**Paper 4: Confronting the consequences of racism, xenophobia and discrimination on health and healthcare systems**

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Key messages

- Beyond individualised interventions which aim to mitigate the health impacts of racism and xenophobia, there is need to prioritise transformative action which challenge and ultimately seek to dismantle existing political, economic, legal and social systems which uphold/reproduce racism, xenophobia and all forms of structural oppression. Transformative justice with interventions requiring community based, multisectoral and society-wide non-violent action and restorative justice with appropriately compensated historically wronged groups to tackle contemporary challenges are essential.

- To effectively tackle the structural drivers of injustice which underlies racism in economic, political and health systems, there is need to prioritise anti-racist interventions that can prevent and address the health impacts of racism and xenophobia through individual, organizational and community change as well as movement-building, legislation and race equity policies in institutions and nations.

- Interventions must look both at the intersectional and generational nature of discrimination by considering the interaction of multiple forms of oppression, and the historical contexts which produce contemporary racial dynamics among different populations.

- While specific individual and community interventions of variable effectiveness have been identified in this review, there is still much crucial work to do in investigating the impact of various interventions that seek to prevent or address the consequences of racism, xenophobia and discrimination on health.

**Abstract**

Racism, xenophobia and discrimination are key determinants of health and equity and must be addressed to achieve impact on health outcomes. We conclude that far broader, deeper, transformative action is needed. To tackle the structural drivers of racism and xenophobia, anti-racist action and other wider measures that target determinants should adopt an intersectional approach to effectively address the causes and consequences of racism within a population. Structurally, legal instruments and human rights law provide a robust framework to challenge the pervasive drivers of disadvantage linked to caste, ethnicity, Indigeneity, migratory status, race, religion and skin colour. Actions must take into account the historical, economic and political contexts in which the effects of racism, xenophobia and discrimination impact on health. We propose a number of specific actions; an intervention-based commission that explores how we action the approaches laid out in this paper; building a conversation and a series of events with international multi-lateral agency stakeholders to raise the issue and profile of racism, xenophobia and discrimination within health; and use our multiple platforms to build coalitions, expand knowledge, highlight inequities, and advocate for change across the world.

## Introduction

The first three papers in the series described the ubiquitous nature of racism, xenophobia, and discrimination on the grounds of caste, ethnicity, race, Indigeneity, migratory status, skin colour and religion.[insert reference to first 3 papers] They described the profound health consequences of racism and xenophobia in every context, and how these forms of oppression are based on centuries of historical atrocities. Earlier papers also highlighted the importance of taking an intersectional approach in order to address root causes of structural inequality [reference paper 3]. Encouraged by politicians and the media, there is increasingly visible othering of racialised and minoritised populations by those with power, which impacts health and wellbeing. Such othering demands a response from those concerned with improving health for all to prevent adverse outcomes. Any response to address health impacts of racism, xenophobia and other forms of discrimination must take account of historical and contemporary context. The need for the response to be multisectoral, society-wide and address historical injustices poses a challenge to global health, and requires critical rethinking of where future action should lead.[1] Rethinking future action and by whom has become urgent given recent events, including the election of far-right governments in some countries, the growth of the Black Lives Matter and other racial justice movements, and calls to decolonise health itself. To date, societal responses have ranged in scale - from the important but limited, such as calls for equality for minority healthcare workers, to a fundamental rethinking of society.[1]

There was a notable delineation between studies addressing specific health outcomes versus studies addressing broader drivers of health. Figure 1 highlights the importance of process and power in the formation of health; however, interventions identified across most levels were rarely process-oriented and employed limited approaches to understanding or changing power imbalances. This review consequently focusses on wider societal action to confront the health impacts of racism corresponding to the core of our model. We present evidence on legal and

human rights instruments and on systems and institutions, to build a case for what works to confront the health impacts of racism, xenophobia and discrimination. We review the limited evidence available on individual, community and health interventions aimed at improving health outcomes. We conclude by summarising key actions neccessary to tackle the health impact of racism, xenophobia and discrimination and a plan for future action. Full definitions of the terms used can be found in the first paper of the series [reference paper 1].

