the subjectivity analysis⁴⁸⁻⁵⁰.

Results

Summary of Search

The initial keyword search resulted in a list of 121 potential websites for inclusion. We excluded 41 websites after initial screening of the website homepage for not meeting the inclusion criteria (see PRISMA diagram, Figure 2). Reasons for exclusion were non-US based organizations (8), state health organizations (15), for-profit health organizations (10), universities (5), and hospitals (4). We excluded 10 additional websites after full screening of the website because the mission of the organizations was not within the scope of our study (n=6); could not be accessed (2); or was a university center (2). After full screening, 69 websites were included and the following terms were identified and included for analysis: "racial health equity/equities," "racial health inequity/inequities," "racial health disparities/disparities," "health equity/equities," "health disparity/disparities," and "health inequity/inequities."



* Grey literature using the search string: "Public Health Organizations" (n =51),

Health and Human Services (n = 16), National Institute of Health (n = 26), US Government Google Analytics Digital Analytics Program (n=20)

**For profit health organizations, Medical university and colleges, State health organizations

Figure 2: PRISMA diagram for included and excluded websites

Characteristics of included websites

The representation of the websites included government health organizations (41), public (22), intergovernmental institutes (5), and private foundations (1). Organizations with primary or exclusive relevance to countries other than the United States were excluded. Of the 69 included websites, 62 were US-based while 7 addressed global health. The complete characteristic information for the included websites is available in Table 1.

Table 1: Website characteristics and definitions findability score (Accessed from 03/03/2023 - 04/30/2023)

Organization (Access date)	Overall Findability of terms and definitions*	Type of Organization
Academy Health (4/30/2023)	Somewhat difficult	Public

Administration for Children and Families (3/19/2023)	Very difficult/no definitions found	Government
Administration for Community Living (3/22/2023)	Very difficult/no definitions found	Government
Alzheimer's Association (3/16/2023)	Somewhat difficult	Public
American Academy of Nursing (4/30/2023)	Very difficult/no definitions found	Public
American Academy of Pediatrics (5/3/2023)	Somewhat difficult	Public
American Cancer Society (4/30/2023)	Somewhat difficult	Public
American College of Physicians (4/30/2023)	Somewhat difficult	Public
American Heart Association (3/23/2023)	Somewhat difficult	Public
American Lung Association (3/23/2023)	Very difficult/no definitions found	Public
American Medical Association (3/16/2023)	Somewhat difficult	Public
American Public Health Association (3/9/2023)	Somewhat difficult	Public
American Red Cross (3/23/2023)	Very difficult/no definitions found	Public
Association Of Public Health Laboratories (3/16/2023)	Very difficult/no definitions found	Public
Campbell Organization (4/30/2023)	Somewhat difficult	Public
Centers for Disease Control and Prevention (3/12/2023)	Somewhat difficult	Government
Centers for Medicare & Medicaid Services (3/12/2023)	Somewhat difficult	Government
Cochrane (4/6/2023)	Somewhat difficult	Intergovernmental
Fogarty International Center (4/5/2023)	Very difficult/no definitions found	Government
Indian Health Services (3/23/2023)	Very difficult/no definitions found	Government
National Academy of Medicine (Institute of Medicine) (4/5/2023)	Somewhat difficult	Public
National Association of Community Health Centers (3/23/2023)	Very difficult/no definitions found	Public
National Cancer Institute (4/2/2023)	Somewhat difficult	Government
National Center for Advancing Translational Sciences (4/5/2023)	Very difficult/no definitions found	Government
National Center for	Very difficult/no definitions found	Government

Complementary and Integrative Health (4/5/2023)		
National Eye Institute (4/2/2023)	Very difficult/no definitions found	Government
National Heart, Lung, and Blood Institute (4/2/2023)	Very difficult/no definitions found	Government
National Human Genome Research Institute (4/2/2023)	Very difficult/no definitions found	Government
National Institute of Allergy and Infectious Diseases (4/2/2023)	Somewhat difficult	Government
National Institute of Arthritis and Musculoskeletal and Skin Diseases (4/2/2023)	Very difficult/no definitions found	Government
National Institute of Biomedical Imaging and Bioengineering (4/2/2023)	Very difficult/no definitions found	Government
National Institute of Child Health and Human Development (4/2/2023)	Very difficult/no definitions found	Government
National Institute of Dental and Craniofacial Research (4/3/2023)	Very difficult/no definitions found	Government
National Institute of Diabetes and Digestive and Kidney Diseases (4/03/2023)	Somewhat difficult	Government
National Institute of Environmental Health Sciences (4/4/2023)	Very difficult/no definitions found	Government
National Institute of General Medical Sciences (4/4/2023)	Somewhat difficult	Government
National Institute of Mental Health (4/4/2023)	Somewhat difficult	Government
National Institute of Neurological Disorders and Stroke (4/4/2023)	Very difficult/no definitions found	Government
National Institute of Nursing Research (4/4/2023)	Somewhat difficult	Government
National Institute on Aging (4/2/2023)	Somewhat difficult	Government
National Institute on Alcohol Abuse and Alcoholism (4/2/2023)	Very difficult/no definitions found	Government
National Institute on Deafness and Other Communication Disorders (4/2/2023)	Very difficult/no definitions found	Government
National Institute on Drug Abuse (4/3/2023)	Somewhat difficult	Government
National Institute on Minority Health and Health Disparities (4/4/2023)	Somewhat difficult	Government

National Institutes of Health (3/12/2023)	Somewhat difficult	Government
National Institutes of Health Clinical Center (4/5/2023)	Very difficult/no definitions found	Government
Office for Human Research Protections (4/6/2023)	Very difficult/no definitions found	Government
Office of Climate Change and Health Equity (4/6/2023)	Somewhat difficult	Government
Office of Disease Prevention and Health Promotion (4/6/2023)	Somewhat difficult	Government
Office of Minority Health (3/23/2023)	Very difficult/no definitions found	Government
Office on Women's Health (4/6/2023)	Very difficult/no definitions found	Government
Patient-Centered Outcomes Research Institute (PCORI) (3/19/2023)	Somewhat difficult	Public
Public Health Institute (3/12/2023)	Very difficult/no definitions found	Public
Robert Wood Johnson Foundation (4/30/2023)	Somewhat difficult	Public
Substance Abuse and Mental Health Services Administration (3/19/2023)	Somewhat difficult	Government
The Agency for Healthcare Research and Quality (3/12/2023)	Somewhat difficult	Government
The Carter Center (3/16/2023)	Somewhat difficult	Public
The Commonwealth Fund (3/12/2023)	Very difficult/no definitions found	Private
The Global Health Council (3/12/2023)	Somewhat difficult	Public
The Health Resources and Services Administration (3/12/2023)	Somewhat difficult	Government
The Pan American Health Organization (3/12/2023)	Somewhat difficult	Intergovernmental
Trust for America's Health (3/12/2023)	Somewhat difficult	Public
U.S. Preventive Services Task Force (3/19/2023)	Very difficult/no definitions found	Public
U.S. Public Health Service (3/23/2023)	Very difficult/no definitions found	Government
United Nations (4/5/2023)	Very difficult/no definitions found	Intergovernmental
United Nations Children's Fund USA (4/6/2023)	Very difficult/no definitions found	Intergovernmental
United States Department of	Somewhat difficult	Government

Health and Human Services (3/12/2023)		
US Food and Drug Administration (3/16/2023)	Very difficult/no definitions found	Government
World Health Organization (3/12/2023)	Somewhat difficult	Intergovernmental

*Findability indicates the level of ease with which any definitions could be found using the findability tool developed for definitions (See Methods).

Results of key questions

KQ1: How easy is it to find definitions of racial health equity/equities and related terms on prominent health organization websites?

To determine the degree of findability for definitions of racial health equity and related terms within each website, we developed a project-specific findability tool (see Methods). The score for racial health equity/equities and racial health inequity/inequities was “very difficult/ no definitions found” across all 69 websites. Alternatively, for racial health disparities, 1.4% (1) of the websites scored “somewhat easy” and 2.9% (2) scored “somewhat difficult” while the remaining 95.7% (66) scored “very difficult/no definitions found”.

Most websites show high findability for health equity/equities with 26.1% (18) scoring “somewhat easy” and 20.3% (14) scoring “somewhat difficult” followed by health disparity/disparities with 14.5% (10) scoring “somewhat easy” and 17.4% (12) scoring “somewhat difficult”. Finally for health inequity, 2.9% (2) scored “somewhat easy” and 10.1% (7) scored “somewhat difficult”. The remaining websites scored “very difficult/no definitions found” for health equity/equities (37/69, 53.6%), health disparity/disparities (45/69, 65.2%) and health inequity (60/69, 87%). The detailed findability scores can be found in Multimedia Appendix 2.

The overall findability results shown in figure 3 is a cumulative score of the findability assigned to the individual terms (see Methods). Table 1 includes the overall findability score for each website. In general, of the 69 websites we reviewed, 47.8%(33) scored “very difficult/no definitions found” and 36(52.2%) scored “somewhat difficult” (Figure 3). None of the websites had an overall score of “somewhat easy” or “very easy”. Findability results were verified by a separate researcher with a Kappa score of 0.77.

