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COMMENTARY

Intersectionality and eco-social theory: a review of potentials for public health knowledge and social justice

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ABSTRACT

In public health research and reporting, there is an increasing interest in eco-social theory and intersectional approaches to understand health inequity. Both approaches focus on the macrosocial causes determining health inequity and work under the premise that public health must be tied to an ethical project of engaging with the populations it serves. This paper critically reviews emerging literature on intersectionality in public health to identify, first, how it extends eco-social theorizing. Second, we identify how it may challenge broader premises in public health research which are aligned with reductionist, biomedical rationales. To do so, we draw on Patricia Hill Collins' definition of intersectionality as both a knowledge project and a social justice project, inviting an entire range of theoretical, epistemological, methodological and ethical questions. As such, a more critical reading of intersectionality as initially envisioned by Black feminism has the potential to contribute to a paradigm shift in understanding public health research and reporting as a means for engaging with injustice rather than a tool for describing a population and its burden of disease.

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Introduction

There is a long history in public health of conceptualizing societal conditions as etiologic actors. The 2008 WHO report on the social determinants of health (Commission on Social Determinants of Health, 2008) marks perhaps the most prominent attempt by epidemiology and public health to grapple with the influence of socio-structural factors on inequalities in health. However, several critiques have been leveraged against the social determinants of health (SDH) framework. For instance, its language of determinism tends to overstate probabilistic prognoses and overshadows within-group variations (Lundberg, 2020). Despite the technical precision of research on SDH, the variables used for structural factors shaping health inequity are often studied in isolation from one another with too little attention paid to how they manifest in and are reproduced by social practices (Herrick & Bell, 2020). Yet, others have pointed to the role of what they call 'epistemological barriers'

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(Brassolotto et al., 2014) in the implementation of SDH with public health practitioners treating the societal causes of health and disease within a biomedical, individualized, and highly depoliticized risk factor paradigm (Bolte & Lahn, 2015). Taken together, these criticisms suggest that while the SDH framework succeeds in making inequities visible, it may lack a comprehensive theorization of the complexity of the societal causes underlying health inequity, and the dynamic nature of social relations and experience. Not least, SDH has been accused of shying away from radical calls for social action to redistribute power and material wealth, and from eschewing any fundamental critique of neoliberalism and its erosion of the welfare state (J. Green, 2010).

Theoretically informed approaches in social epidemiology have addressed some of the shortcomings of the SDH framework. Eco-social theory, for instance, postulates that we embody the social, material, and ecological worlds in which we live, including the distributions of power and wealth over time and across space, and focuses on interrelated and reciprocal pathways of embodiment on multiple contextual levels (Krieger, 2012). Intersectionality, a concept initially developed within the Black feminist movement, has also centred on the interrelations and mutual constitutions of social identities and locations shaping the unique experiences of Black women in complex ways (Collins, 1986; Combahee River Collective, 1977; Crenshaw, 1989; Lorde, 1993). Both approaches focus on the macrosocial causes and power relations determining social inequity, and work under the premise that science must be tied to an ethical or political project of actually engaging with society and the populations it serves. While eco-social theory has been applied in public health scholarship for much longer, intersectionality has recently gained momentum as a novel and innovative conceptual framework (Bauer, 2014; Bolte & Lahn, 2015; Bowleg, 2008; Gkiouleka & Huijts, 2020; Gkiouleka et al., 2018; Hankivsky, 2012; Hankivsky et al., 2010).

In this review, we critically engage with the current literature on intersectionality in public health and explore, first, how it may extend eco-social analyses in advancing the understanding of health inequity. Second, we examine how it may challenge much broader, often implicit assumptions in conventional, risk-factor-oriented epidemiology. More precisely, we illustrate how an intersectional lens can improve our understanding of health inequities in public health research and reporting and fuel a critical examination of core theoretical, epistemological, and methodological premises in public health. To do so, we draw on Patricia Hill Collins' formulation of intersectionality as both a knowledge project and a social justice project (Collins, 2012), raising a range of critical questions that challenge dominant assumptions in the assessment of health inequity and inviting public health research and reporting to facilitate equitable health policy.

This paper emerges out of the research project AdvanceGender which aims to develop a toolkit for more sex/gender-sensitive and intersectionality-based epidemiological research processes and public health reporting (Pöge et al., 2019). For AdvanceGender, public health reporting represents a key interface between research and policy when addressing health inequities. Public health reporting is concerned with the systematic collection of information about population health and health inequalities together with an interpretation of possible causes. Consequently, it plays an important role for public health research in highlighting specific areas of activity for the reduction of health inequities (Starke et al., 2019). In our appraisal of the literature, we focused on key publications on intersectionality from sociology, philosophy, and public health research and reporting to examine the core critical theoretical, epistemological, and methodological lines of enquiry associated with intersectionality. We then discuss how these lines of enquiry can inform the current state of understanding and researching health inequities with a particular focus on similarities and differences compared to eco-social theory.