**Wider societal action to prevent adverse health outcomes from racism**

As racism and its impact is often structural,[2] we surmise that the most impactful determinants of health outcomes, and consequently likely effective interventions, require broad action targeting the structural drivers of discrimination. Many of these are legal and political and require radical policy interventions. These broader structural drivers are underpinned by history and previous reviews of discrimination from a broader scope concluded that there is much focus on explanatory rather than solution directed research.[3] Much of medicine and health interventions have been developed on a foundation of injustice, cruelty and discrimination. Drawing on scholars such as Frantz Fanon[4], more radical approaches advocate the destruction of existing systems, including defunding established systems of authority which contribute to systemic racism and redistributing resources towards community-based and non-punitive solutions. For many societies, change is therefore only possible if historical injustices[5] are recognised and addressed through reparative[6] and transformative justice[7]. The global health community is beginning to engage with this challenge. Inspired by related issues such as environmental justice communities fighting for racial justice have added their voices to those confronting structures that uphold the status quo and calling for radical change in areas such as policing and prisons.

Whilst much existing research seeks to understand racism and discrimination within a specific sector or community, the root cause of many racialised health inequalities derive from macro-economic policies driven by political ideologies [Paper 1 reference]. Evaluating the health impacts of broad societal changes and generalist policies, such as reparations for historic injustice is challenging and will be addressed in the forthcoming Lancet Commission on Reparations and Redistributive Justice.[8] We believe we can learn from natural experiments and quasi-experimental studies. We examine two broader 'interventions', social movements for health and racial justice and affirmative action policies. First, contemporary and historical social movements – informal networks of individuals or groups engaged in political conflict on the basis of a shared identity[9]– have long interrogated the political economy driving racialised health inequalities. The South African Treatment Action Campaign mobilised thousands of Black, HIV-positive women to protest government inaction on HIV/AIDS and eventually succeeded in forcing international pharmaceutical companies to make life-saving drugs available at affordable prices.[10] The Civil Rights Movement campaigned against racist segregation laws preventing African Americans from using health facilities reserved for Whites.[11] The 1964 Civil Rights Act prohibited discrimination and segregation in all public institutions, including hospitals. An analysis of vital statistics from Mississippi found a considerable narrowing of racial differences in mortality between 1965 and 2002, resulting in an estimated 25,000 additional Black infants surviving in the rural South,[11] and improvements in life expectancy amongst Black women.[12] Second, affirmative action can address inequity and discrimination particularly in the domains of education and employment.[13] The US Civil Rights Movement played a major role in promoting affirmative action policy. In India, affirmative action to support those in the lowest caste was enshrined in the 1950 Constitution and the abolition of the customary rules of the caste system (Panel 1).[14]

In summary, the above examples suggest broader political and economic interventions can impact health outcomes, but the paucity of research underscores the need to further explore the

extent to which context affects the applicability of specific interventions for improving health outcomes. For example, affirmative action policies have long attracted controversy, including within medical communities.[15]

Indeed the societal marginalisation of racialised groups has the double effect of limiting the widespread adoption of legal and policy measures to improve health outcomes for minoritised communities, and of limiting the collection of empirical data to determine the specific effects of those policies that are in place. The limited analysis in this section reflects the dire reality of the failure of most governments to prioritise legal and policy measures targeted at substantive equality on racial and ethnic bases in access to health. Though unrealised to date, we hope that the COVID-19 pandemic[16,17] may result in some positive changes in light of the widely acknowledged unequal impact of this pandemic on many societies.