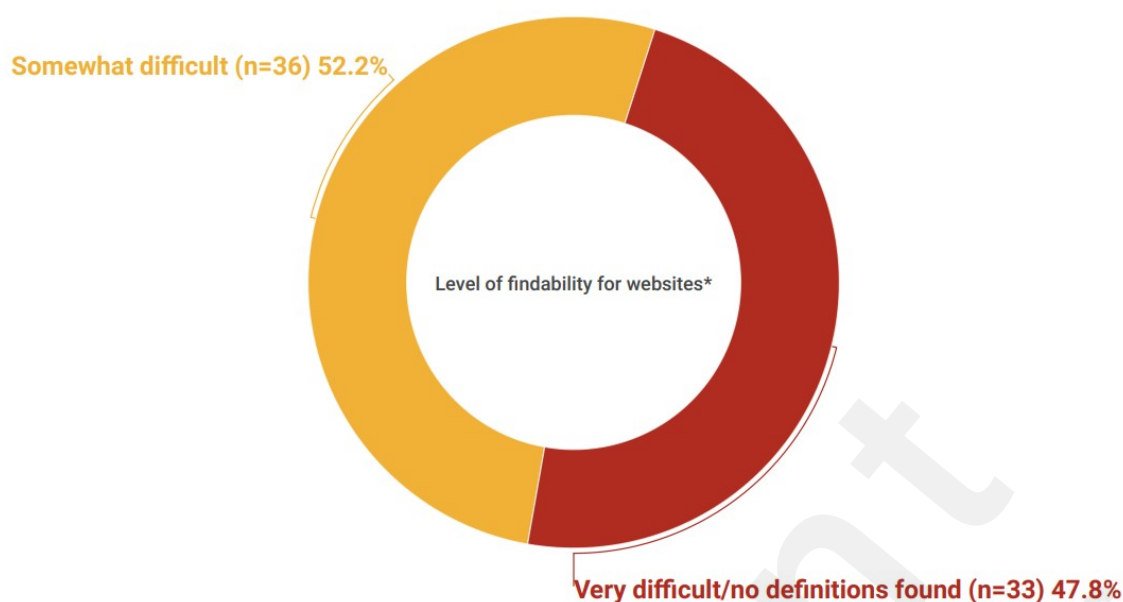


Figure 3: Findability of racial health equity terms and definitions within prominent health organizations' websites. *The level of findability for websites was assigned using the findability tool (see Methods).

KQ2: How are racial health equity/equities and related terms included and defined on prominent public health organization websites?

Of the 69 websites reviewed, 15.9% (11) included the term "racial health equity/equities," 37.7% (26) included "racial health inequity," 29% (20) included "racial health disparities," 91.3% (63) included "health equity/equities," 81.2% (56) included "health disparity/disparities," and 75.4% (52) included "health inequity." However, only some websites contained definitions for the terms with 4.3% (3) "racial health disparity/disparities," 47.8% (33) defining "health equity/equities," 34.8% (24) "health disparity/disparities," and 13% (9) "health inequity/inequities". None of the websites provided definitions for the term's racial health equity/equities and racial health inequity/inequities (Figure 4). Overall, 55% (38) of the websites had a definition for at least one term; however, none had a definition for all the reviewed terms. The terms most defined together were health disparity and health equity appearing in 24.6% (17) of the websites. (Multimedia Appendix 3).

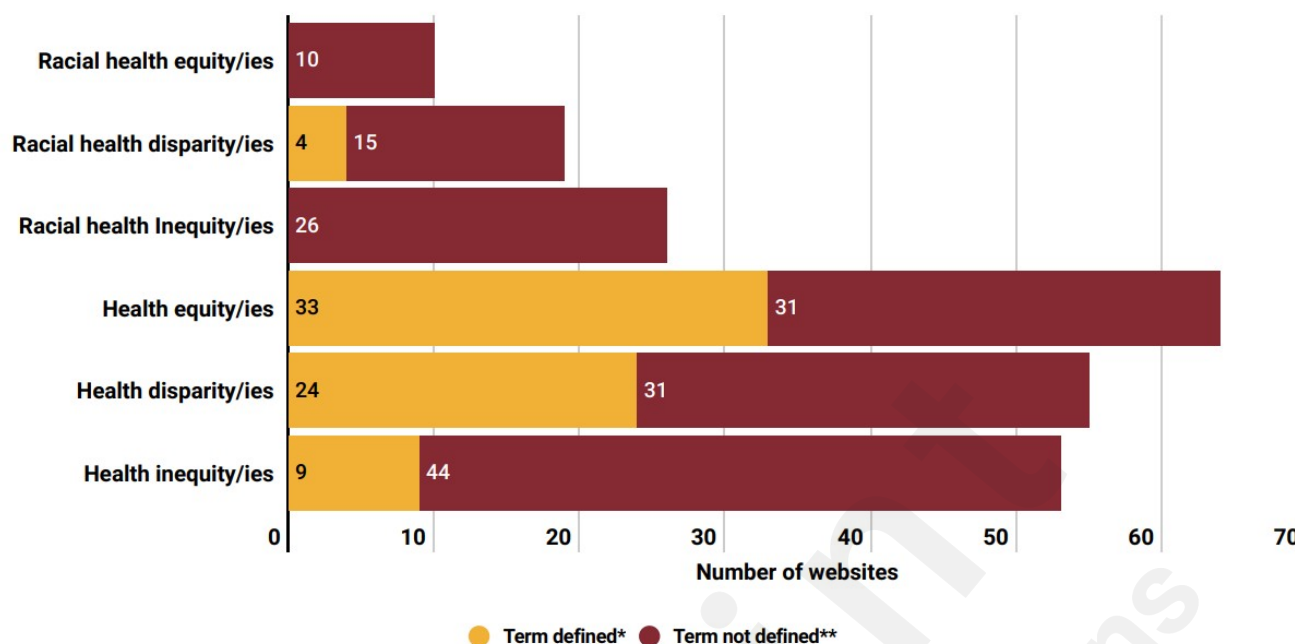


Figure 4: Inclusion and definition of racial health equity and related terms in reviewed websites. *Term defined indicates websites which included the terms reviewed with their definitions; **Term not defined indicates websites which only included the terms with no definitions provided.

KQ3: What common definitions, terms, themes, sentiments, and citations related to racial health equity/equities and related terms will emerge from the identified health organization websites?

Thematic

analysis

Overall, we found a total of 69 definitions across all websites for the included terms (racial health disparity/disparities, health equity/equities, health inequity/inequities, health disparity/disparities). The most common themes found across all definitions was “unfair and avoidable differences” (20/69, 29%). All definitions for racial health disparity/disparities (4) had the themes “unfair and avoidable differences in health” and “accessible, quality and affordable care”. Conversely, “health equity/equities” included the themes “optimal health for all” (24/33, 72.7%), “just and ubiquitous presence of fair opportunity/access” (22/33, 66.7%) and “social position or social factors (economic, social, environmental, etc.)” (12/33, 36.4%) predominantly while “health disparity/disparities” had “social position or social factors (economic, social, environmental, etc.)” (20/24, 83.3%), “differences in health status, burden of illness, injury, disability and/or mortality” (10/24, 41.7%) and “specific social groups (7/24, 29.2%) as the most common (Multimedia Appendix 4). Many of the health inequity/inequities definitions included the theme “unfair and avoidable differences in health” (7/9, 77.38). Other themes included “negatively impactful systems” (4/69, 5.8%), “unequal conditions/barriers” (3/69, 4.3%) and social determinants of health (1/69, 1.4%) (Figure 5).

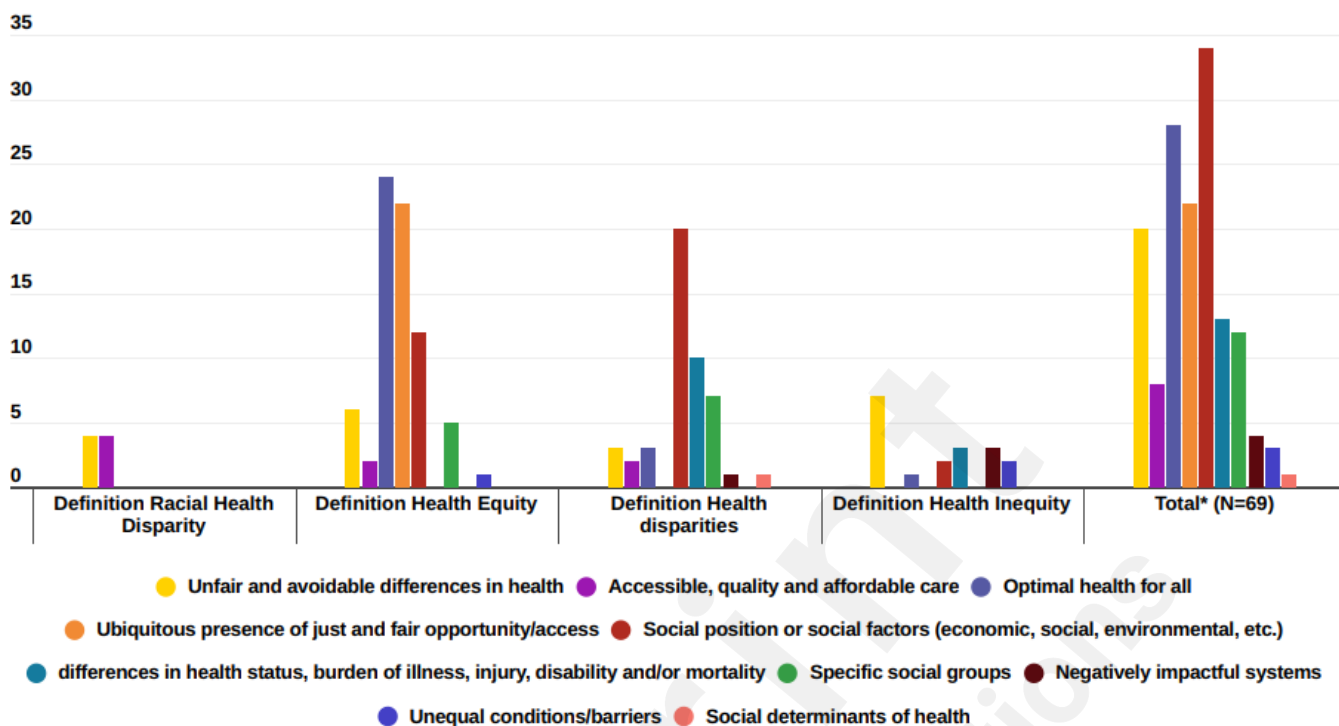


Figure 5: Themes identified within the definitions. *Total indicates the total number themes from all the extracted definitions

