



EQUALSS GUIDE Multiple: A novel framework for equity-focused evidence synthesis

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ABSTRACT

Background: Understanding the differential effects of health and care interventions across disadvantaged groups is essential in addressing inequalities and avoiding inadvertently worsening them. Previous research has highlighted limitations with the existing PROGRESS-Plus framework. We aimed to develop a framework to allow researchers to synthesise evidence with an equity perspective.

Methods: First, we re-analysed articles from the EQUALISE study, a review of interventions that increase or decrease inequalities in general practice, to explore the various domains of disadvantage examined in the included studies. We then compared these domains of disadvantage with the existing PROGRESS-Plus framework. Finally, we propose a new framework to support equity-focused evidence synthesis.

Findings: From the 325 studies included in EQUALISE, the most commonly assessed PROGRESS-Plus domains were sex/gender (53%), ethnicity/race (50%), and age (44%). The PROGRESS-Plus framework did not include explicit mention of context-specific groups, those with multiple intersecting disadvantage, and people who experience disability. Building on PROGRESS-Plus, our new framework EQUALSS GUIDE Multiple includes: Ethnicity and race, Qualifications and education, Underserved area, Age, Language and religion, Sex, Sexual orientation, Gender identification, Underrepresented groups (inclusion groups), Income and wealth, Disability (physical, mental and learning), Employment and occupation, and Multiple disadvantage.

Interpretation: EQUALSS GUIDE Multiple builds on PROGRESS-Plus to encapsulate key domains of disadvantage while allowing for context-specific flexibility. Examining the effectiveness of policy and practice interventions by disadvantaged groups is paramount to prioritise actions that narrow the health gap and prevent actions which widen inequalities.

1. Introduction

Increasingly research and evaluation projects explore the impact of health care or public health interventions through an inequalities lens [1]. Interventions delivered without considering the different needs of individuals or groups may inadvertently increase inequalities in health or health care outcomes (i.e., intervention-generated-inequalities) [2]. For example, the inverse equity hypothesis suggests that inequalities can widen if more affluent groups benefit from new programmes more quickly than disadvantaged groups. [3].

PROGRESS-Plus is the most popular framework used to ensure that such a perspective is adopted in systematic reviews [4,5]. The name of the framework is an acronym designed to assist with the identification and grouping of wider determinants of health that drive inequalities in health outcomes: Place of residence, Race/ethnicity/culture/language, Occupation, Gender/sex, Religion, Education, Socioeconomic status, and Social Capital, and the Plus refers to other context-specific factors that associate with stigmatisation and exclusion such as age, mental

illness, sexual orientation, and disability [4].

Despite its benefits, PROGRESS-Plus has limitations. For example, the categories are broad and it is not always clear how they should be operationalised, such as the Plus category. Furthermore, it uses certain distinct dimensions (e.g., gender and sex) as interchangeable while distinguishing interrelated dimensions (e.g., socioeconomic status and occupation) as separate [6,7].

It was last assessed in 2014 using systematic reviews published between 2008 and 2013 [4]. Since then, the evidence base has expanded. There have been significant changes both in the way health care is designed and delivered. Further, our understanding of the wider determinants of health and the impact of structural factors on health inequalities has also broadened. This has affected the way we speak about health equity and the dimensions that shape inequalities in health outcomes in the academic, policy, and public sphere.

In this paper, we present an updated assessment of the PROGRESS Plus framework to test its usability and the extent that it covers the dimensions of social disadvantaged addressed in health and health care

This article is part of a special issue entitled: Health Inequalities published in Public Health in Practice.

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<https://doi.org/10.1016/j.puhip.2025.100600>

Received 27 March 2024; Received in revised form 1 January 2025; Accepted 6 January 2025

Available online 15 February 2025

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research. For our assessment we used the largest realist review of primary care interventions to address inequalities in health and health care outcomes [1].

Based on this assessment, we propose a new framework (and acronym) that can effectively summarise the dimensions that shape health and health care outcomes with enough nuance and detail to help researchers address equity in conducting their research, reporting outcomes, and evaluating interventions.

2. Methods

The study had three main components. First, we extracted the domains of disadvantage addressed within the EQUALISE review [1]. Second, we compared these domains with the PROGRESS-Plus criteria. Third, we used an iterative process to develop and propose a new equity-focused evidence synthesis framework.