**Legal and human rights frameworks**

*Applicable International Human Rights Frameworks*

The right to health is enshrined in many international human rights instruments, most prominently the Universal Declaration on Human Rights and the International Covenant on Economic, Social and Cultural Rights (ICESCR). ICESCR guarantees everyone the right to the highest attainable standard of mental and physical health[18] and requires that this right be exercised "without discrimination of any kind as to race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth, physical or mental disability, health status (including HIV/AIDS), sexual orientation and civil, political, social or other status."[18] There are also a number of international human rights treaties that prohibit discriminatory access to health, including the International Convention on the Elimination of Racial Discrimination, the Convention on the Elimination of All Forms of Discrimination Against Women, the Convention on the Rights of Persons with Disabilities,[19] and the Convention on the Rights of the Child.

*Impact of International Human Rights Legal Interventions for Health Outcomes*

Legal and policy frameworks, especially those anchored in international human rights norms, can play a major role in the fight against racism, racial discrimination, xenophobia and related intolerance, as they relate to health. As described in the Lancet Commission on Global Health and Law, law exerts a powerful influence on health by structuring, perpetuating, and mediating the risk factors and underlying social determinants of health.[20]

First, these frameworks set common standards, articulating shared normative commitments regarding what conduct, treatment and outcomes are acceptable so that persons, communities and societies can work in coordination towards a shared vision. Gaining common ground is particularly pertinent, given the different meanings among categories such as race, ethnicity and caste, and in light of the differential experiences and conceptions of discrimination and intolerance. Human rights-based approaches (HRBAs) to health include strategies "designed to redress deeply ingrained inequalities, and aim to enable everyone to participate fully in economic, social, and cultural affairs toward the progressive realisation of rights."[21]

Secondly, these frameworks also provide mechanisms through which governments, public officials, and to some extent private actors, can be held accountable for conduct and outcomes that violate applicable equality and non-discrimination frameworks. There is evidence that stronger racial equality and non-discrimination laws are associated with better outcomes for racially minoritised groups.[21,22] For instance, a study found evidence that HBRAs in part contributed positively to health gains for women and children in Nepal, Brazil, Malawi and Italy.[23] Furthermore, law can be a detriment to health outcomes through criminal justice laws, criminalisation of sex work and infectious disease transmission, and immigration regimes.[20] Individual case studies have highlighted the transformative impact of HRBAs on government frameworks for provision of healthcare. Strategic litigation was used in Venezuela and Argentina resulting in requirements on the respective governments to concretise abstract legal

commitments to the right to health via positive obligations to provide HIV treatment.[20] Meier et al noted that "Litigation to enforce health-related rights has extended across tuberculosis in prisons in South Africa, maternal mortality in Uganda, the health insurance system in Colombia, and the regulation of medicines in India."[24] A 2019 systemic review found broader evidence that human rights interventions improve HIV-related outcomes.[25] A Peruvian study found a citizen-led programme empowered Quechua-speaking women to monitor health care clinics and support other women facing medical discrimination resulted in improved right to health by democratising the process of identifying and acting on violations at the local level.[26] In addition to the above, the indivisibility of human rights is a necessary condition of rights-based health progress, especially when other sectors, like education, participation, and the environment, saw sizeable investments alongside human rights efforts.[27]

In summary, international human rights law holds great potential for improving health outcomes for minoritised populations. However, understanding this potential requires further research to investigate the transformation of legal frameworks into policy, including the independent regulation of their implementation. Unlocking this potential requires a redoubled effort to address the drivers of systemic racism, explored in the first paper in this series. Ultimately, developing and implementing human rights and legal instruments involves greater collaboration between health and legal professionals at all levels.