Sentiment analysis for definitions

Our findings with respect to the emotional tone and subjectivity of definitions show that all the definitions for “racial health disparity/disparities” (4) had a positive sentiment. Likewise most “health equity/equities” definitions (20/33, 60.6%) indicated a more positive sentiment while most definitions for “health inequity/inequities” (4/9, 44.4%) and “health disparity/disparities” (16/24, 66.7%) had a negative sentiment. Some definitions for “health equity/equities” (5/33, 15.2%), “health inequity/inequities” (4/9, 44.5%) and “health disparity/disparities” (4/24, 16.7%) had a neutral sentiment. Most definitions were rated as slightly subjective (0.25-0.75; Figure 3b). Overall, “health equity/equities” and “health inequity/inequities” definitions had an average subjectivity score of 0.5 and 0.4 respectively, while health disparity/disparities and racial health disparity/disparities definitions had an average subjectivity score of 0.3 and 0.2 respectively making them more objective.

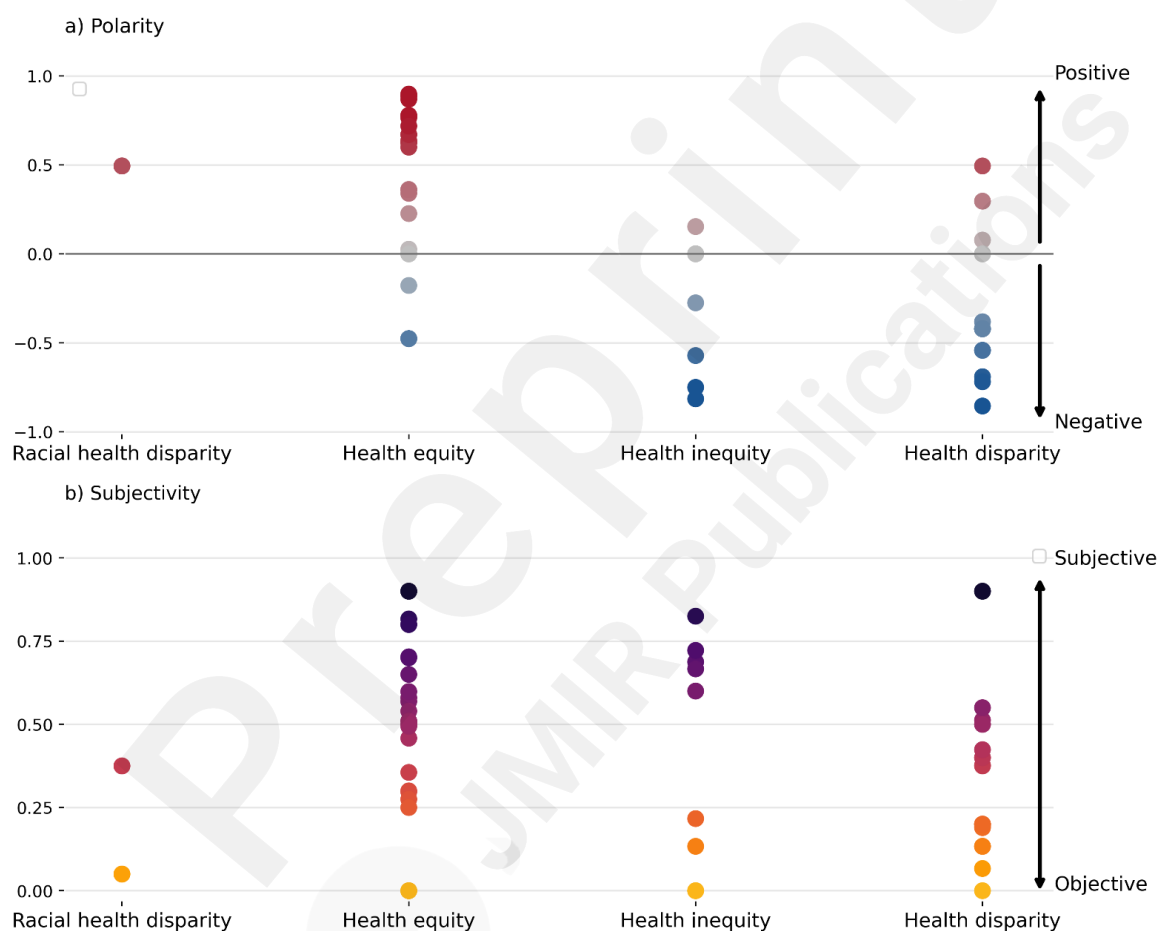


Figure 6: Sentiment analysis of definitions. (a) Polarity indicates whether the sentiment is negative ($-1 \leq x < -0.05$), neutral ($-0.05 \leq x \leq 0.05$), or positive ($0.05 < x \leq 1$); (b) Subjectivity (~ 1) indicates the definition is influenced by emotions while objectivity (~ 0) indicates no influence^{51,52}.

Citation Review

An additional analysis whether the definitions were supported by citations was conducted. Of the 38 websites that contained definitions for racial health equity/equities and related terms, 44% (17%) included one or more definitions that had citations. We identified 19 unique citations supporting the definitions (Multimedia Appendix 3). 100% (4) of the racial health disparity/disparities definitions, 33.3% (11/33) of the health equity/equities definitions, 37.5% (9/24) of the health disparity/disparities definitions and 55.6% (5/9) of the health inequity/inequities definitions included at most one or two citations. Of those definitions for racial

health disparity/disparities with citations all of them cited the “2003 *Unequal Treatment report*”⁵³. However, the most cited works varied for other terms. The most common citations for health equity/equities were “*What is Health Equity? A Definition and Discussion Guide*”⁵⁴ (4/33, 12.1%), while for health disparity/disparities, 25% (6) cited “*Healthy People 2020*”⁵⁵ and 8.3% (2) cited “*The Secretary’s Advisory Committee on National Health Promotion and Disease Prevention Objectives For 2020 Phase I Report*”⁵⁶. 22.1% (2) health inequity/inequities definitions cited “*The concepts and principles of equity and health*”⁵⁷. Additionally, one website utilized the same term to refer to health inequity/inequities and health disparity/disparities and cited “*A glossary for health inequalities*”⁵⁸. The remaining citations^{15,59–68} were only cited once per definition.

Discussion

Principal Results

As most Americans now seek out health information on the internet,^{13 69} prominent health organizations have a significant role in providing credible and current evidence-based information on their public websites. In addition, definitions of racial health equity and health equity play a pivotal role in how these concepts are understood and expressed as indicated by previous studies⁷⁰. Our study applied systematic review methods to evaluate how “racial health equity/equities” terms and definitions are presented, defined, and reported on prominent health websites. While racial health equity and related terms are frequently used on these websites, they were difficult to find and had no definitions. Those that did have definitions present varied in sentiment and underlying citations, even though most of the themes were shared.

Among websites that included the reviewed terms, we determined that findability was somewhat or very difficult on all websites, indicating a lack of ease in finding the specific information sought. In addition to websites, there has been a growth of and increased access to different sources of health information, including social media, blogs, and other unverified media sources^{24,27}. Additionally, the “infodemic” (too much information including false or misleading information online⁷¹), during the Covid-19 pandemic also highlighted how easily information can be misconstrued and used^{71,72}. Therefore, with the various avenues ‘available for accessing information, it is important to ensure that information on racial health equity/equities and related terms is more easily accessible to ensure common understanding and reduce ambiguity on its meaning.

The use of “racial health equity/equities” has been growing in academic literature since 2020, despite there being no clear consensus on what it means^{33,35}. Definitions are particularly important for racial health equity as an emerging theoretical concept that has a significant potential for ambiguity and misunderstanding³³. Our results showed that a definition of racial health equity/equities or -inequity/inequities has not yet been adopted and only 5.7% (4) websites defined racial health disparity/disparities. However, the results showed that there were more definitions for health equity/equities (33/69, 47.8%) and health disparity/disparities (24/69, 34.7%) while only 13% (9) websites had a definition for health inequity/inequities. Although these websites include health equity/equities and health disparities, there is still a gap in how these websites describe health inequities and the racialized aspect of this topic, which is increasingly important following collective calls for focused attention to health disparities in diverse racial groups, particularly after recent events (i.e., COVID-19 pandemic, black lives matter protests)^{5,6,11}.

