Racism and Intergenerational trauma
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Racism, xenophobia, and discrimination **cause avoidable disease and premature death**, according to research published last year, in The Lancet.

Historic systems and structures of power and oppression, and discriminatory ideologies have shaped policy and practice today, and **are root causes of racial health inequities.**

A systematic review of the literature found that racism **was associated with worse mental health and physical health.** The situation worsened during the COVID-19 pandemic, in which minoritized ethnic groups were more severely affected by the disease and the consequences of the responses. Higher mortality rates were also seen among Black African, Black Caribbean, Pakistani, and Indian ethnic groups.

Global inequity in vaccine access along racial lines has highlighted persistent racism in global power dynamics, rooted in legacies of colonialism and exploitation.

Discrimination directly affects the body through activation of the stress response, resulting in short-term and long-term biological changes. Through mechanisms such as epigenetic changes, **exposure to discrimination in one generation might propagate adverse health effects to the subsequent generation.** The importance for health of biological responses to discrimination has been severely under-recognised, due to a tendency to assume that population differences in disease risk have a genetic basis.

Medical explanation:

A key mechanism through which discrimination affects health in the long term and intergenerationally is through the over-activation of stress pathways. When we perceive threat or danger, three important biological systems activate to prepare for confronting or escaping from it in the fight-or-flight response. These systems are the neurological, endocrine, and immune systems, and each contributes by activating the sympathetic nervous system, the hypothalamic-pituitary-adrenal (HPA) axis, and increasing amounts of inflammation. Biologically, the result is a state of general alertness, increased heart rate and blood pressure, and increased circulating energy, through elevated blood glucose and fat breakdown due to the effects of cortisol and norepinephrine.

Epigenetics refers to the differential expression of genes as a form of environmental adjustment and, when the body adapts to a chronically stressful environment, the health consequences are substantial. Cumulative wearing of the body among discriminated populations has been associated with epigenetic ageing—when biological age exceeds chronological age—which in turn predicts coronary heart disease, diabetes, other age-related chronic illness, and premature mortality.

Maternal exposure to discrimination has been associated with fetal exposure to excess cortisol, fetal HPA axis activation, and higher rates of low birthweight. This type of fetal environment has been correlated with methylation of the glucocorticoid receptor gene and the NR3C1 gene promoter, both of which are involved in HPA axis regulation.

These epigenetic alterations influence precursors of cardiometabolic disease, such as high blood pressure, stress reactivity, abdominal adiposity, and insulin resistance.

It is important to distinguish epigenetic mechanisms (the environmental modification of genes) from genetic variability itself. **Epigenetic predisposition to disease is due to social influences that have such duration or effect that they become embedded in biological processes.** Racism, xenophobia, and discrimination are environmental influences that cause health inequalities; they should be recognized and addressed as such.

Time is crucial

The timing of exposure to stressors is crucial: the earlier this exposure occurs during the life course, the more it can affect development and long-term health.

Minoritized individuals bear the burden of discrimination before they are born. The effects of discrimination encountered in utero can manifest as poorer developmental outcomes in infancy, and chronic disease during adulthood.

Timing of discrimination exposure influences the health effects. For example, the effects of discrimination encountered in utero can manifest as chronic disease during adulthood.

Experiencing chronic racial discrimination is associated with unwanted pregnancy, sexual assault, and changes in maternal biology during pregnancy.

Experiencing discrimination can be associated with higher rates of birth complications, mortality, excessive weight gain, and poor physical and mental health.

These effects can propagate to offspring, manifesting as higher rates of preterm birth, low birthweight, or congenital anomalies.

Discrimination profoundly shapes people's environments and opportunities, driving diverse processes for ill-health.

Discrimination profoundly affects psychology. We are ingrained to take on discriminatory ideologies as the default, but society refuses to recognise this. This internalization has many effects: from unconscious bias, reinforcing of hierarchies, and the subsequent differential treatment of individuals, to poor mental health and self-esteem issues. Psychological responses are not only linked to internalisation: sometimes the stress of not internalising the norm can take its toll, and witnessing discrimination without directly being involved can have negative sequelae for mental health. **Individual psychological responses to discrimination can include poor overall mental health, anxiety, depression, emotional difficulties, self-reported stress, and suicide attempts.**

Discrimination affects formal education, informal networks, recreation, jobs and careers, and access to health care. Discrimination also increases the likelihood of facing poor quality housing, neighbourhood deprivation and violence, air pollution, limited access to green space, and unhealthy food retail environments.

The intersection between racism, discrimination, and the climate emergency is often overlooked within public health but, at each level of society, minoritised populations are worst affected by the health effects, while often not being the main contributors.

At a societal level, discrimination is costly and inflicts collective trauma. There is evidence that discrimination affects all groups, and it would benefit us all to tackle it. Although tackling discrimination will improve health outcomes, a key motivator to addressing racism, xenophobia, and discrimination is to address our collective trauma through motivations rooted in justice and healing.

By framing the role of racism, xenophobia, and discrimination within the context of overall determination of health, we lay the foundation to imagine a world which, at its core, centres antiracism, decoloniality, and equity instead of hierarchical power and separation. Hatred and intolerance have real and deadly consequences. Racism, xenophobia, and discrimination are important determinants of health, and public health has a responsibility to challenge and address these issues.

Ill health and health inequities are affected by racism, xenophobia, and discrimination through a host of structural factors and their historical and political roots; interpersonal discrimination cannot be tackled without addressing these complex processes.

Populist leaders and policies can exploit populations using racist, xenophobic, and discriminatory ideologies that minoritize people and lead to poor health.

Intersectionality is a useful but underused tool to understand and act on the health effects of converging systems of power and oppression related to racism, xenophobia, and discrimination.

An estimate of health-care-related costs from racial inequalities in the USA over a 4-year period (2003–08) was US$229 billion, along with a loss of $1 trillion due to lost productivity from illness and premature deaths. Similar work estimated that, from 2001 to 2011, racism cost the Australian economy 3% of annual gross domestic product.

What to do?

- Beyond individualized interventions that aim to mitigate the health effects of racism and xenophobia, there is a need to **prioritize transformative action that challenges** and ultimately seeks to dismantle existing political, economic, legal, and social systems that uphold and replicate 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 confront the structural drivers of injustice that motivate racism in economic, political, and health systems, there is a need to prioritize anti-racist interventions that can prevent and address the health effects of racism and

xenophobia, with individual, organisational, and community change, and movement-building, legislation, and race equity policies in institutions and nations.

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

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

Key principles to address the health harms of 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

- Second, **global health needs to address both reparative and transformative justice.** To attain true change, we should also take ideas from political science and a wider range of researchers outside of current, western-dominant (ie, the dominance of the conception of race and power) institutions and concepts.

- 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.

- Fourth, interventions should include **an understanding of the intersections** between racism, xenophobia, and related forms of discrimination, and other types of discrimination, such as gender, sex, class, and disability. Intersectionality should be applied when conducting research and interventions in ways that disrupt preconceived ideas around whole groups of people.

- Fifth, **interventions need to take an anti-racism approach across all levels** (ie, an intervention that actively promotes racial equity by opposing racism addressed from the perspective of multiple cultural contexts). Actions to broadly challenge racism (ie, beyond a focus on health), such as bystander anti-racism, would indirectly affect health outcomes.

- Finally, **human-rights-based approaches should be supported.** Societies need to engage in these policy processes by: first, policy making and monitoring, including through the global human rights platforms provided by the UN.

- To address inequities and improve health outcomes, we need to take account of structural and institutional causes and the historical, economic, and political contexts in which they occur.