**Institutions and systems**

There was limited evidence on institution and system level interventions targeting the material conditions around minoritised groups with respect to social determinants and with one exception,[28] these exclusively studied Black and Latino groups in the United States. We present three illustrative studies that show what is possible: early childhood development programmes, housing mobility programmes, and income supplementation programmes. First, two studies examined interventions to promote early childhood development among African American

households.[29,30] The Carolina Abecedarian Project, a  randomised controlled evaluation of a two-stage treatment: 1) children aged 0-5 years received cognitive and social stimulation interspersed with caregiving and supervised play; 2) as children became older, they received homeschool resource teachers who improved early math and reading skills.[29] The intervention has been credited with many different impacts on participants throughout the lifecourse including increases in childhood IQ, reductions in pregnancy, depression and substance use among teenagers, lower blood pressure and risk of hypertension among male 30-year-olds, and even measurable differences in brain structure among 40-year-olds.[31] As described above, and while limitations exist, the education system is potentially a good target for interventions.[32] Second, several studies have evaluated the effect of US government assistance to relocate minoritised families from low-income, inner-city neighbourhoods to middle-class, suburban areas.[33–39] Using quasi-experimental approaches exploiting random variation in the selection of programme beneficiaries, these studies estimated health impacts from interventions such as the Moving to Opportunities project. Families selected by lottery in five cities were offered practical and financial support by government to move out of public housing into high-income neighbourhoods. This was associated, at three to seven years, with reductions in child injuries, accidents, and asthma attacks,[38] but evidence on impacts on child mental health was mixed.[35,37,38] Among adults, evidence for impact on self-reported physical and mental health was also mixed,[35–38] but large, sustained reductions in BMI and glycated haemoglobin were observed up to 15 years later.[35,39] Third, multiple studies evaluated US income supplementation programmes,[40–44] all except one[40] showing positive benefits. Quasi-experimental evaluations of the Earned Income Tax Credit scheme and the Food Stamp Program found evidence for declines in low birthweight among beneficiary households, with larger effects for Black than White babies.[43,44] Studies of income supplementation for American Indian households found reductions in symptoms of adult and child psychiatric disorder.[41,42]

The one study outside the US examined the impact of expanding the South African Pension at the end of the apartheid era.[28] It estimated a 1.19 SD increase in weight-for-height and 1.16 SD increase in height-for-age among girls under the age of five living in a household with a beneficiary grandmother, but not among boys or among girls living with a beneficiary grandfather. The inference was that grandmothers receiving direct transfers had greater influence over household spending. A review[2] with a specific focus on structural racism in the US identifies three promising intersectoral approaches: Place-based, multisector, equity-oriented initiatives including redevelopment of neighborhoods and housing, advocating for policy reform in areas such as prisons and drug use, and in the training of the next generation of physicians.

In summary, despite some limitations of the studies in this section, there are sufficient grounds to seek further evaluation of specific measures and implement action to alter the material conditions that lead to poor health outcomes of minoritised groups, that stem from institutional or systemic discrimination. The root causes of poor housing and income among minoritised groups requires political, social policy, and legislative action to resolve, however, some of the specific examples identified here, such as income supplementation, improved rehousing, better pensions and teacher-delivered help could be adapted to the local context.

## Individual, Community and Healthcare Interventions

Our review of individual, community and healthcare interventions suggests the published evidence is limited and is summarised in the appendix. Table A1 in the appendix summarises the key findings of intervention studies identified from the academic health literature in relation to their context, mechanisms, and outcomes (see Paper 2 for the health consequences of racism, xenophobia and discrimination [paper 2 reference]). It is important to also acknowledge the limits of the analyses that we have conducted. We recognise that a wealth of intervention

work that may result in improvements to health exists outside of health related journals. Furthermore, while we have searched the literature widely, we have not, for example, considered the economic impacts of racism, xenophobia or discrimination or interventions such as reparations that may address these. We recognise that there is literature on demonstrating effective interventions on wider determinants of health such as those targeted at socioeconomically deprived communities in the US or the UK, many of whom are predominantly minoritised that we have only partially evaluated in this review.