In addition, our thematic analysis indicated that all definitions for racial health disparity/disparities, most of the health equity/equities (22/33, 66.7) and health disparity (20/24, 83.3%) definitions share the same themes. However, most definitions were more descriptive and did not explore the causes of existing inequities. Four websites^{68,73–76} contained the theme “negatively impactful

systems” to access to care as the cause of inequities. Even though several definitions describe “specific social groups” (12, 17.4%) and social factors (economic, social environmental factors) (34/69, 49.2%), the root causes of inequities highlighted in previous studies such as racism, historical harms and unequal condition/barriers are not explored^{53,59,77}. As these two concepts are intrinsically tied to addressing and achieving racial health equity/equities, including them in definitions could provide a more comprehensive understanding of the terms^{59,77-79}.

The sentiment analysis showed different results across websites, i.e. 64.5% (20/31) of the health equity/equities definitions were positive and the remaining 35.5% (13) were negative or neutral. This is similarly indicated in the other definitions we found for health inequity and health disparities. A definition helps to provide a common interpretation of a concept⁸⁰; however, inconsistency in the way definitions are perceived by the public can affect their public support and could inadvertently serve as an obstacle towards enacting policy changes⁸¹. Overall, definitions showed variability in content and sentiment, which could potentially lead to confusion and ambiguity among the public. Utilizing Sentiment analysis tools could be a way to initially gauge the way the information is presented and uncover potential biases.

Although few racial health disparity/disparities definitions were found, all of them cited the same source. On the other hand, most health equity/equities definitions lacked citations even though several landmark definitions have been proposed throughout the years^{54,57,80}. Additionally, the definitions that contain citations use Healthy People 2020 as their primary source. However, the Healthy People 2020 has been archived and replaced by the revised Healthy People 2030, which includes additional concepts such as social determinants of health⁷⁹. Overall, the study shows that there is a lack of citations in the definitions. In addition, some of the definitions that do contain citations show promising trends by utilizing similar references that ensure consistency across health institutes. There is, however, a need to cite up-to-date references to ensure the inclusion of new concepts that contribute to the understanding of health equity/equities and racial health equity/equities.

Limitations

Our research was limited to websites that targeted users in the United States and that were available in English. Further research should be conducted exploring racial health equity and related terms and definitions across non-US and non-English speaking websites. This would allow adequate comparison in understanding how racial health equity concepts are understood on a global scale. Due to the high volume of reports on the included websites, we were not able to review all reports and pages, and only searched reports if results were displayed as a search result. Additionally, we only searched websites on specified dates, and since websites are being updated regularly, the searches might yield different results at different times. Additionally, since the goal of this study was to evaluate websites with a national reach, we did not evaluate state and regional healthcare organization websites. Consequently, sentiment analysis is limited in accurately classifying nuanced language which may lead to misclassification of sentiment.

Conclusions

To our knowledge, this study is the first attempt to systematically evaluate racial health equity terminology and definitions in prominent health organizations’ websites. The evaluated websites are frequently used sources of health information for the public and professionals. In the websites we evaluated, we identified important gaps in incorporating and presenting racial health equity information. There was a lack of a standardized, systematic approach to presenting, defining, and using racial health equity terminology, which potentially leads to misinformation, a lack of common

understanding, and contribution to the infodemic.

In the current electronic era in which the public relies on online information to be educated, guided, and supported in their health needs, prominent health organizations should structure their websites by following the best evidence-based information practices^{44,69,82}. For that, rigorous, acceptable, and adoptable standards, guidelines, and tools are needed to assist these organizations in adequately designing, presenting, and updating information that is trustworthy and easy to find for all website consumers (e.g. patients, researchers, educators, policymakers). Therefore, having standards for prominent health organization websites for presenting definitions for health topics to be easily findable could enhance the user experience of these websites and help to provide reliable information³⁰. Guideline repositories, like the Enhancing the QUALity and Transparency Of health Research (EQUATOR) network, are essential for guiding unbiased and credible reporting of research results¹⁹; similarly, website-based networks could assist with the creation of guidelines to ensure the rigor and credibility of health information on websites. Utilizing best evidence-based information practices (e.g., use of plain language, layered information structures, accessibility standards)⁸³ would increase the usability and value of health information for both the public and healthcare professionals, thus ensuring that maximum value is gained by ensuring adequate information about health for all. Furthermore, implementing a glossary of terms available on the homepage could enhance the ease of access⁸⁴.

Acknowledgments:

CRedit author statements

MBD: writing- original draft, review and editing, conceptualization, investigation, methodology, validation, analysis; ET: methodology, validation, analysis, conceptualization, investigation, writing- review and editing; MB: methodology, validation, analysis, investigation, writing- review and editing; AP: writing- review and editing; AR: conceptualization, writing- review and editing; DF: conceptualization, writing- review and editing, MV: conceptualization, writing- review and editing; NS: conceptualization, writing- review and editing; VW: conceptualization, writing- review and editing; TD: conceptualization, writing- review and editing; RT: conceptualization, writing- review and editing; TB: conceptualization, writing- review and editing; PH: writing- review and editing, investigation, conceptualization, validation, methodology, supervision, resources.

Funding

This project was supported by the Robert Wood Johnson Foundation (grant number 79982). The funder was not involved in the study design, data collection, analysis, and interpretation of data, writing of the report, or decision to submit for publication. Additional support was provided by the Marymount University Center for Optimal Aging. We would also like to thank Dr. Julie Faieta, Dr. J Taylor Harden and Catherine Goldstein for their contributions to the study.

Availability of data and materials

The data supporting the findings of this study and any additional documents are available in the Multimedia Appendices.

Conflicts of Interest

None declared.

References

1. Riley WJ. Health Disparities: Gaps in Access, Quality and Affordability of Medical Care. *Trans Am Clin Climatol Assoc.* 2012;123:167-174.
2. Barton B, Boonyasai RT, Hahn C, et al. 2023 National Healthcare Quality and Disparities Report.
3. Kutner M, Greenberg E, Jin Y, Paulsen C. The Health Literacy of America's Adults: Results from the 2003 National Assessment of Adult Literacy. September 6, 2006. Accessed April 10, 2024. <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006483>
4. Sepassi A, Garcia S, Tanjasiri S, Lee S, Bounthavong M. Predicted Health Literacy Disparities Between Immigrant and US-Born Racial/Ethnic Minorities: a Nationwide Study. *J Gen Intern Med.* 2023;38(10):2364-2373. doi:10.1007/s11606-023-08082-x
5. Fisher DR, Rouse SM. Intersectionality within the racial justice movement in the summer of 2020. *Proceedings of the National Academy of Sciences.* 2022;119(30):e2118525119. doi:10.1073/pnas.2118525119
6. Moore JT, Ricaldi JN, Rose CE, et al. Disparities in Incidence of COVID-19 Among Underrepresented Racial/Ethnic Groups in Counties Identified as Hotspots During June 5–18, 2020 — 22 States, February–June 2020. *MMWR Morb Mortal Wkly Rep.* 2020;69(33):1122-1126. doi:10.15585/mmwr.mm6933e1
7. The White House. Executive Order On Advancing Racial Equity and Support for Underserved Communities Through the Federal Government. The White House. January 21, 2021. Accessed August 22, 2023. <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/>
8. House TW. Executive Order on Further Advancing Racial Equity and Support for Underserved Communities Through The Federal Government. The White House. February 16, 2023. Accessed September 28, 2023. <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/02/16/executive-order-on-further-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/>
9. Hoyer D, Dee E, O'Leary MS, et al. How Do We Define and Measure Health Equity? The State of Current Practice and Tools to Advance Health Equity. *Journal of Public Health Management and Practice.* 2022;28(5). https://journals.lww.com/jphmp/fulltext/2022/09000/how_do_we_define_and_measure_health_e