2.1. Extraction of the domains of disadvantage addressed within the EQUALISE study

The EQUALISE review was published in 2023 and included 325 empirical studies published from 1989 to 2021. The studies focused on clinical or care-related outcomes reported by socio-economic group, or other PROGRESS-Plus criteria. The included studies were conducted in developed countries according to the Organisation for Economic Co-operation and Development (OECD) and the studied interventions focused on major drivers of inequalities in mortality such as cardiovascular disease (CVD), cancer, diabetes, and chronic obstructive pulmonary disease (COPD). For the identification of studies, the authors adopted a wide scope in terms of inequities drivers and outcomes (including healthcare experience, health indicators and disease risk factors). This scope led to the high number of included studies and ensured a broad range of interventions and approaches in care. We therefore considered that it effectively captured the breadth of published literature and could be used in our assessment.

We reviewed each of the 325 empirical studies included in the EQUALISE review and extracted the domains of inequalities considered in each article. If multiple domains of disadvantage were included, then we coded them separately.

2.2. Comparison between the extracted domains of disadvantage and PROGRESS-plus framework

We mapped each extracted domain of disadvantage from the EQUALISE study across the relevant PROGRESS-Plus criteria. We identified domains that did not align to a PROGRESS-Plus criterion as well as for PROGRESS criteria that were not addressed across the EQUALISE data. We narratively explored the differences between the domains of disadvantage within EQUALISE and PROGRESS-Plus to examine how the domains of disadvantaged differed.

2.3. Development of a new framework

We used an iterative process to assess the results of the comparison and develop a new equity-focused evidence synthesis framework. This involved discussions within the research team and consultations with health inequalities researchers and experts. The discussions focused on the results of the comparison between the PROGRESS Plus framework and the EQUALISE data, and specifically on overlaps, gaps and conflicts as well as how the resulting disadvantage domains should be organised. One of the aims of the PROGRESS Plus framework was to offer an “aide-memoire” to researchers, therefore we aimed to develop a new acronym that would be in line with latest developments in research, involve all the factors contributing to health disadvantage, and will be also easy to remember. We also presented initial stages of the emerging framework at academic conferences and public health events to improve and adjust

the acronym.

3. Results

3.1. Exploration of the domains of disadvantage from the EQUALISE study

A total of 325 studies were included from EQUALISE [1]. The domains of disadvantage covered twelve categories with a range of sub-groups (Table 1).

3.2. Comparison between the domains of disadvantage from the EQUALISE study and PROGRESS-plus

The PROGRESS-Plus domains were Gender/sex (n = 171, 53 %), ethnicity/race/language/culture (n = 162, 50 %), age (n = 144, 44 %), socioeconomic status (n = 108, 33 %), place of residence (n = 50, 15 %), disability (n = 49, 15 %), education, (n = 28, 9 %), occupation (n = 14, 4 %), social capital (n = 11, 3 %), mental illness (n = 10, 3 %), sexual orientation (n = 1, 0.3 %). No studies assessed religion (Fig. 1).

We found several gaps between the PROGRESS-Plus criteria and included EQUALISE articles. First, some groups appeared to be missing, such as those requiring targeted interventions. These may include inclusion health groups such as prisoners or people with living with drug dependency. Furthermore, disability as a domain of disadvantage was accounted for in several studies (n = 49), but only fit into the ‘Plus’ criterion. Second, there was no category for studies which included multiple and intersectional disadvantage. Third, there were cases where the operationalisation of a domain of disadvantage could be classified in more than one PROGRESS Plus criteria. For example, many studies (n = 72) grouped people according to their area-based socioeconomic status

Table 1
Domains of disadvantage in the included EQUALISE articles.

Categories	Included groups defined by:
Socioeconomic Status	Area-based deprivation Individual income Individual employment Individual occupation Individual education Level of healthcare knowledge
Area-based	Living in rural vs urban Living in ‘underserved’/deprived/ underfunded area Federally funded healthcare centre
Ethnicity	Ethnicity Race Culture
Communication	Spoken language Literacy Health literacy Technological literacy: internet, mobile, and computer N/A
Age	N/A
Gender	Women and men No gender minorities mentioned
Sex	Males and females
Sexuality	Lesbian, gay, and other sexual identities
Disability	Mental impairment Physical impairment
Inclusion health groups	Drug dependence Alcohol dependence Asylum seekers, migrants, refugees Domestic abuse victims Street-based sex workers Homeless populations Indigenous populations HIV stigma
Characteristics associated with discrimination	
Multiple disadvantage	Inclusion of two or more of the above categories