First, we surmise that there is an urgent need to increase high quality research addressing the causes, determinants and consequences of adverse health impacts of racism, xenophobia and discrimination (Panel 2). Second, in considering what works to confront the health impacts of racism, targeted individualised health interventions may be important to mitigate the 'symptoms' of racism, but they do not address root causes or transform power imbalances. Third, whilst developing a targeted body of literature is important to evidence action, focusing on one specific population may reinforce rather than overcome their marginalisation and continue to perpetuate power hierarchies. Additionally, isolating intervention efforts to specific forms of racism or discrimination risks silencing or devaluing forms of minoritisation which are left off the research agenda. This may also obfuscate or detract from the task of addressing fundamental hierarchies of racial power which underlie racism. Ultimately, a diverse and balanced body of research across population groups and contexts has the potential for the most traction and health impacts should be central to all intervention studies addressing racism, xenophobia and discrimination. Finally, we gathered literature from across the world on interventions to address multiple forms of discrimination. In doing so, we seek to highlight similarities in interventions. However context matters and each intervention should be adapted to specific minoritised groups, taking into account their social location and needs.

**Key Principles to Address the Health Harms of Racism, Xenophobia and Discrimination**

We suggest six key principles, focused on the upstream causes, to address the health harms caused by racism, xenophobia and discrimination.

First, decolonisation must be adopted to challenge the societal structures that we live in to create a fairer society. Decolonisation is a process of active efforts that recognise, examine and undo the legacies of colonialism, across all domains of society including the social, political and epistemological [Paper 1 appendix reference]. It cannot be done without challenging the ingrained colonial-logics that persist today. Perhaps the most challenging aspect of decolonisation is the pervasive nature of ideas around "the other"; generated by centuries of injustice against minoritised groups.[45] Colonial ideas underpin the current social construction of race, ensuring ideas of Black inferiority and White supremacy. Interrogating colonial logic is our route to decolonising our understanding of inequality, and the powers that drove those ideas in the first instance. For example, most authors of this series are beneficiaries and a part of the institutions that have created existing unequal global health systems through either our training or employment. Truly tackling these systems and health inequalities will require wealthy societies to rethink existing paradigms of knowledge creation and structures in global health, challenging the very concept of global health.

Second, global health must address both reparative and transformative justice.[6,7] To achieve true change, we must also draw on ideas from political science and a wider pool of researchers outside current western dominant institutions and concepts. In this way, we will move to a more

active view of racialisation, interrogating power in both ideology and process of knowledge development and "evidence". For example, Escobar and colleagues[46] drew on the experience of Indigenous and Afro-descendant activist-intellectuals to illustrate how colonial notions have limited our ability to imagine what is possible in order to bring about health justice. To deal with the many inequalities in global health, scholars and activists need to take a pluriverse of perspectives to craft different possible futures that could bring about the profound social transformations that are needed to inform better health. In addition, a decolonial approach to anti-racism invites us to embrace social justice in a way that is deeply intertwined with community healing.[47] Such an approach also requires undoing structures of racialised subordination, and remaking social, political and economic institutions on more equitable terms. Another approach that minoritised groups champion is transformative justice which takes a non violent approach to deliver justice as opposed to state enforced systems such as the police and prisons. Transformative justice approaches avoid violence by encouraging support for survivors, healing, building communities, and supporting the development of skills to avoid violence.

Third, increasing diversity and inclusion to improve social cohesion and resilience will help to address the health inequalities caused by racism, xenophobia and other forms of discrimination. Diversity should be seen as a precursor to an equal society, and not as a final endpoint.[48] Minoritised communities must be at the centre of designing interventions and policies to improve their health. It is the responsibility of global health institutions and organisations to reflect on the diversity of experience and background brought to bear upon the design of interventions and policies, particularly at a leadership level. This should be underpinned by active engagement and collaboration with activists, community groups, non-governmental organisations, and scholars from fields beyond health. Diversity should not mean virtue signalling nor tokenism, bringing different faces into the room sometimes in leadership positions without addressing decision making power, injustice and accountability. In practice, it will require global health

institutions to involve different stakeholders within a broad inclusive framework, with support

from leaders to resource and implement outcomes. It should ultimately involve addressing the

systems that result in the under-representation of minoritised populations.