quity__the.20.aspx

10. Viswanathan M, Sathe N, Welch V, et al. Centering Racial Health Equity in Systematic Reviews —Paper 1: Introduction to the Series. Published online January 29, 2024. doi:10.2139/ssrn.4696413
11. Willems SJ, Castells MC, Baptist AP. The Magnification of Health Disparities During the COVID-19 Pandemic. *J Allergy Clin Immunol Pract.* 2022;10(4):903-908. doi:10.1016/j.jaip.2022.01.032
12. Jakubowski E, Kluge H, Rechel B. Organization of public health services. In: *Organization and Financing of Public Health Services in Europe [Internet]*. European Observatory on Health Systems and Policies; 2018. Accessed February 4, 2024. <https://www.ncbi.nlm.nih.gov/books/NBK535720/>
13. Finney Rutten LJ, Blake KD, Greenberg-Worisek AJ, Allen SV, Moser RP, Hesse BW. Online Health Information Seeking Among US Adults: Measuring Progress Toward a Healthy People 2020 Objective. *Public Health Rep.* 2019;134(6):617-625. doi:10.1177/0033354919874074
14. Cohen RA, Adams PF. Use of the internet for health information: United States, 2009. *NCHS Data Brief.* 2011;(66):1-8.
15. Braveman P, Gruskin S. Defining equity in health. *J Epidemiol Community Health.* 2003;57(4):254-258. doi:10.1136/jech.57.4.254
16. McCartney G, Popham F, McMaster R, Cumbers A. Defining health and health inequalities. *Public Health.* 2019;172:22-30. doi:10.1016/j.puhe.2019.03.023
17. American Medical Association. Health Care Definitions. American Medical Association. March 7, 2024. Accessed May 17, 2024. <https://www.ama-assn.org/series/health-care-definitions>
18. Health Equity in Healthy People 2030 - Healthy People 2030 | health.gov. Accessed February 22, 2024. <https://health.gov/healthypeople/priority-areas/health-equity-healthy-people-2030>
19. EQUATOR Network | Enhancing the QUALity and Transparency Of Health Research. Accessed February 22, 2024. <https://www.equator-network.org/>
20. Eysenbach G, Gray JAM, Bonati M, et al. Towards quality management of medical information on the internet: evaluation, labelling, and filtering of informationHallmarks for quality of informationQuality on the internetAssuring quality and relevance of internet information in the real world. *BMJ.* 1998;317(7171):1496-1502. doi:10.1136/bmj.317.7171.1496
21. Winker MA, Flanagan A, Chi-Lum B, et al. Guidelines for medical and health information sites on the internet: principles governing AMA web sites. American Medical Association. *JAMA.* 2000;283(12):1600-1606. doi:10.1001/jama.283.12.1600
22. Zhang Y, Sun Y, Xie B. Quality of health information for consumers on the web: A systematic review of indicators, criteria, tools, and evaluation results. *Journal of the Association for Information Science and Technology.* 2015;66(10):2071-2084. doi:10.1002/asi.23311
23. Dobbins M, Watson S, Read K, Graham K, Yousefi Nooraie R, Levinson AJ. A Tool That Assesses the Evidence, Transparency, and Usability of Online Health Information: Development

- and Reliability Assessment. *JMIR Aging*. 2018;1(1):e3. doi:10.2196/aging.9216
24. National Institutes of Health (NIH) Office of Dietary Supplements - How To Evaluate Health Information on the Internet: Questions and Answers. Accessed February 19, 2024. https://ods.od.nih.gov/HealthInformation/How_To_Evaluate_Health_Information_on_the_Internet_Questions_and_Answers.aspx
 25. MedlinePlus. Evaluating Health Information. Accessed February 22, 2024. <https://medlineplus.gov/evaluatinghealthinformation.html>
 26. Eysenbach G, Yihune G, Lampe K, Cross P, Brickley D. Quality Management, Certification and Rating of Health Information on the Net with MedCERTAIN: Using a medPICS/RDF/XML metadata structure for implementing eHealth ethics and creating trust globally. *J Med Internet Res*. 2000;2(Suppl 2):e1. doi:10.2196/jmir.2.suppl2.e1
 27. Benigeri M. Shortcomings of health information on the Internet. *Health Promotion International*. 2003;18(4):381-386. doi:10.1093/heapro/dag409
 28. Alajarmeh N. Evaluating the accessibility of public health websites: An exploratory cross-country study. *Univ Access Inf Soc*. 2022;21(3):771-789. doi:10.1007/s10209-020-00788-7
 29. Battineni G, Baldoni S, Chintalapudi N, et al. Factors affecting the quality and reliability of online health information. *DIGITAL HEALTH*. 2020;6:2055207620948996. doi:10.1177/2055207620948996
 30. Devine T, Broderick J, Harris LM, Wu H, Hilfiker SW. Making Quality Health Websites a National Public Health Priority: Toward Quality Standards. *J Med Internet Res*. 2016;18(8):e211. doi:10.2196/jmir.5999
 31. Welch V, Petticrew M, Tugwell P, et al. PRISMA-Equity 2012 extension: reporting guidelines for systematic reviews with a focus on health equity. *PLoS Med*. 2012;9(10):e1001333. doi:10.1371/journal.pmed.1001333
 32. Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021;372:n71. doi:10.1136/bmj.n71
 33. Terhune E, Dagne MB, Piper CR, et al. Centering Racial Health Equity in Systematic Reviews Paper 3 a Systematic Review of Definitions for. Published online June 27, 2024. doi:10.2139/ssrn.4874331
 34. Heyn PC, Terhune EA, Dagne MB, et al. Definitions, terminology, and related concepts of “racial health equity”: a scoping review protocol. *Systematic Reviews*. 2023;12(1):185. doi:10.1186/s13643-023-02357-4
 35. Heyn PC, Terhune E, Dagne MB, Piper C. Defining Racial Health Equity (RHE): A Landscape and Systematic Review of Definitions, Terminology and Related Concepts. Published online December 26, 2022. Accessed June 20, 2023. <https://osf.io/dbhuj/>
 36. What is public health? Accessed February 4, 2024. <https://www.apha.org/what-is-public-health>
 37. analytics.usa.gov | The US government’s web traffic. analytics.usa.gov | The US government’s web traffic. Accessed August 24, 2023. <http://localhost:4000>

38. Jacob EK, Loehrlein A. Information architecture. *Annual Review of Information Science and Technology*. 2009;43(1):1-64. doi:10.1002/aris.2009.1440430110
39. Shieh J. From website log to findability. *The Electronic Library*. 2012;30(5):707-720. doi:10.1108/02640471211275747
40. Gao Z, Gao Y, Yu J. What Makes It Findable? An Exploration on User Search Behavior and the Findability of Technical Documentation. In: *2020 IEEE International Professional Communication Conference (ProComm)*. ; 2020:154-160. doi:10.1109/ProComm48883.2020.00031
41. Likert scales: Examples, tips, and how to analyze the data. SurveyMonkey. Accessed July 17, 2024. <https://www.surveymonkey.com/mp/likert-scale/>
42. Haan K. Top Website Statistics For 2024 – Forbes Advisor. April 2, 2024. Accessed May 17, 2024. <https://www.forbes.com/advisor/business/software/website-statistics/>
43. Similarweb. Top Health Websites Ranking in March 2023. Similarweb. March 2023. Accessed May 4, 2023. <https://www.similarweb.com/top-websites/health/>
44. Eysenbach G, Köhler C. How do consumers search for and appraise health information on the world wide web? Qualitative study using focus groups, usability tests, and in-depth interviews. *BMJ*. 2002;324(7337):573-577. doi:10.1136/bmj.324.7337.573
45. Bajpai S, Bajpai R, Chaturvedi H. Evaluation of Inter-Rater Agreement and Inter-Rater Reliability for Observational Data: An Overview of Concepts and Methods. *Journal of the Indian Academy of Applied Psychology*. 2015;41:20-27.
46. Clarke V, Braun V. Thematic analysis. *The Journal of Positive Psychology*. 2017;12(3):297-298. doi:10.1080/17439760.2016.1262613
47. Braun V, Clarke V. *Thematic Analysis: A Practical Guide*.; 2021. Accessed April 10, 2025. <https://uk.sagepub.com/en-gb/eur/thematic-analysis/book248481>
48. Taboada M. Sentiment Analysis: An Overview from Linguistics. *Annual Review of Linguistics*. 2016;2(1):325-347. doi:10.1146/annurev-linguistics-011415-040518
49. Bonta V, Kumaresh N, Naulegari J. A Comprehensive Study on Lexicon Based Approaches for Sentiment Analysis. *Asian Journal of Computer Science and Technology*. 2019;8:1-6. doi:10.51983/ajcst-2019.8.S2.2037
50. Shah P. My Absolute Go-To for Sentiment Analysis — TextBlob. Medium. November 6, 2020. Accessed February 4, 2024. <https://towardsdatascience.com/my-absolute-go-to-for-sentiment-analysis-textblob-3ac3a11d524>
51. subjective. January 24, 2024. Accessed January 26, 2024. <https://dictionary.cambridge.org/us/dictionary/english/subjective>
52. objectivity. January 24, 2024. Accessed January 26, 2024. <https://dictionary.cambridge.org/us/dictionary/english/objectivity>
53. Smedley BD, Stith AY, Nelson AR, eds. *Unequal Treatment: Confronting Racial and Ethnic*