Synergies and frictions between intersectionality and eco-social theory

Recent approaches aiming to advance research on health inequities have focused on the robust, theoretically informed study of social complexity in health, and the relation of social processes with disease occurrence. Nancy Krieger's eco-social theory (Krieger, 2011), an integrated approach to

researching population health and its causes, especially echoes the critique of the biomedical and mechanistic understanding of the distribution of population health. Key to eco-social theory are the constructs of embodiment and pathways of embodiment; embodiment proposes that lived experiences in social and environmental contexts shape biological processes and *vice versa* in reciprocal, cyclical, and synergistic relationships (Krieger, 2011). The study of pathways of embodiment is needed to add further evidence to our knowledge about specific links between contextual factors, or social arrangements, and individual biology. As a corollary, population health profiles are conceptualized as results of multiple pathways of embodiment such as economic deprivation, racism, or hazardous environmental conditions (Krieger, 2011).

In contrast to eco-social theory, intersectionality is not a theory of the causation of health and disease (Krieger, 2020). It is not even a self-contained theory, but rather an analytical perspective (Bolte & Lahn, 2015), a normative-theoretical argument, or a research paradigm (Hancock, 2007), a way of thinking about identity and power (Abrams et al., 2020), and a critical praxis (Bowleg, 2021; Collins & Bilge, 2016). Hence, intersectionality cannot be regarded as an alternative to eco-social theory but has been implemented as a possible addition or extension (Agenor et al., 2014; Hankivsky et al., 2017). Emerging from the attempt to conceptualize the experiences of Black women in the US facing multiple forms of discrimination based on both their sex/gender and their race/ethnicity (Collins, 1986; Combahee River Collective, 1977; Lorde, 1993), law scholar Kimberlé Crenshaw (1989) introduced the term intersectionality to describe this phenomenon. Public health scholars have used the concept to analyze structures of power and privilege, denaturalizing and politicizing social identities and leading to new research questions or methods (Bauer & Scheim, 2019; Evans et al., 2018; M. A. Green et al., 2017; Hankivsky & Cormier, 2009; McCall, 2005; Mena et al., 2019; Merlo, 2018; Veenstra, 2011).

In line with eco-social theory, intersectional approaches in public health research emphasize the need to consider social contexts and power relations rather than individual identities and experiences as determinants of health inequity (Bowleg, 2012; Hankivsky, 2012). This allows for moving from the risk factor paradigm and the identification of static social categories to the analysis of power relations and social structures as key causes of health inequities (Mena et al., 2019). Given their explicitly political orientation, intersectionality and eco-social theory may well contribute to the reinvigoration of the focus on what Stonington et al. (2018, p. 1958, emphasis added) have called the '*structural* determinants of the *social* determinants of health', the structural causes of observed health inequities grounded in political economy, institutional discrimination, or transgenerational trauma.

A conceptual difference between intersectionality and eco-social theory concerns possible influences of multiple forms of social arrangements and power relations on health. Eco-social theory considers societal systems such as sex/gender and race/ethnicity; however, the interplay of these systems is not explicated comprehensively, including the simultaneity of power, privilege, and penalty (Hankivsky et al., 2017). Intersectionality, in contrast, provides a theoretical justification for the interrelation and mutual constitution of multiple dimensions of power. Social locations result from intersections of interwoven systems of power and are not comparable to one another (Hankivsky, 2012). This perspective implies that analyses of, for example, sex/gender as independent of other dimensions of social location are incomplete and inadequate (Dhamoon & Hankivsky, 2011).

However, as intersectionality has become popular or even mainstream, often described as a 'buzzword' (Lapalme et al., 2020), it has also become 'flattened', that is, depoliticized and stripped of its attention to power and social justice issues (Aguayo-Romero, 2021; Bowleg, 2021; Cho et al., 2013; Collins, 2015). Rodrigo A. Aguayo-Romero (2021) has recently argued that intersectionality can only unfold its transformative potential for public health if used as initially commanded by Black feminism: as a critical tool to scrutinize intersecting systems of oppression and experience rather than merely of social identities; and as a critical praxis to further equality and social justice.