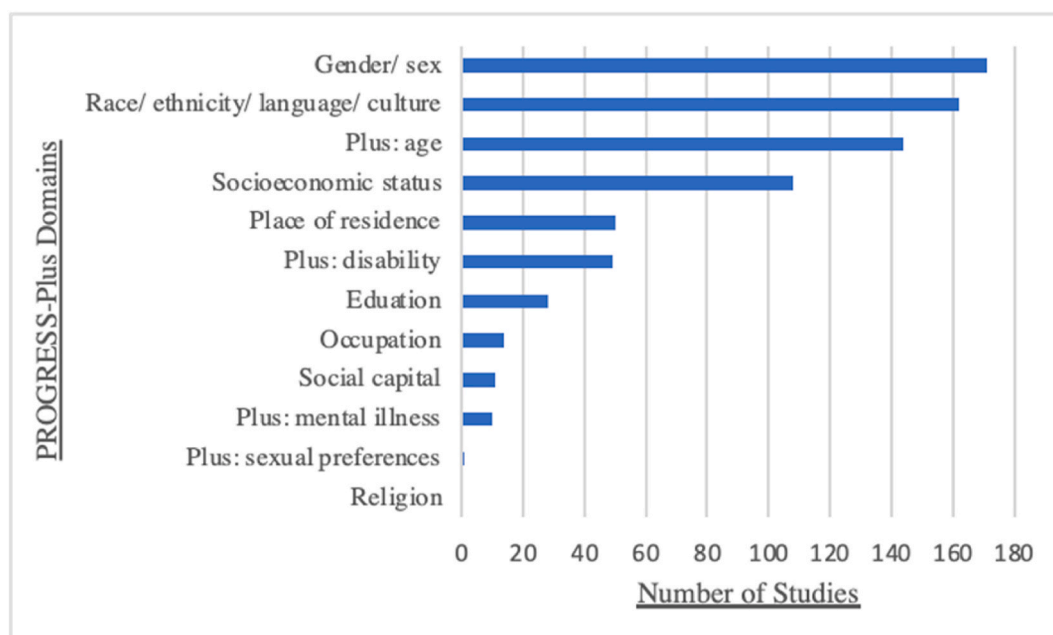


Fig. 1. PROGRESS-Plus domains assessed/targeted in included studies (n = 325).

(e.g. using the Index of Multiple Deprivation (IMD) or low-income neighbourhoods), and it was unclear if this related to ‘Socioeconomic Status’ or ‘Place of Residence’.

3.3. EQUALSS GUIDE Multiple: a novel framework

Driven by the domains of disadvantage from the included EQUALISE articles, we propose the EQUALSS GUIDE Multiple framework for equity-focused systematic reviews (Fig. 2).

The framework outlines the domains of disadvantage that researchers may consider when exploring the differential effect of interventions across disadvantaged groups in an evidence synthesis. We do not envisage that each of these domains would be included in every review. Rather, researchers would select a priori the key domains of disadvantage for their review. For example, age or sex inequalities may not be a priority, and the inclusion of these groups may make an equity-focused review unmanageable. Researchers should work through this framework systematically to ensure they include the domains that are salient and stratify life opportunities and health outcomes in their context.

The Ethnicity and Race (“E”) component refers to ethnicity and race. In health inequalities research, these two concepts are often used interchangeably. However, they have different histories and they often associate with migration experiences [8]. We invite researchers to be reflective on the way that the use of ethnicity may conflate the impacts of structural racism and/or migration histories depending on their context [9]. For example, research in the UK shows that racism affects Black people’s mental health. However, differences exist both between Black Caribbean and Black African groups and between people born in the country and those who immigrated at some point in their life [10].