Fourth, interventions must include an understanding of the intersections between racism,

xenophobia, and related forms of discrimination alongside other axes of discrimination, such as

gender, class and disability.[49] Intersectionality, as described in the first three papers of the

series, must be applied when conducting research and interventions in ways that break open

preconceived ideas around whole groups of people [reference papers 1-3]. Examples of this

within global health include placing all racialised individuals in the same group, without viewing

the different levels of privilege and entitlement across, for example, gender, ability or class. The

specific situation and needs of an individual must be taken into account. Equal treatment, such

as colour blind policies,[50] ignores the existing power imbalances at the core of all these systems

and categorisations.

Fifth, interventions must take an anti-racism approach across all levels, i.e. one that actively

promotes racial equity by opposing racism addressed from the perspective of multiple cultural

contexts.[51] Actions to broadly tackle racism such as bystander anti-racism would indirectly

impact health outcomes.[52] For large scale and meaningful health improvements, interventions

must take into account structural drivers with implementation in a supportive political, legal and

policy ecosystem to ensure lasting effects. At the core of our model, we must challenge the link

between money and power that stem from racial capitalism and the histories of colonisation

[paper 1 ref], whereby those who stand to make a financial profit have the ability to influence

policy makers. From tobacco to climate change, this influence has repeatedly been shown to

have negative and discriminatory health consequences.

Finally, human rights based approaches should be supported. Societies must engage in these policy processes in the following ways:

- Policy making and monitoring, including through the global human rights platforms provided by the United Nations. Many of the human rights treaties are accompanied by monitoring processes that subject countries to international reviews for compliance, including obligations related to the right to health, and equality and non-discrimination rights. Policymakers and human rights advocates should actively engage public health researchers and clinicians in these processes. New policies should have a health impact assessment that includes an estimation of equity for distinct minoritised people.

- Processes that strengthen the capacity of HRBAs to improve health outcomes. For example, international human rights frameworks have been used to underpin recommendations that all states adopt national action plans to combat racism, xenophobia and discrimination in all spheres of public life including healthcare.

- Using international human rights accountability mechanisms such as treaty bodies and courts. This may be a fruitful way to promote government accountability for the right to health especially for racially and ethnically minoritised populations.


## Conclusion and Post-Publication Actions

To address inequities and improve health outcomes, we must take account of structural and institutional causes and the historical, economic and political contexts in which they occur. As we have described throughout the series, racism, xenophobia and discrimination are independent causes of ill health but we live in societies which promote discriminatory ideologies as the norm, while continuing to deny their significance. Interventions to improve the socioeconomic status of minoritised people are required but these will not be adequate alone.

To achieve improvements in health outcomes, we must tackle racism, xenophobia and discrimination as a determinant of global health.

Through this Series, and related initiatives, we commit to future action to improve the evidence base and achieve impact. We also recognise that substantial gaps remain in the evidence base and have outlined specific research recommendations in Panel 2. A series on racism, xenophobia and discrimination, especially one as broad ranging as this, can only set the scene and scratch the surface of what should be done. In every context minoritised communities are struggling against the inequities that they face, largely individually and in the institutions that they live and work in. Interventions should exist at all levels, but, as we have emphasised, the problems and key solutions lie upstream, in the 'core' of our model. This series is only the first step in our process and we make a commitment to continue in the work. We propose a number of mid-term objectives. In addition to the upcoming commission on 'Racism and Structural Discrimination and Global Health' led by the O'Neill Institute we propose three streams of work: (1) a commission that focuses on children and young people that takes a lifecourse approach to improving health related to racial inequities; (2) country-focused papers that provide situation and context-specific information; and (3) in-depth research that that explores specific discrimination-based issues in healthcare. We will then build a coalition of collaborators to work on these issues and to engage with the public. We will work with an international multi-lateral agency to raise the issue and profile of racism, xenophobia and discrimination within health. We will host an event that draws together diverse partners and forms of discrimination that will serve to expand knowledge, and highlight inequities. Finally, we plan to use the Race & Health platform www.raceandhealth.org" [www.raceandhealth.org](http://www.raceandhealth.org) to disseminate information, educate and advocate for change across the world, through the development of regional hubs.