Intersectionality's contributions to current theorizing on health inequity

Extending the theoretical achievements of eco-social analyses, intersectionality contributes to asking more precise research questions when studying the causes of health inequity by focusing on in-group heterogeneity and the social practices that uphold exclusionary institutions eventually identifying more targeted entry points for public health interventions (Bauer, 2014). To wit, a presentation of the health and disease burden for presumably homogenous groups such as women and men is blind to the fact that sex/gender comprises multiple intersectional identities and social positions. Moreover, intersectionality offers critical insight when conceptualizing interventions that aim to reduce inequitable power relations to ameliorate health; considering that systems of power are mutually constituting, gender transformative action alone, for example, might not be successful in reducing inequities.

Feminist scholar Leslie McCall (2005) proposed framing this complexity through intracategorical or intercategorical intersectional analyses: intracategorical intersectionality focuses on heterogeneity within supposedly homogeneous groups such as women or men; intercategorical intersectionality considers the mutual dependence of several dimensions, for example, the combination of sex/gender, race/ethnicity, and socioeconomic position. An intercategorical intersectional perspective can mean to map disease burden for *all* intersections in a population, including combinations of categories of privilege and disadvantage (Evans et al., 2018). Such a perspective has been argued to represent an approach of precision public health, enabling the identification of health risks and resources both in the general population and for multiply marginalized people (Persmark et al., 2019). Crucially, investigating intersections not only allows a precision approach but decentres the focus on single characteristics, alleviating the risk for stereotyping, essentialism, and the involuntary construction of hierarchies between categories (Dhamoon & Hankivsky, 2011).

However, a descriptive mapping of intercategorical intersectional locations bears the risk of overlooking underlying processes that shape these positions, and social theories on, for example, sex/gender have stressed that simply cross-classifying sex/gender with other categories of social difference contributes little to an understanding of the dynamics and complexity of social life (Connell, 2012). Rather, it is pertinent to understand the nature of, for instance, sex/gender as itself a relation with multiple dimensions including economic, affective, and symbolic (Connell, 2012). Furthermore, relational gender theory assumes that gender operates at intrapersonal, interpersonal, institutional, and society-wide levels simultaneously, linking bodies and institutions in inherently complex ways (Connell, 2012).

This means that research and reporting on health inequity cannot logically treat sex/gender, whether conceived as single-axis or intersectionally, as independent variable(s) and health status as a dependent variable. This also holds for other categories of social difference: sociologists of race and racism, for instance, have long argued that race is not an individual, static, and unalterable characteristic but a relational concept, a mutually constitutive and socially constructed *process* (Molina, 2018) that is produced by historical dynamics, material arrangements, power relations, and particular forms of (scientific and medical) knowledge (Zuberi & Bonilla-Silva, 2008). As such, inter- or intra-categorical approaches, to borrow McCall's terminology, may only partially grasp the relationality, social dynamics, and multidimensionality of sex/gender or race/ethnicity, and their influences on health.

Indeed, McCall identifies a third, anticategorical approach to intersectional analyses that rejects any use of categories of difference and strives towards their deconstruction (McCall, 2005). As McCall argues, anticategorical approaches presume social differences to be the result of discursive and performative processes, delegitimizing social categorizations as independent variables suggesting causation. Though methodologically challenging, they may most successfully satisfy the demand for complex assessments of social life. Categorical approaches often perpetuate inequalities in the process of defining differences; anticategorical approaches recognize that the social is too complex, multifaceted, and fluid to be reduced to categorical analyses (McCall, 2005; Mulinari et al., 2017). As

such, anticategorical intersectional approaches may well contribute to a much more flexible and contingent reframing of the social itself.

Intersectionality as a knowledge project

In 'Intersectionality's Definitional Dilemmas', Patricia Hill Collins (2015) argues that intersectionality is not a fixed body of knowledge but rather a broad-based knowledge *project*: intersectionality is simultaneously a field of study, an analytical strategy, and a critical praxis. Intersectionality as analytical strategy is based on a particular set of questions, angles, and perspectives vis-à-vis social inequality across theoretical, epistemological, methodological, and political domains. In particular, it interrogates the interrelations between knowledge and power, and the ways in which knowledge is socially (re-)produced, legitimated, and transmitted. While the adoption of intersectional approaches in public health research has led to the development of novel methods, it must thus also be accompanied by the consideration of epistemology (Abrams et al., 2020; Bowleg, 2017; Collins, 2012; Yuval-Davis, 2012), foundational to all empirical enquiry.

