

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

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## 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

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## Original Manuscript

## Original Paper

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## Abstract

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**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 <sup>1,2</sup>, health outcomes <sup>2</sup>, and health literacy <sup>3,4</sup> 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 <sup>5</sup> and the Covid-19 pandemic, which disproportionately affected Black, Hispanic/Latino, and Indigenous populations <sup>6</sup>. The recent call for advancing racial equity by the White House <sup>7,8</sup> has increased initiatives addressing inequities.

Subsequently, there has been a significant rise in the use of “health equity/equities” terminology across health websites <sup>9</sup> and academic literature <sup>10, 11</sup>. 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 <sup>12</sup>, including guidance on health equity practices <sup>7,8</sup>. As most adults in the United States report that internet searches are their first sources of health information <sup>13</sup>, the ability to easily find health information online is critical for patients and their caretakers <sup>14</sup>.

Ambiguous health equity definitions can create variability in understanding across disciplines, demographics, and contexts, leading to confusion and misinterpretation <sup>15 16</sup>. 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 <sup>17</sup>.

Despite comprehensive reporting guidelines for health research in peer-reviewed journals <sup>18 19</sup>, no current widely accepted guidelines have been developed for websites of health institutions <sup>20,21</sup>. Even though the American Medical Association (AMA) developed guidelines for websites that provide medical and health information in the early 2000s <sup>21</sup>, 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<sup>22,23</sup>. Furthermore, most tools are designed to guide the end-user on how to evaluate websites<sup>24,25</sup>, 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<sup>26, 27</sup>. Therefore, it is essential that prominent health websites provide clear and easily findable information<sup>28-30</sup>.

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 it is 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<sup>31,32</sup>.

## Protocol registration

This study was part of a project titled "Centering Racial Health Equity in Evidence Syntheses" funded by the Robert Wood Johnson Foundation<sup>10,33</sup>, intending to evaluate and provide recommendations

for centering racial health equity within evidence syntheses<sup>34</sup>. 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 published<sup>35</sup>.

## 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<sup>12,36</sup>. 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.

## 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 Program<sup>37</sup> (Supplemental 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 the study team's and external collaborators' recommendations. Overall, one author (MBD) identified 121 websites to consider for inclusion.

## Website selection

After the initial list of websites for potential inclusion was generated, two members of the study team (MBD plus ET or MB) reviewed the website homepage and "About" page to determine final inclusion. Disagreements were resolved by a discussion with a third reviewer (PH).

## Search terms for definitions

We compiled a comprehensive list of terms representing racial health equity concepts to analyze within each website. The terms used for definition searches and extractions 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 information (website URL, country, and organization type), inclusion of key terms and word-for-word definitions of racial health equity terms, and references within the definition. An Excel spreadsheet was used to store the data from all included websites. The data extraction process 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 the ability to find specific information easily, which enhances the user experience and increases interaction with the website<sup>38 39,40</sup>. As there were no existing 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 scale<sup>41</sup> 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.

We assigned a maximum of one hour of search for each website, a time interval that is significantly higher than the engagement time on websites by users, which is usually no longer than five minutes<sup>42-44</sup>. Finally, a sum of the individual term definitions findability scores was collected, and the overall findability score for the website was assigned. A website which had all definitions as "very easy" would have an aggregate score of 18 and a website with all definitions classified as "very difficult/no definitions found" would have a score of 0. 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 was 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". (Supplemental Table 1)