**Panel 1. Case study - India**

While caste-based discrimination still exists in India, a number of affirmative action provisions are laid down in the Constitution of India, which guarantees 'equality before law' (1950),[53] overturning the customary rules of the caste-system. Based on the constitutional provisions, the government of India has employed legal safeguards against untouchability-based discrimination in public spaces, violence, and atrocities. These include the Anti-Untouchability Act 1955 (renamed the Protection of Civil Rights Act in 1976)[54] and the SC/ST Prevention of Atrocities Act 1989.[55] Along with legal safeguards, affirmative action in the form of reservation policy in public employment, higher education, and legislature, as well as other government spheres like public housing have been initiated to improve the economic and educational status of the scheduled castes (former untouchables), other "backward" classes (lower in the caste hierarchy) and the scheduled tribes (Indigenous groups).

In the political arena, seats are reserved for people from the scheduled castes and scheduled tribes in village panchayats (local village councils) and in municipalities, with one-third reserved for women; legislative assemblies of the State, and in the House of People. Members of the disadvantaged social groups are enabled to exercise their power and authority, which can contribute towards ensuring non-discriminatory access to various public health programmes relating to health and nutrition. The Constitution Act, 1992 empowers the village councils and municipalities to function as institutions of self-government with responsibility for implementation of programmes for economic development and social justice. Panchayats are considered as the key last mile link in facilitating delivery of public services to the poor and the most disadvantaged.[56]

While there has been much work on the economic impacts of affirmative action,[57] there has been little on health outcomes. An evaluation of a programme which reserved public sector

jobs for people from disadvantaged castes since 1993,[58] showed decreased under-5 mortality (U5MR). The "political reservation" system for political positions and university posts had a similar effect on child mortality –a 40% reduction in U5MR- suggesting the important role of inclusive decision-making.[59]

**Panel 2. Research and data collection recommendations**

The evidence collated in this paper and across the series clearly shows a bias towards certain types of discrimination and interventions. In response to this, we make eight distinct but related recommendations for future research:

1. Population and location: Research must be conducted in all parts of the world, in particular low- and middle-income countries (LMICs) where evidence is lacking. A systematic review of racism on health, found that of the 333 articles reported, 271 (81%) were from the United States of America. There were no studies from LMICs.[60] Within a country, research may be confined to a particular group, while other minoritised populations are ignored, for example there is little work on racism affecting members of the East and Southeast Asian diaspora.

2. Types of discrimination: The majority of research investigates the effects of discrimination based on race, ethnicity or colour. The evidence base is limited on discrimination due to caste, religion, Indigenous health, and xenophobia towards migrants.

3. Disaggregated data: There is rightly concern over the disaggregation of routine data by race and some countries forbid this. Simply categorising outcomes by racial groups is unlikely to be effective and, in some cases can lead to harm, for example the use of race corrections in clinical algorithms.[61] But knowledge of health disparities is the first step in understanding and then tackling the issues that may exist. Care must be taken not to further stigmatise groups.

4. Study quality: Robust intervention design and well thought-through evaluation process allows for a deeper understanding of possible health and social impacts and facilitates more effective cross-research comparisons. Where quantitative studies are conducted, they must be of an adequate sample size. A number of the studies reviewed were small and underpowered. Evaluations of interventions seeking to directly improve health often did not

measure hard health outcomes and did not include a control group. Evaluations of interventions to promote anti-racist attitudes and behaviours often relied on convenience samples of undergraduates.

5. Follow-up period: Long-term evaluation of interventions is required to assess durability of the effects and adverse effects. Studies must also include an appreciation for latent periods, where outcomes may not avail themselves. In the individual interventions, very few evaluated whether effects were sustained more than two weeks later.