Much research and reporting on health inequity in public health, whether qualitative or quantitative, is rooted in a post-positivist tradition that sometimes recuperates, albeit implicitly, the positivist fidelity to objectivity and universal knowledge (Bowleg, 2017). The assumption here is that researchers can represent perhaps not a true but at least a comprehensive picture of reality by using multiple methods and optimizing research strategies (Bowleg, 2017). Critical realist, phenomenological or social constructionist perspectives on knowledge production, in contrast, understand knowledge to be embodied, subjective, socially produced, and highly malleable, contingent on the social location of the researcher. Intersectionality has much to offer here: Collins (2012) has usefully pointed out that intersectionality is embedded in a standpoint epistemological framework wherein the embodied and experiential knowledge of the researcher is not only key to the kinds of questions asked but also the kinds of conclusions drawn from the data. These considerations demand reflexivity and transparency as to the epistemological standpoint in research reports and publications. Moreover, while intersectionality allows for more precision in the biomedical evidencing of social inequities, it also critically interrogates the primacy of evidence-based approaches itself, and questions what 'types of evidence of health inequalities "count" as credible' (Hankivsky et al., 2017, p. 81). Foregrounding diverse sources and forms of knowledge and starting the analysis from the 'lay' or experiential knowledge of affected groups challenges the increasingly exclusive demand for evidence-based health research and policymaking, its belief in the value-free nature of research, and its devaluation of personal experience (Greenhalgh & Russell, 2009; Hankivsky et al., 2017). While robust epidemiological and clinical trial evidence is indispensable to informing policy, this evidence alone will not address what the *right* intervention or policy is (Greenhalgh & Russell, 2009).

Of course, relational understandings of the social, the privileging of experiencing as well as a phenomenological or social constructionist stance on knowledge production lend themselves more to qualitative enquiries (Abrams et al., 2020; Bowleg, 2008; McCall, 2005; Shields, 2008). Ideally, a combination of methods, both qualitative and quantitative (Bolte & Lahn, 2015; Fehrenbacher and Patel, 2020) should be applied, and advantages and limitations should be balanced in terms of compliance with intersectional theorizing, research question, phenomenon under study, study design, data availability, and the message that is to be communicated to the target group of the research.

Considering study design, an intersectional perspective on representativeness might uncover to what extent people at the intersection of multiple dimensions of social location are included in epidemiological research and avoid problematic practices such as the National Institutes of Health (NIH) policy to include 'women and minorities' in medical research (Bowleg, 2012; Jaehn, Mena et al., 2020; Jaehn, Rehling et al., 2020). To study the heterogeneity of effects, as frequently done in intersectionality-informed research, researchers might consider including several homogeneous population groups that are heterogeneous in relation to each other rather than probability samples of the general population (Merlo et al., 2017). Considering temporal context is also crucial: critical

race theorists Tukufu Zuberi and Eduardo Bonilla-Silva (2008) have aptly argued that longitudinal data on structural discrimination such as racism presumes that racism itself is a fundamentally unmalleable structure rather than adaptive to the shifting cultural, political, and economic conditions which (re-)produce it.

Elsewhere, we have summarized past applications of intersectionality in quantitative data analysis that included a range of conventional methods such as stratification and analysis of interaction, or less common approaches such as synergy indices (Mena et al., 2019). One example of how principles of intersectionality and gender theory can be incorporated into statistical data analyses are non-parametric approaches such as classification and regression tree (CART) analyses (Mena et al., 2021). Introducing so-called solution-linked variables that are related to gender such as burden of household and child care, gender-based discrimination, or inequality in a relationship is important to identify modifiable social determinants (Lofters & O'Campo, 2012). Recently, multilevel models have been devised to operationalize intersectionality in descriptive population health research. These so-called multilevel analyses of individual heterogeneity and discriminatory accuracy (MAIHDA) enable the aforementioned mapping of disease burden across intersectional strata and overcome several limitations of traditional methods, including the crucial issue of low sample size in single strata (Evans et al., 2018). Another set of recently developed approaches seeks to deploy measures of intersectional discrimination in quantitative studies (Bauer & Scheim, 2019; Scheim & Bauer, 2019). Integrating these tools into the data collection systems of epidemiological research can enable intersectionality-informed measurement of social processes leading to inequities, such as discrimination, and serve to identify modifiable social processes as target points for intervention (Bauer & Scheim, 2019).