Disparities in Health Care.; 2003. doi:10.17226/12875

54. Braveman P, Arkin E, Orleans T, Proctor D, Acker J, Plough A. What is Health Equity? A Definition and Discussion Guide. Accessed February 14, 2024. <https://www.rwjf.org/en/insights/our-research/2017/05/what-is-health-equity-.html>
55. Healthy People 2020 |. Accessed February 12, 2024. <https://wayback.archive-it.org/5774/20220413182850/https://www.healthypeople.gov/2020/>
56. The U.S. Department of Health and Human Services. The Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives For 2020 Phase I. October 8, 2008. Accessed July 17, 2024. <https://health.gov/our-work/national-health-initiatives/healthy-people/healthy-people-2020/secretarys-advisory-committee-2020>
57. Whitehead M. The concepts and principles of equity and health. *Int J Health Serv.* 1992;22(3):429-445. doi:10.2190/986L-LHQ6-2VTE-YRRN
58. Kawachi I, Subramanian SV, Almeida-Filho N. A glossary for health inequalities. *J Epidemiol Community Health.* 2002;56(9):647-652. doi:10.1136/jech.56.9.647
59. 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.* 2020;142(24):e454-e468. doi:10.1161/CIR.0000000000000936
60. NIH Minority Health and Health Disparities Strategic Plan 2021-2025. NIMHD. Accessed July 17, 2024. <https://www.nimhd.nih.gov/about/strategic-plan/nih-strategic-plan-directors-foreword.html>
61. National Institute on Minority Health and Health Disparities (NIMHD). 2017. Accessed July 17, 2024. <https://hdpulse.nimhd.nih.gov/data/resources/>
62. A Conceptual Framework for Action on the Social Determinants of Health. Accessed February 14, 2024. <https://www.who.int/publications-detail-redirect/9789241500852>
63. Jones CP. Systems of power, axes of inequity: parallels, intersections, braiding the strands. *Med Care.* 2014;52(10 Suppl 3):S71-75. doi:10.1097/MLR.0000000000000216
64. The Alzheimer's Association Diversity and Disparities Lexicon Workgroup. Alzheimer's Association Inclusive Language Guide. Alzheimer's Disease and Dementia. Accessed July 17, 2024. <https://www.alz.org/media/Documents/Alzheimers-Association-Inclusive-Language-Guide.pdf>
65. CDC. CDC's Health Equity Guiding Principles for Inclusive Communication. Centers for Disease Control and Prevention. 2021. Accessed July 17, 2024. https://www.cdc.gov/healthcommunication/Health_Equity.html
66. National Academies of Sciences, Engineering, and Medicine, Health and Medicine Division, Board on Population Health and Public Health Practice, Committee on Community-Based Solutions to Promote Health Equity in the United States. *Communities in Action: Pathways to Health Equity.* (Baciu A, Negussie Y, Geller A, Weinstein JN, eds.). National Academies Press (US); 2017. Accessed July 17, 2024. <http://www.ncbi.nlm.nih.gov/books/NBK425848/>

67. Klein R, Huang D. Defining and measuring disparities, inequities, and inequalities in the Healthy People initiative. https://www.cdc.gov/nchs/ppt/nchs2010/41_klein.pdf
68. World Health Organization (WHO). Health equity. Accessed July 17, 2024. <https://www.who.int/health-topics/health-equity>
69. Amante DJ, Hogan TP, Pagoto SL, English TM, Lapane KL. Access to Care and Use of the Internet to Search for Health Information: Results From the US National Health Interview Survey. *J Med Internet Res*. 2015;17(4):e106. doi:10.2196/jmir.4126
70. Braveman P, Gruskin S. Defining equity in health. *J Epidemiol Community Health*. 2003;57(4):254-258. doi:10.1136/jech.57.4.254
71. WHO. Infodemic. Accessed May 17, 2024. <https://www.who.int/publications/e/item/the-covid-19-infodemic>
72. Cochrane. Visualizing an infodemic and approaches to countering misinformation: Lifeology SciComms Challenge. October 16, 2021. Accessed May 17, 2024. <https://www.cochrane.org/news/visualizing-infodemic-and-approaches-countering-misinformation-lifeology-sci-comms-challenge>
73. What is Health Equity? RWJF. Accessed July 17, 2024. <https://www.rwjf.org/content/rwjf-web/us/en/insights/our-research/2017/05/what-is-health-equity-.html>
74. Dr. Ruth Shim – Achieving Equity in Mental Health Services Research (Mental Health Services Research Conference Day 2 Keynote Address) - National Institute of Mental Health (NIMH). October 13, 2022. Accessed July 17, 2024. <https://www.nimh.nih.gov/news/media/2022/dr-ruth-shim-achieving-equity-in-mental-health-services-research-mental-health-services-research-conference-day-2-keynote-address>
75. Substance Abuse and Mental Health Services Administration. SAMHSA Strategic Plan 2023-2026.
76. The Health Resources and Services Administration. Health Equity Report 2019-2020: Special Feature on Housing and Health Inequalities.
77. Bailey ZD, Krieger N, Agénor M, Graves J, Linos N, Bassett MT. Structural racism and health inequities in the USA: evidence and interventions. *The Lancet*. 2017;389(10077):1453-1463. doi:10.1016/S0140-6736(17)30569-X
78. National Collaborating Centre for Determinants of Health. Let's talk: Racism and health equity | National Collaborating Centre for Determinants of Health. 2018. Accessed May 4, 2023. <https://nccdh.ca/resources/entry/lets-talk-racism-and-health-equity>
79. About Healthy People 2030 - Healthy People 2030 | health.gov. Accessed April 12, 2024. <https://health.gov/healthypeople/about>
80. Braveman P. What Are Health Disparities and Health Equity? We Need to Be Clear. *Public Health Rep*. 2014;129(Suppl 2):5-8.
81. Lynch JF, Perera IM. Framing Health Equity: US Health Disparities in Comparative Perspective.

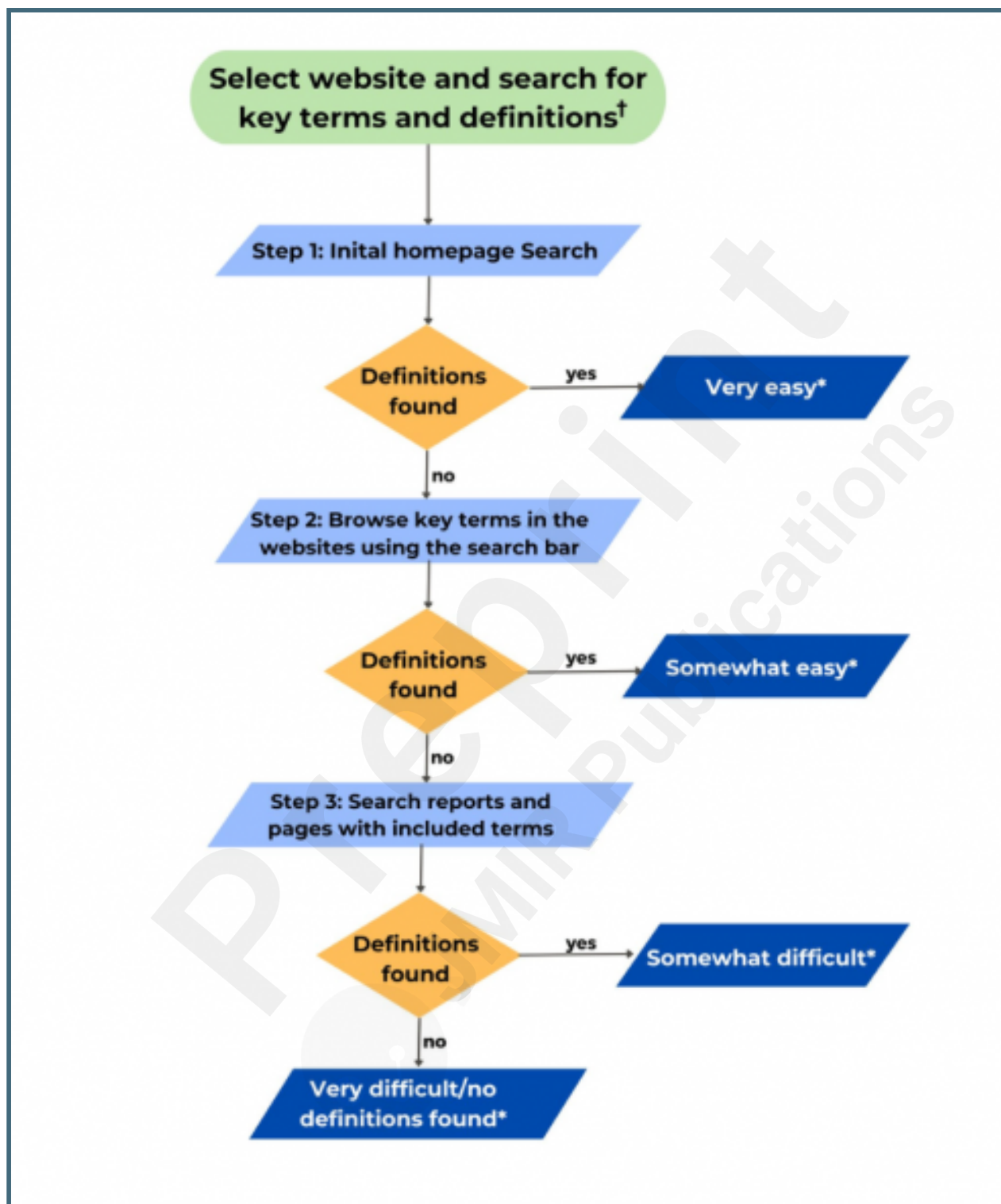
J Health Polit Policy Law. 2017;42(5):803-839. doi:10.1215/03616878-3940450

82. Battineni G, Baldoni S, Chintalapudi N, et al. Factors affecting the quality and reliability of online health information. *DIGITAL HEALTH*. 2020;6:2055207620948996. doi:10.1177/2055207620948996
83. Office of Disease Prevention and Health Promotion. Health Literacy Online. June 8, 2016. Accessed April 10, 2025. <https://odphp.health.gov/healthliteracyonline/>
84. Smith BJ, Tang KC, Nutbeam D. WHO Health Promotion Glossary: new terms. *Health Promotion International*. 2006;21(4):340-345. doi:10.1093/heapro/dal033