6. Lifecourse approach: Research must consider all aspects of the lifecourse, highlighting how discrimination may present and act differently in different stages of life and how outcomes may differ over the lifecourse and intergenerationally.

7. More economic studies and policy and legal work is needed. Public health and legal researchers, and racially and ethnically minoritised communities, supported by governmental and non-governmental organisations, should further understand and amplify the benefits of human rights-based approaches to combating inequity and discrimination in access to and enjoyment of the right to health.

8. Engagement: Minoritised populations must be central to the research process through sustained dialogue and engagement. This includes co-creation and design, as well as conducting research. Minoritised populations must be included as participants in health research, especially those who may respond differently to treatments and interventions.

**Figure 1 - Interventions targeting the health impacts of racism, xenophobia and discrimination: what, where and at which level of society?**

Figure 1 is a visual representation and summary of the interventions identified which aim to reduce the health effects of racism, xenophobia and discrimination. It maps out the interventions based on the level of society at which they operate, and the circles represent the amount of evidence at each level. Vertical lines indicate the range of levels of society covered by an intervention - for example, healthcare interventions affect both health systems and spatial determination. The skewing towards individual and community level interventions is evident. Further details on the mechanisms underpinning these interventions can be found in Table A1.
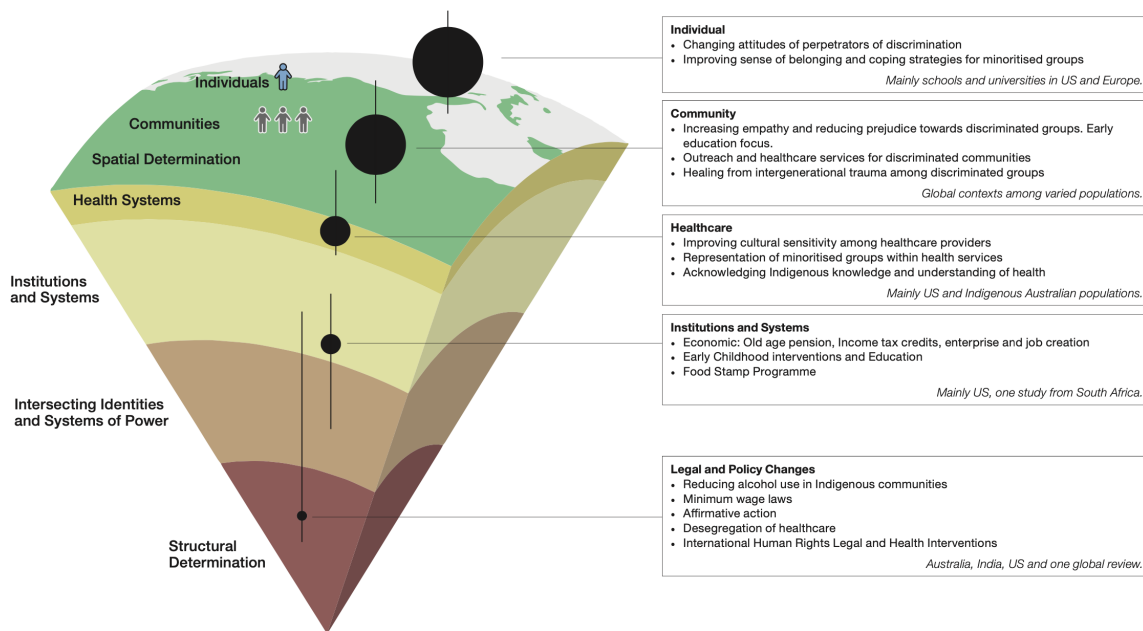


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## Author contributions

IA and DD conceived the series and produced the first draft. SS developed the conceptual model. Searches and data extraction were conducted by ETA, LB, LG, SL. Individual sections were drafted by ETA, LB, RD, LG, GL, SL, NSS, GS. GKB, MM, YP and SS edited and critically revised the draft. All authors reviewed the manuscript.

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