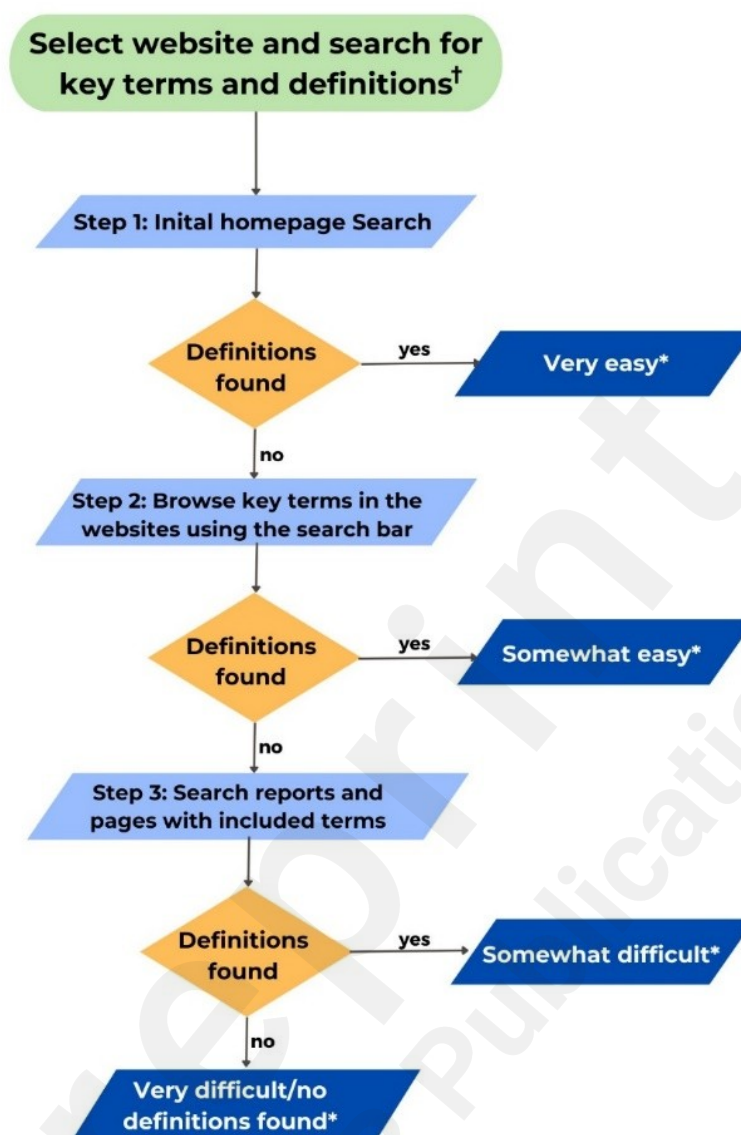


Figure 1: Procedure for browsing websites to find definitions and assigning findability. <sup>†</sup>Denotes terms for extraction (racial health equity, racial health inequity, racial health disparity, health equity, health inequity, health disparity); \*Assigned findability score (0=Very difficult/no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

## Inter-rater Reliability

Two researchers (MBD and MB) performed the findability assessment on each included website. We used the Kappa statistic <sup>45</sup> to analyze the inter-rater reliability of the findability scale for this study. Final ratings were determined by discussion.

## Thematic Analysis

We conducted thematic analyses of all collected definitions to identify which prominent concepts were included in the definitions. The thematic analysis utilized the 2006 Braun and Clark framework <sup>46</sup>. 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 identified separately by two members of the study team (MBD and MB) and any disagreements were resolved through discussion. The finalized themes were then reviewed by a third member of

the team (ET).