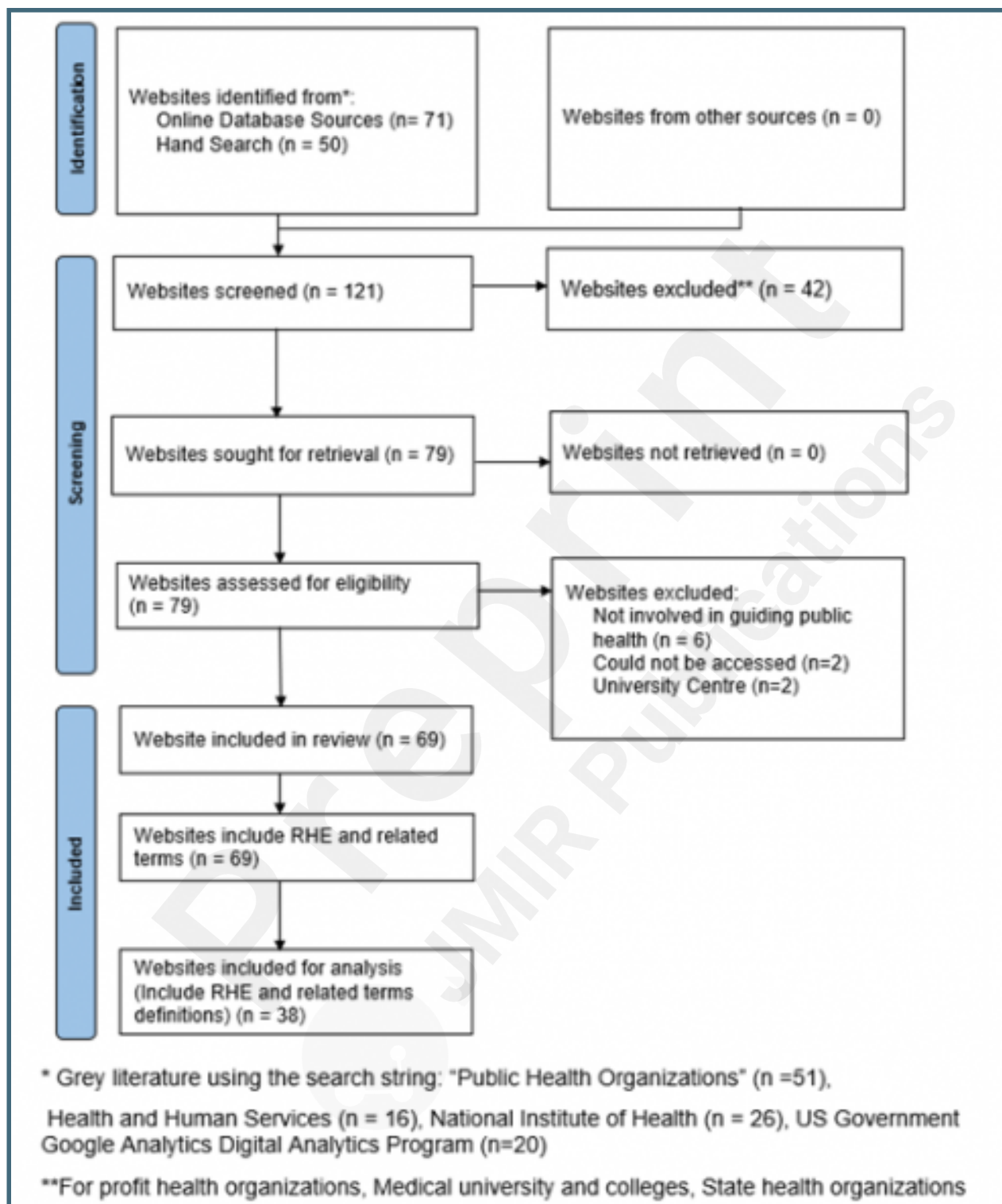
Supplementary Files

Figures

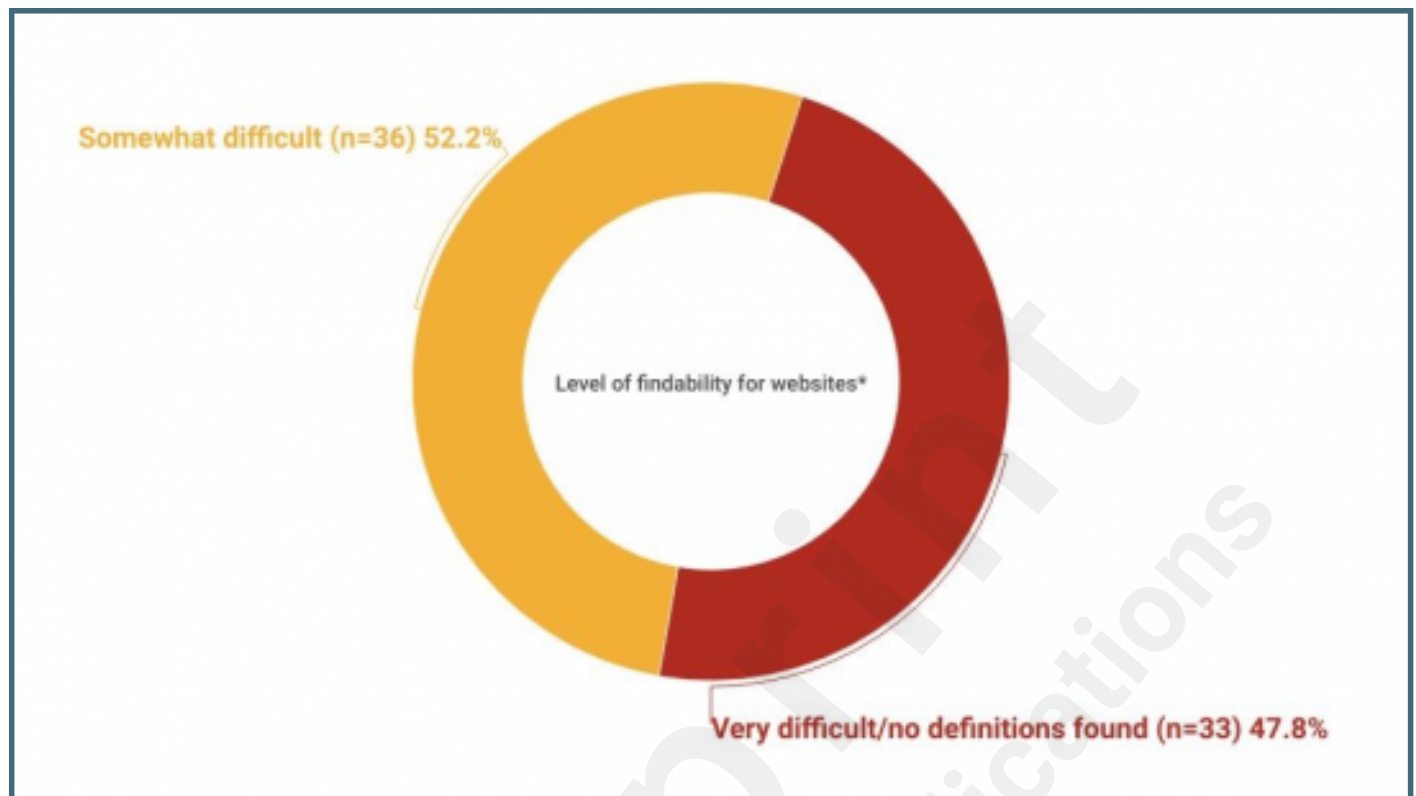
Procedure for browsing websites to find definitions and assigning findability.



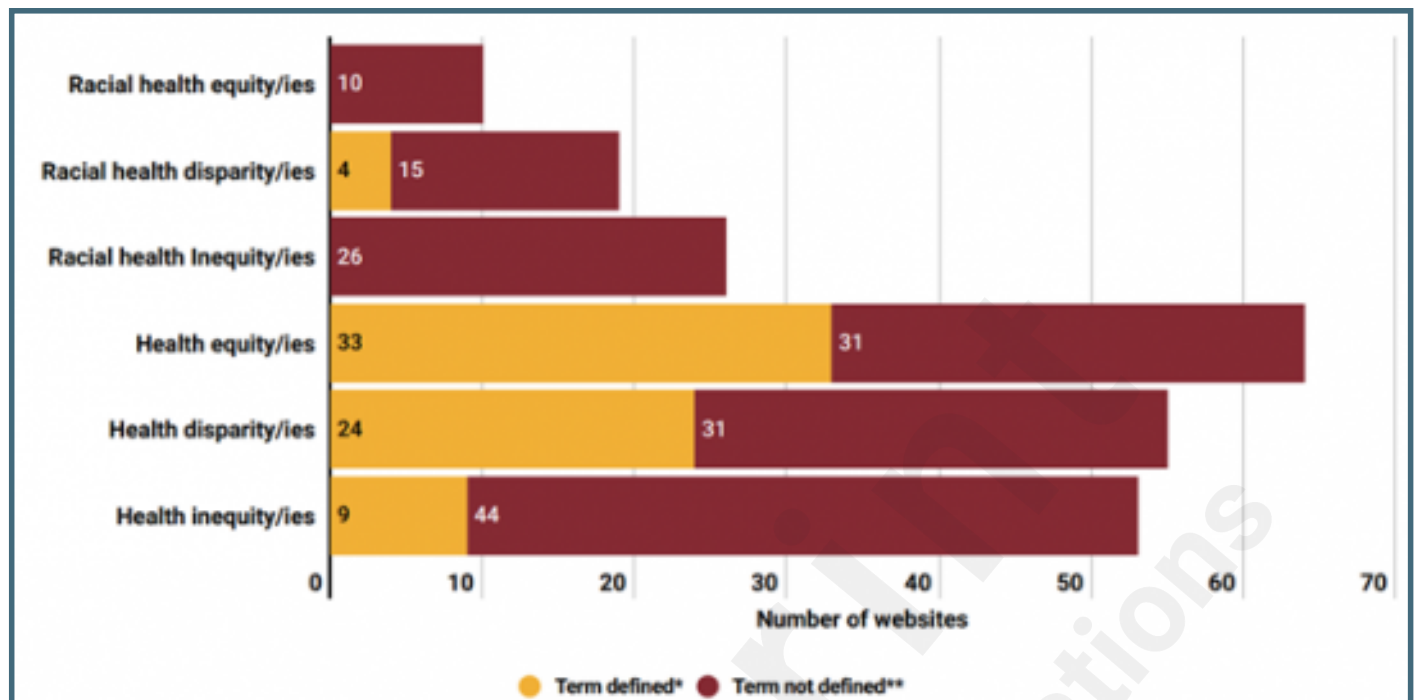
PRISMA diagram for included and excluded websites.