The socioeconomic component of disadvantage is complex and includes different factors. Within studies, we found one of these factors (e.g., income or neighbourhood level of deprivation) is often used as a proxy of overall SES. More accurately, SES should be considered as a composite measure of related but distinct factors [11]. We have therefore decided to include its different components as distinct dimensions in our acronym. Qualifications (“Q”) and educational level captures what we often understand as human capital (education knowledge and skills). It is measured at the individual level and links closely with lifestyle choices, social networks, and opportunities in the labour market

[12]. Underserved area (“U”) captures neighbourhood or area levels of socio-economic deprivation as well as access to services (including health care), green and recreational spaces, exposure to pollution, and transportation connections. Individual and area-based SES measures have independent effects, and hence area-based measures such as IMD are included under Underserved area (“U”) [13]. Given that area-based inequality is driven not only by the socioeconomic status of neighbourhoods, cities, or regions, but also by their geography, urbanity and architecture, and the extent to which they are connected with other areas, Underserved area (“U”) in our acronym aims to remind researchers to account for the impact of these factors on people’s health [14]. Income and wealth (“I”) capture material resources which can be measured at either the individual or household level and have a strong association with health outcomes [12]. Finally, Employment (“E”) and occupation as an additional component of socio-economic status captures both material resources, exposures to health risk factors and aspects of social status within society which have been consistently associated with health outcomes and health inequalities [12].

The “A” applies to age, which refers to inequalities across age groups, such as working age people and older people. The “L” refers to language and together with religion can capture the cultural influences on people’s health [15–17]. By adding language as a distinct dimension, we invite researchers to pay attention to differences among people in terms of their knowledge and skills in written, spoken and non-spoken language.

Sex (“S”) stands for sex and by this we mean the sex that people were assigned at birth (male or female) while “G” stands for gender identification and refers to gender as a social construct [18]. According to evidence sex and gender are important yet different biological and social drivers of health inequalities, and researchers are increasingly calling for a shift in recognition and reporting of both to address evidence gaps [19,20–22]. This includes the impact of biological sex on physiology and disease risk (due to the impact of genetic, epigenetic and hormonal influences), and the impacts of the social constructs of gender (for example due to the impact of clinician-patient interaction, and behaviour in the community) on health opportunities and outcomes [1]. We have included sex and gender identification separately to highlight that gender includes people who identify as transgender and/or non-binary. Transgender people experience significant, and well documented multi-level stigma and discrimination (including violence) which impact