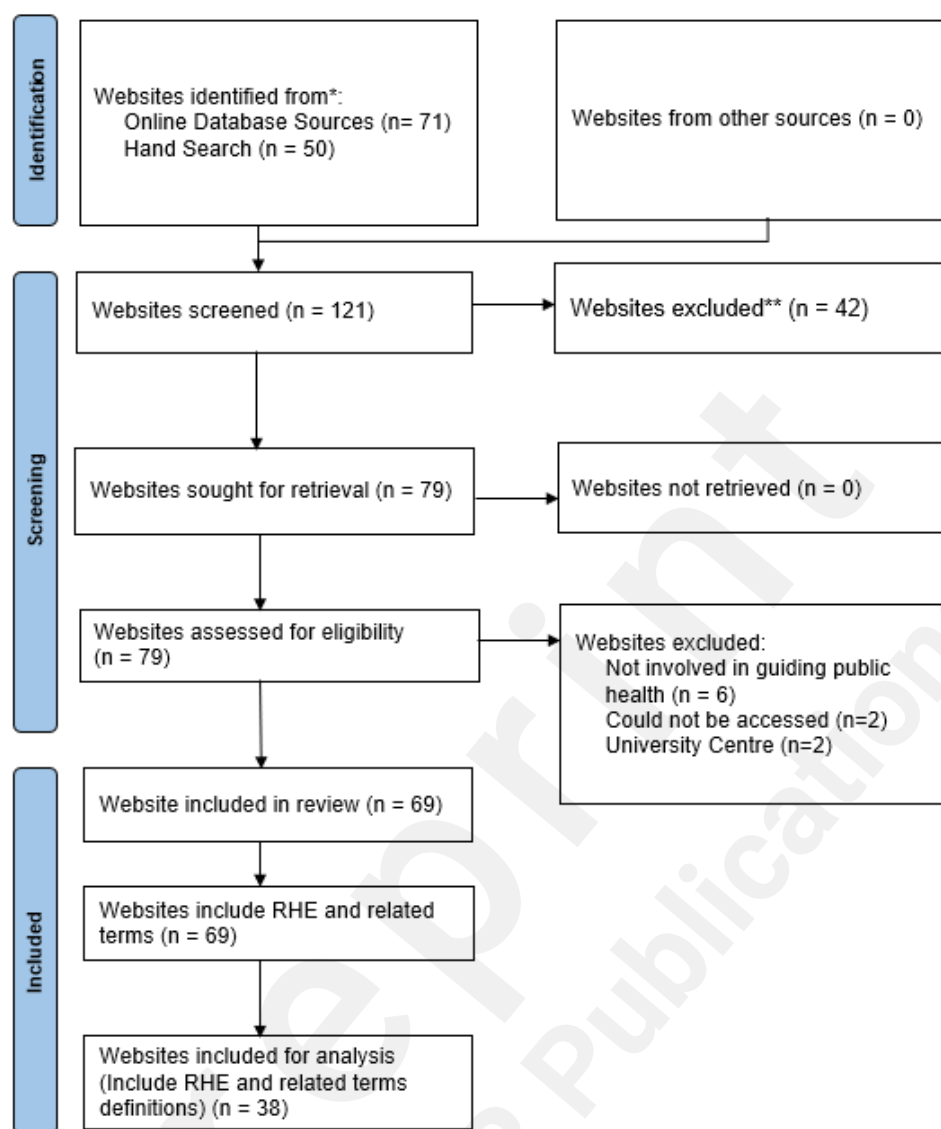
### Sentiment analysis

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 0.05<sup>47</sup>. 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 polarity<sup>48</sup> and Textblob was utilized for the subjectivity analysis<sup>47-49</sup>.

## Results

### Summary of Search

Our 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, we included 69 websites that included the terms “racial health equity/equities,” “racial health inequity/inequities,” “racial health disparities/disparities,” “health equity/equities,” “health disparity/disparities,” and “health inequity/inequities,” for analysis.



\* 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

Websites included were 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. On the other hand, 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”.

Of the 69 included websites, most had the highest 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 Supplemental Table 1.

The overall findability 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.

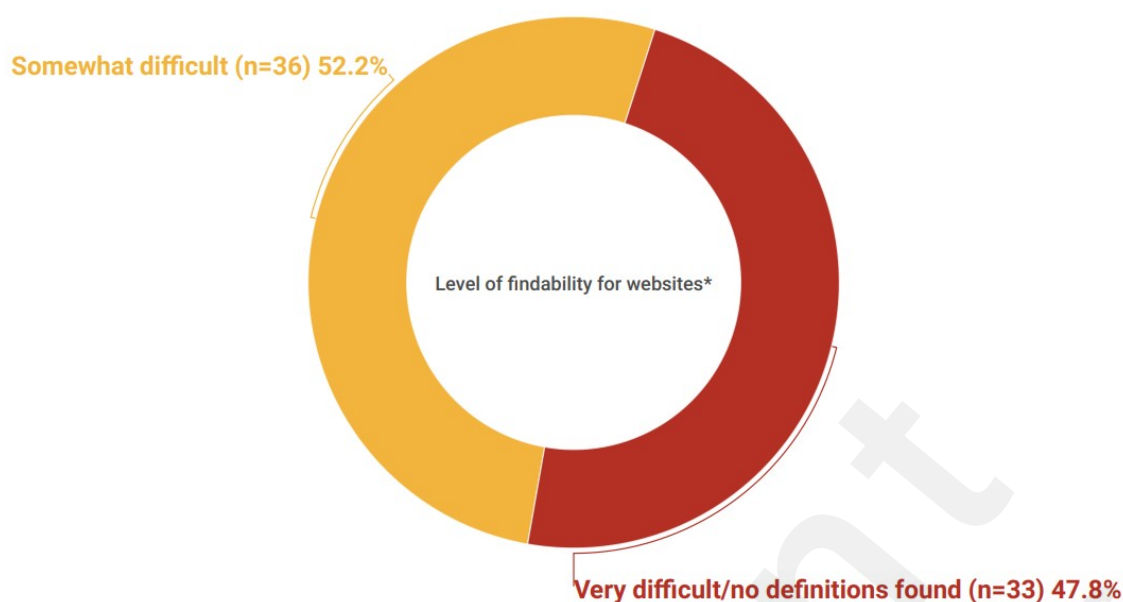


Figure 3: Findability of racial health equity terms and definitions within prominent health organizations' websites. \*The level of findability for websites was assigned using the findability tool (see Methods).