Intersectionality as a social justice project

Eco-social theorists as well as intersectionality researchers have also stressed the need to link research to concrete political action (Collins & Bilge, 2016). Intersectionality does not separate scholarship from practice but links the two in a recursive fashion; it is thus not only a knowledge project but also a social justice project (Collins, 2012). In epidemiology and public health, efforts to build robust and sustainable partnerships with communities have long been advocated for (also Brown, 1992; Lantz et al., 2006; Leung et al., 2004), but intersectionality's critical stance and activist impetus renews the demand for strategies, methods, and techniques that can fuel systemic change instead of tokenistic moves of inclusion (Hankivsky et al., 2010). We propose that the potentiality of intersectionality go beyond the often technocratic focus on community consultation or participation by raising critical questions about, for example, the selection of research topics and methods, the aims of inclusion, the very definition of community and often merely numeric approaches mistaking an increasing number of minorities represented in public institutions as proxies of actual structural change. Taking into account the theoretical propositions of intersectionality research, community-driven approaches such as community-based participatory research (Leung et al., 2004) can become more reflexive, especially when defining and approaching 'the community'. A key contribution intersectionality can make is the critical interrogation of the categories of diversity and marginalization used by major institutions in public health research and reporting. While (inter- or intra-) categorical approaches may be used strategically, anti-categorical approaches in particular can raise awareness for the complexity of social experience not reducible to single-axis or even intersectional categorizations. One proposition transcending categorical or identity-based alliances is called 'transversal dialogues' (Yuval-Davis, 2015), which points to dialogue and political solidarity between and across categorical boundaries. In contrast to purely inclusive approaches, transversal dialogues, as Yuval-Davis (2012) argues, are based on shared ethical or normative (e.g. feminist, emancipatory) values rather than only positioning or social identity, even if fragmented and intersectionally conceived. Stemming from the recognition that interlocking systems of oppression cannot be solved by mono-categorical approaches, building broad-based, coalitional alliances require the critical

interrogation of one's own social location and epistemic assumptions (as well as the recognition of those of other participants involved), and a culture of conflict resolution and consensus building (Collins, 2015).

For community-driven approaches, relationality and transversality mean that the congruence of social identity and expertise with regard to a particular health outcome must be interrogated, and the selection of stakeholders for consultation or participation may be based on a particular expertise or set of values rather than only on (presumed) membership to one or several groups. As members of one social group can be positioned very differently in relation to an entire range of other social categories, selected stakeholders cannot be assumed to be representative of 'their' community. Yuval-Davis (2012) suggests that such stakeholders do not even have to be members of these communities, as long as they are willing, able, and authorized to promote their cause. Nonetheless, as we have argued, privileging the knowledge of those affected by a particular health outcome or social process can be a vital insight into health issues and living conditions based on non-scientific expertise (Hankivsky et al., 2017; Pöge et al., 2020). Not least, transversal politics, recognizing the relationality of social experiencing and the involvement of *all* social groups can make visible hitherto unexamined privileges and allow for a more comprehensive and critical framing of the health issues faced by minoritized groups beyond the exclusive focus on shortfalls and discrepancies (Hankivsky et al., 2010). Adopting insights from intersectionality would not only contribute to a more nuanced and precise account of health inequity, but would also transform public health action towards a more reflexive, participatory, and community-based approach to public health research and reporting.

Discussion and conclusion

This review has evaluated recent developments in the adoption of intersectionality in public health and described how these may contribute to advancing our understanding of health inequity, in particular how these may expand eco-social theory. Key lines of enquiry raised by intersectionality and conclusions for public health research and reporting are displayed in the Supplementary Material. Current practices of describing population differences, and the public health actions based on them, are unable to capture the dynamic and interrelated nature of human experience and the complex relations between social categories and matrices of power and privilege. Focusing on inter-categorical and anti-categorical heterogeneity and the contextual forces determining differential health outcomes may lead to a more comprehensive assessment of health disparities that takes into account social structures and social context as well as processes of privilege and discrimination. However, this will only be successful through critical discussion of epistemology, methodology, and ethics, contributing to a shift of power relations between researchers and their research objects from a top-down to a more dialogic approach.

These contributions by intersectionality scholarship raise the question why intersectionality has not been more widely taken up in public health research and reporting as yet. It is plausible that the study of multiple interlocking systems of power does not align well with epistemological and methodological premises of conventional, risk factor-oriented epidemiology. As a corollary, we suggest that public health researchers using intersectionality need to consider epistemological questions to a greater extent at all stages of the research process. Moreover, intersectionality-informed public health research and reporting might be enriched by using large data sets, sophisticated measurement, and data analysis tools in order to make inequalities visible, but is not necessarily bound to quantitative approaches. There is still considerable potential to explore both traditional and novel methods and their application to both primary data but also administrative or other secondary data sources. There is no perfect method for adopting intersectionality in public health research and reporting; rather, a toolbox of multiple approaches together with an evaluation of strengths, limitations, and possible real-world applications is needed.

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