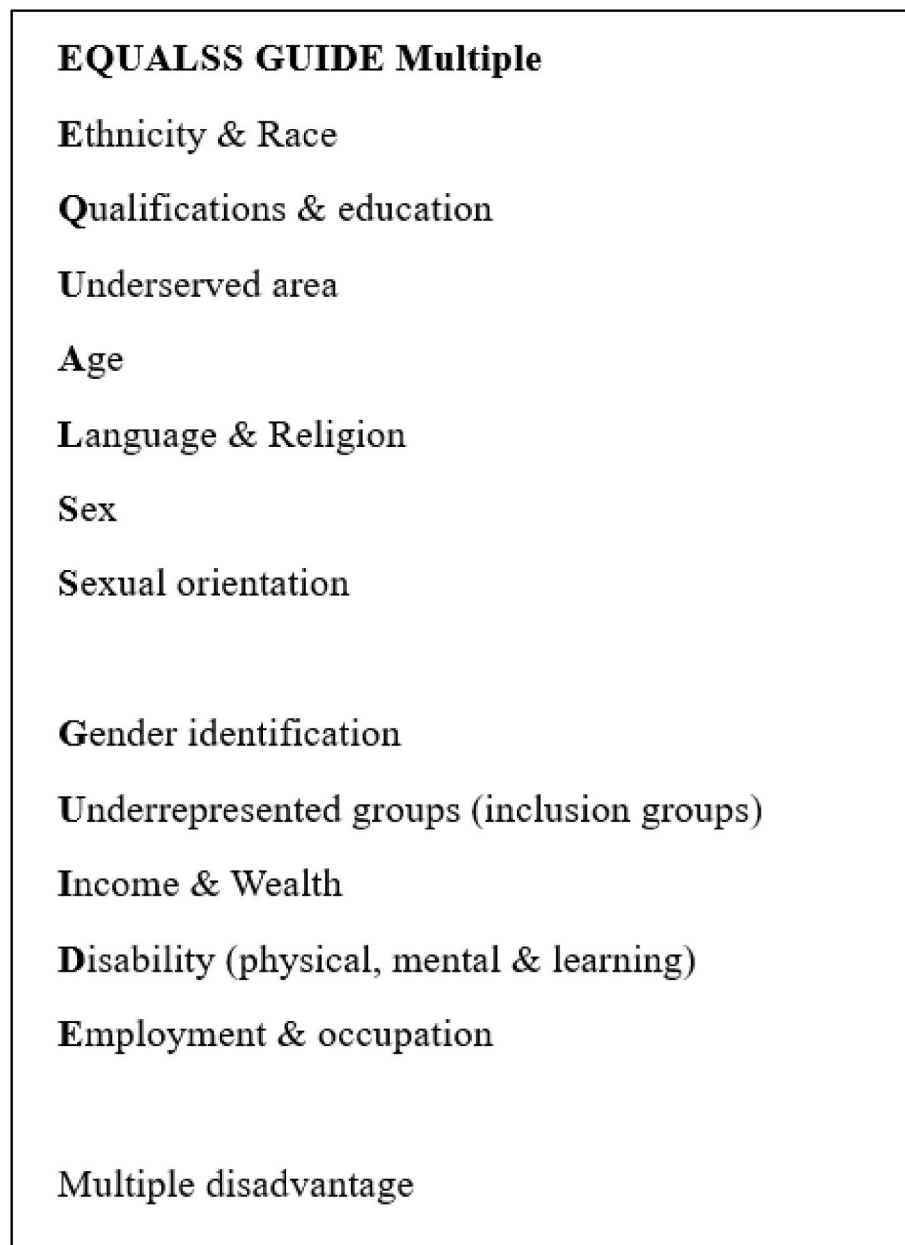


Fig. 2. EQUALSS GUIDE Multiple framework.

physical and mental health opportunities and outcomes [23,24].

The other “S” stands for sexual orientation and is added as evidence shows that people with lesbian, gay, bisexual or other minoritised sexual orientations experience health inequity because of multiple social exclusions, problems accessing appropriate care, discrimination, and lack of appropriate and inclusive services [19,25,26].

“D” is designed to encompass disability and captures physical, mental and learning disabilities, which according to the social model of disability is an important social stratification mechanism [27] as people are disabled by societal barriers rather than their impairment or difference [28]. Disability has been also found to have directly measurable impacts on health care inequalities, for example through ‘diagnostic overshadowing’ [29] bias and disbelief towards people with disabilities [30].

To shift researchers’ attention to the fact that there are people who experience severe disadvantage and are excluded both from health care systems and research, we have added a second “U” to capture underrepresented groups. Again, the characteristics of such groups differ

across contexts. However, vulnerable refugees and asylum seekers, people with lived experience of homelessness, substance misuse, the criminal justice system or sex work represent underrepresented groups. Finally, to address that often people experience disadvantage across multiple dimensions (e.g., a South Asian trans man with learning disabilities experiences disadvantage across ethnicity, gender identification and disability) we have used ‘Multiple’ as an addition to our acronym. Multiple disadvantage is often associated with the experience of underrepresented groups like those described above (e.g., rough sleepers often have experience of the justice system, substance misuse and mental health stigma). However, researchers and health care system decision makers are increasingly acknowledging the fact that the experience of most people is shaped simultaneously by their different characteristics. Therefore, studying, documenting, and explaining inequality requires the adoption of an intersectional lens. ‘Multiple’ is meant to be an explicit reminder of this reality and an encouragement for researchers to adopt an intersectional lens [31].

4. Discussion

The persistent unfair and avoidable differences in health outcomes can only be addressed if we have evidence on how to effectively reduce these inequalities. EQUALSS GUIDE Multiple provides a framework for equity-focused evidence syntheses to support researchers in understanding the differential effects of interventions across key domains of disadvantage.

4.1. Comparison with existing literature

EQUALSS GUIDE Multiple differs from PROGRESS-Plus in important ways. First, we have disentangled the distinct dimensions of socioeconomic status with Qualifications and education ("Q"), Income and wealth ("I"), Employment and occupation ("E"). We have removed social capital as we consider that there is difficult to be operationalised in meaningful comparative ways and it is at least to some extent captured by the other three dimensions of socioeconomic status. We have also added a distinct dimension for Underserved area ("U") which captures the place of residence and area-level of socio-economic deprivation. This is an important distinction as it shows that the different dimensions of socioeconomic status or the levels it is measured should not be used interchangeably as it is often the case in published research. For example, within the literature we found studies which stated in the title that they were assessing socioeconomic disparity, but only assessed education or occupation in their analysis [32].

Secondly, we have included Language and religion ("L") as a distinct component aiming to highlight that cultural differences across individuals and groups should be considered in health inequalities research. Our findings regarding the reporting of PROGRESS-Plus domains in available literature were similar to other studies [5,33], particularly in relation to religion being the least reported of any PROGRESS-Plus domains. Religious affiliation and religiosity associate with how people understand health and illness and with their lifestyle. We therefore consider it an important dimension to be considered especially in evaluating health care interventions or understanding health care related inequalities (e.g., evidence shows that patients with fatalistic views tend to engage less well with health management) [1].