***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." On the other hand, 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. (Supplemental Table 2).

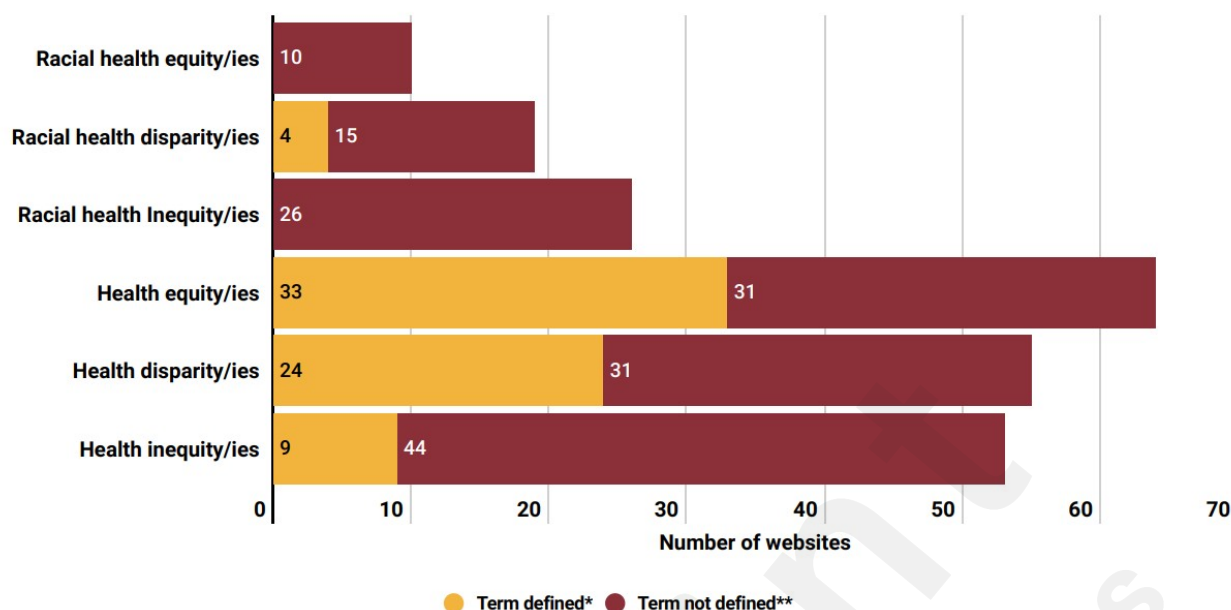


Figure 4: Inclusion and definition of racial health equity and related terms in reviewed websites. \*Term defined indicates websites which included the terms reviewed with their definitions; \*\*Term not defined indicates websites which only included the terms with no definitions provided.

**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”. On the other hand, “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, 88.3%), “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. 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).