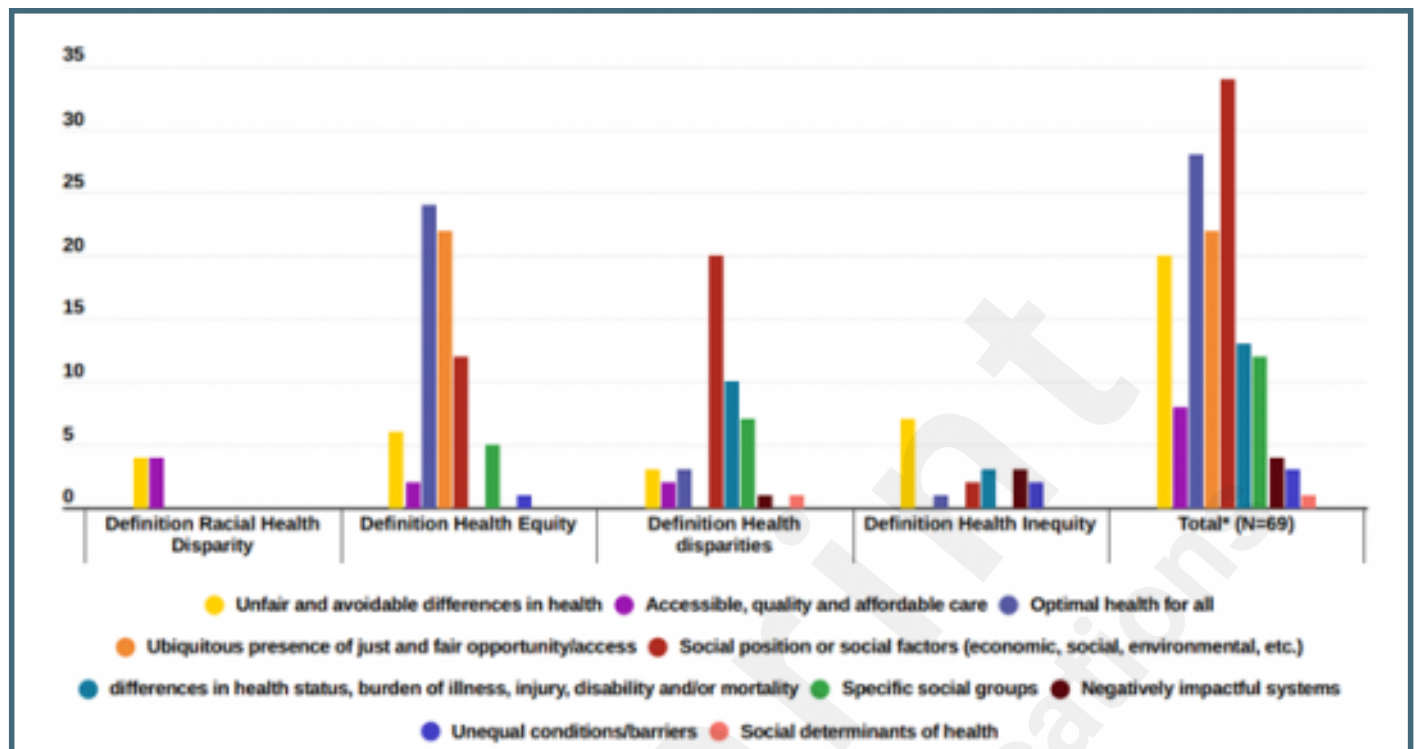
Findability of racial health equity terms and definitions within prominent health organizations' websites.



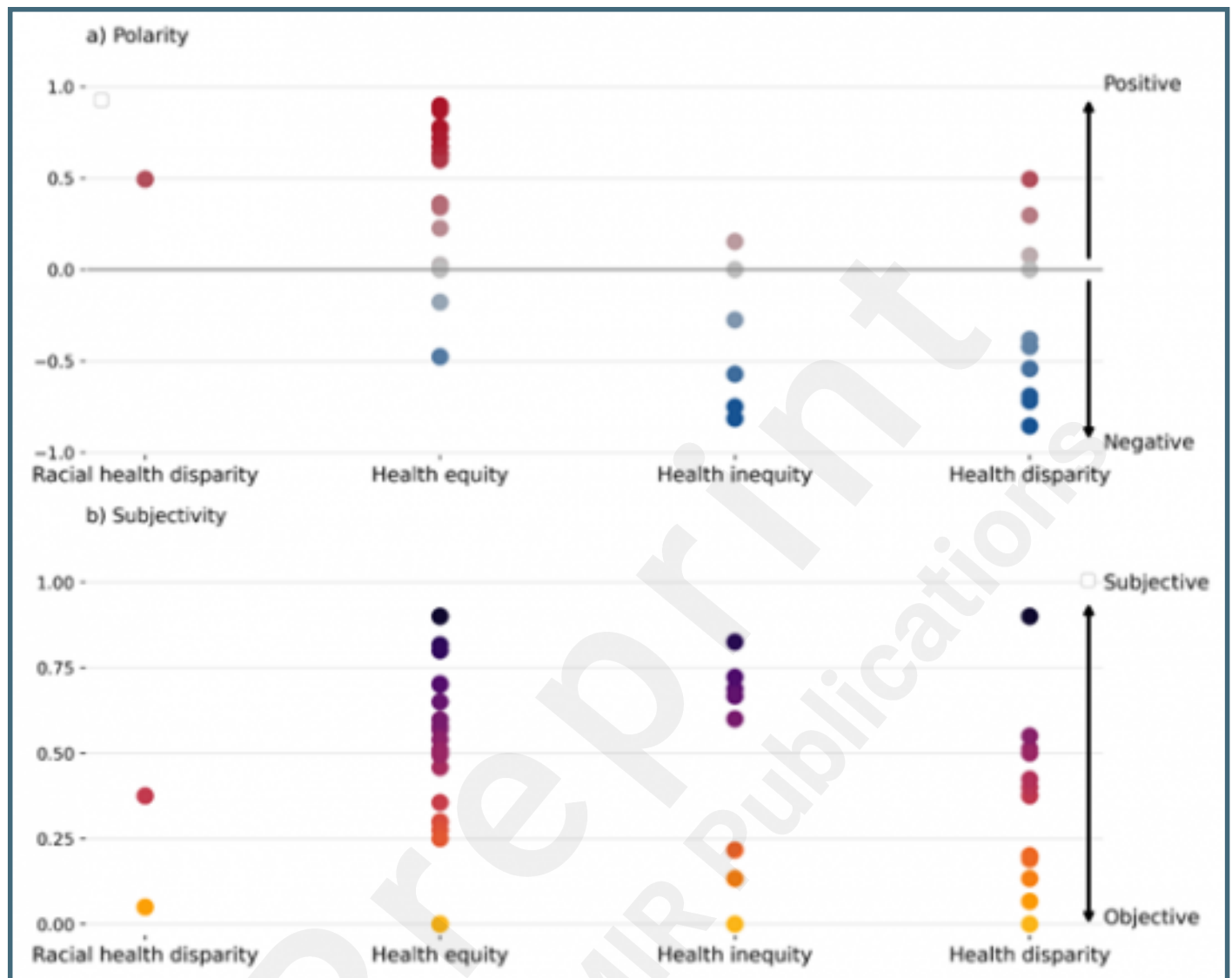
Inclusion and definition of racial health equity and related terms in reviewed websites.



Themes identified within the definitions.



Sentiment analysis of definitions.



Multimedia Appendixes

Inclusion/Exclusion Criteria, Theme development samples, PRISMA Abstract Checklist and PRISMA Checklist for Systematic Review.

URL: <http://asset.jmir.pub/assets/c5ac2e6bab6d9ed9adabceb82d2660d8.docx>

Details of prominent health websites included in this study (listed alphabetically).

URL: <http://asset.jmir.pub/assets/e591763677098b1b595e85d1c0082c0e.xlsx>

Definitions and citations of included terms on health websites.

URL: <http://asset.jmir.pub/assets/0a50395d522ec3a541641a8b39482985.xlsx>

Themes present with included definitions.

URL: <http://asset.jmir.pub/assets/71bea888e590487cefed56ec81b57fd0.xlsx>