EQUALSS GUIDE Multiple also contains age ("A") as it is most often included or reported in research but it is rarely discussed in terms of inequality. It also distinguishes Sex ("S") from Gender ("G") identification as an explicit reminder of how transgender and non-binary people experience significantly poorer health care and report significantly poorer health outcomes. Within the evidence base, gender and sex were terms frequently used interchangeably, and infrequently defined within the studies. For the same reason, it has a distinct component for Sexual orientation ("S") as lesbian, gay, bisexual and people with other minoritised sexual orientations are often provided with suboptimal care and report worse health outcomes. Only one EQUALISE article assessed the impact of interventions across people with different sexual orientations, but with recent evidence that recording of sexual orientation and gender identity (SOGI) in research is poor, it is important to explicitly reference to help highlight gaps in the evidence [34].

Disability ("D") is also added as a distinct component in line with the social model of disability and including physical, mental, and learning disabilities. Finally, there is a distinct component for groups who experience severe disadvantage with Underrepresented groups ("U") and the addition of Multiple has been explicitly included to highlight the compounding effect of multiple disadvantage on health equity [31].

4.2. Strengths and limitations

EQUALSS GUIDE Multiple is an aide-memoire for researchers undertaking an equity-focused evidence review. The evidence-informed approach to framework development draws upon previous equity-focused reviews which strengthens the framework. One limitation is

that our data is based on only primary care studies, which means that the categories may be primary care specific. However, whilst other health topics may have a different distribution of domains included, we are confident we have covered the key domains due to the fact it is based on the largest published review of primary care interventions which address inequalities [1].

It is important to note that different contexts and interventions will require different domains; all the categories may not be relevant for every study, and there may be additional categories which are not explicitly included. This should be used as a systematic framework for researchers and policymakers to work through to ensure they have not missed any domains which are important in the areas they are working. The framework as a whole is designed to be flexible, context dependent and able to include additional categories. The Underrepresented groups ("U") dimension (marginalised groups experiencing significant disadvantage) in particular accommodates context-specific variation. We acknowledge there remains potential for additional dimensions of inequality to be included (for example the discussions around neurodiversity may suggest that this represents an additional dimension to be considered). However, given that in our societies, understandings of equity and inclusion are constantly evolving, we suggest that EQUALSS GUIDE Multiple at this specific moment offers a comprehensive framework that is up to date with both academic research and transformations in the public discourse. At the same time the Underrepresented groups ("U") dimension offers space for refinement and targeted approaches. We are therefore confident that it can provide an inclusive, useful aid-memoire without listing every possible dimension of social stratification in every context.

In developing EQUALSS GUIDE Multiple, we carefully considered the methodological approach and potential biases that could impact or influence our framework design. We acknowledge that the composition of our research team, and the diverse consistency may have influenced our perspectives and decisions throughout the process. We have tried to include clinicians and researchers with a range of experience and professional backgrounds.

4.3. Policy and practice implications

There is a need for the research community to routinely disaggregate outcomes by disadvantaged groups to allow policymakers and practitioners to understand the implications of implementing a service or intervention across groups. This information is crucial to ensure that policymakers and practitioners understand the benefits and drawbacks of an intervention for different groups. In turn, this allows policymakers and practitioners to put into place mitigating strategies to avoid increasing inequalities. Here we advocate for a move away from a one-size-fits-all approach where interventions are judged to work (or not), to a more nuanced approach to evidence synthesis to understand the differential impact across different groups. We do not argue that simply because an intervention may widen inequalities for one community it should not be implemented. Rather, policymakers and practitioners should have the evidence to understand the overall impact on the population and the differential impacts across different communities. Our new framework supports this use of evidence by promoting a methodical approach to equity considerations in evidence synthesis.

4.4. Conclusion

EQUALSS GUIDE Multiple has the potential to better summarise domains of disadvantage with equity-focused evidence synthesis, helping researchers, practitioners and policymakers to understand the distribution of effects of interventions.

Funding

This research did not receive any specific grant from funding

agencies in the public, commercial, or not-for-profit sectors.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

This project received no funding. We would like to thank the Health Equity Evidence Centre (HEEC) team who contributed to improving the framework through an iterative process.

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