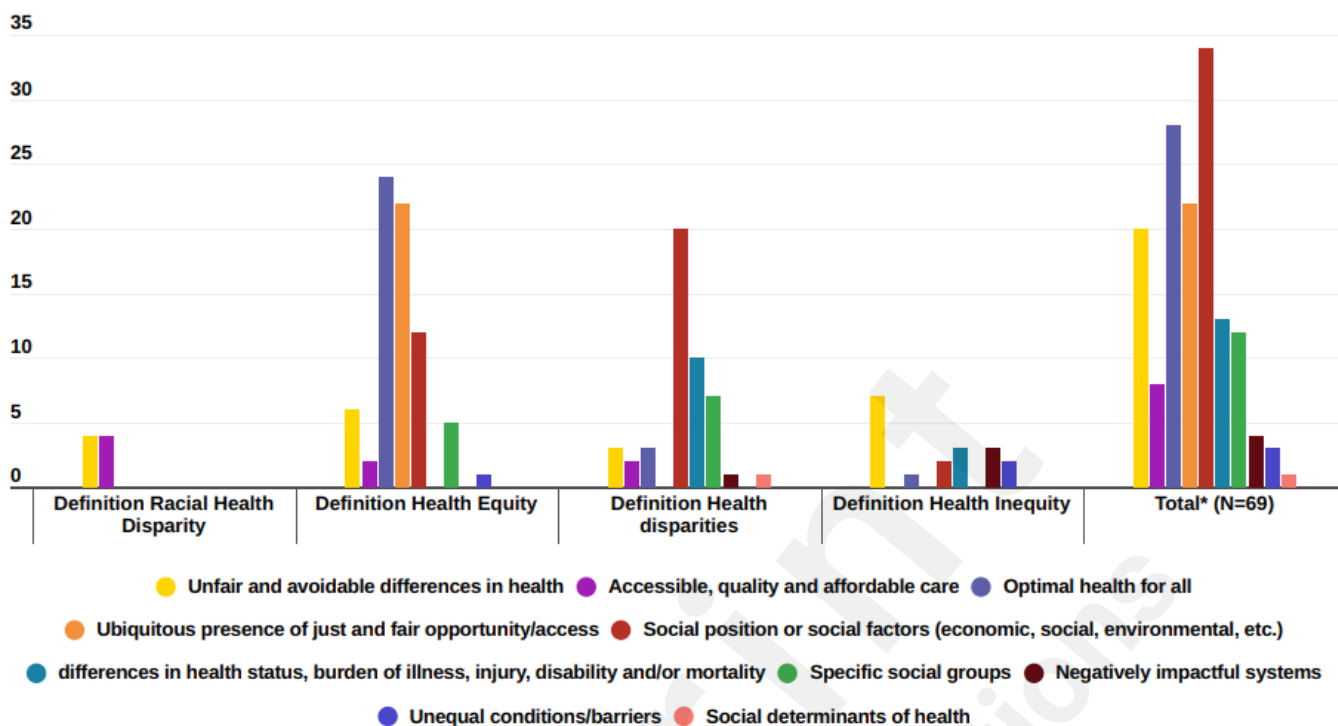


Figure 5: Themes identified within the definitions. \*Total indicates the total number themes from all the extracted definitions

### 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 ( $\sim 1$ ) indicates the definition is influenced by emotions while objectivity ( $\sim 0$ ) indicates no influence<sup>50,51</sup>.

### Citation Review

We also analyzed whether definitions were supported by citations. 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 (Supplemental Table 2). 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*"<sup>52</sup>. 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"<sup>53</sup> (4/33, 12.1%), while for health disparity/disparities, 25% (6) cited "Healthy People 2020"<sup>54</sup> and 8.3% (2) cited "The Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives For 2020 Phase I Report"<sup>55</sup>. 22.1% (2) health inequity/inequities definitions cited "The concepts and principles of equity and health"<sup>56</sup>. Additionally, one website utilized the same term to refer to health inequity/inequities and health disparity/disparities and cited "A glossary for health inequalities"<sup>57</sup>. The remaining citations<sup>15,58-67</sup> were only cited once per definition.

## Discussion

### Principal Results

As most Americans now seek out health information on the internet,<sup>13 68</sup> 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 studies<sup>69</sup>. 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<sup>24,27</sup>. Additionally, the "infodemic" (too much information including false or misleading information online<sup>70</sup>), during the Covid-19 pandemic also highlighted how easily information can be misconstrued and used<sup>70,71</sup>. 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<sup>33,35</sup>. Definitions are particularly important for racial health equity as an emerging theoretical concept that has a significant potential for ambiguity and misunderstanding<sup>33</sup>. 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<sup>11</sup>.

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<sup>67,72-75</sup> 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<sup>52,58,76</sup>. 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<sup>58,76-78</sup>.

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 concept<sup>79</sup>; 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 changes<sup>80</sup>. 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<sup>53,56,79</sup>. 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 health<sup>78</sup>. 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 only 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.

## 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<sup>44,68,81</sup>. 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 information<sup>30</sup>. Guideline repositories, like the Enhancing the QUALity and Transparency Of health Research (EQUATOR) network, are essential for guiding unbiased and credible reporting of research results<sup>19</sup>; similarly, website-based networks could assist with the creation of guidelines to ensure the rigor and credibility of health information on websites. This 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.

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### 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.

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### Conflicts of Interest

None declared.

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## Supplementary Files



## Multimedia Appendixes

PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) 2020 checklist and PRISMA 2020 abstracts checklist.

URL: <http://asset.jmir.pub/assets/88fa830c44e97c6d51a123102f4ccfd7.docx>

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

URL: <http://asset.jmir.pub/assets/d84b9d2bd196509fabfd28575749444a.xlsx>

Definitions and citations of included terms on health websites.

URL: <http://asset.jmir.pub/assets/d4bffdcd413ffb731f74e7460d545a6f.xlsx>