



Agency versus structure or nature versus nurture: When the new twist on an old debate is not that new after all A commentary on Angel

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The article by 'Agency versus structure: Genetics, group membership, and a new twist on an old debate' (Angel, 2011), which I had the pleasure of reviewing, aims to raise our awareness about the importance of understanding genetics and biology to find the best ways of alleviating human suffering. Angel argues that decoding of the human genome and advances in genetic medicine promise great advances in the prevention and treatment of disease. But they also concede that it is far from certain how such advancements might, or whether they should, inform public policy. This is not only because of the history of employing such knowledge for social engineering and other nefarious purposes, but also because of the virtual agreement concerning the difficulty of predicting individual outcomes on the basis of belonging to a certain ethnic group. Self-defined ethnicity (in the UK) and race (in the USA), which are the most commonly used groups for making decisions about diagnosis and treatment, are in and of themselves arbitrary categories, whereby the biological component is more often than not interlaced with socio-cultural assumptions and political attributions.

The importance of the article's contribution lies in its clear sighted perspective and the skillful ways it navigates the controversies surrounding social conditioning and biological determinism

(Angel, 2011). Angel takes a middle ground as they stress the interaction between the gene's expression and environmental influences. This is the commonly accepted view in various disciplines, but there are differences in emphasis on biomedical explanations in epidemiology and public health compared to socio-cultural interpretations, which are more prevalent in social sciences. Nevertheless, since the ultimate aim of the article is to improve the health and well-being of populations, especially those which might be disproportionately affected by the consequences of ill health, I was surprised to see no explicit references to health inequalities and disadvantage.

The wealth of evidence from epidemiology, health services research, sociology of medicine and physical anthropology, testifies to the magnitude of racial inequalities in health, sparking a lively debate about their causes. Developments in genomics put in question the validity of race and ethnicity based groupings. We know now that these categories arose primarily through geographical movements and socio-cultural shifts, which makes them more fluid and subject to change. We also know that scientific reductionism which reduces complex interactions between human biology and the natural and social environments and which fails to acknowledge developments outside its own paradigm, is likely to lead to poor science in biomedical as well as social and cultural fields. Finally, there is an emerging interdisciplinary consensus that social and biological explanations concerning the onset of disease, its prevention, and outcomes of treatments at individual and population levels, require far more nuanced analyses, and

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comprehensive frames cutting across disciplinary boundaries. Yet the article stops short of articulating how such an approach might look as it spells out the potential risks associated with relying on genetics to inform public policies. This is an important omission that I will attempt to address in this brief critique of the aforementioned paper.

Genetics might offer us a means to determine our and/or our offspring's biological endowment in the not so distant future for better or worse. Angel is therefore right to raise the importance of the topic and the host of empirical, theoretical, ethical, social and political issues that are likely to arise. But without a contribution which accounts for how individuals and groups internalize and embody social structures, there is little new in the twist on the old debate about agency and structure that Angel claims to be making. This critique will attempt to offer such an approach by arguing why we must go beyond the identification of potential problems associated with integrating the impending genetic advancements with conceptual developments in social theory. We must do so for three reasons, all of them having to do with the ways knowledge supports policy interventions that aim to counteract health inequalities and promote wider goals of political emancipation of the disadvantaged groups. Firstly, such an analysis will provide insights into societal processes by which arbitrary social constructions such as race become part of scientific discourse, and how the scientific evidence that emerges from such categorizations is used for policy development. This will deepen our theoretical understanding of the interaction between biomedical science, culture and politics reaffirming the social embeddedness of science. Secondly and following from this, an in-depth understanding of the ways in which social inequalities shape the biology of racialized groups, and how embodied inequalities perpetuate a racialized view of human biology (Gravelee, 2009, p. 48), might contribute to influencing policy debate in order to counteract health inequalities. Thirdly, a critical approach that accounts for social and ethical implications of genetic interventions is likely to highlight both, the necessity for adequate institutional support to prevent undesirable consequences, and reverse the stigmatization of disadvantaged groups who were rendered so on the basis of their bodily characteristics and biological assumptions alone.

In what follows I will first put forward an argument for the necessity of an explicit positioning of the debate of genetic breakthroughs in the context of health inequalities, and will then sketch briefly what such an approach might look like, utilizing insights from critical social theory to highlight the implications of decoding the genome for public health.

When the old debate is not new after all: bringing health inequalities back in

Due to the appalling history of misusing science to justify and promote state sponsored discrimination and other reprehensible policy goals, genetics and the most recent advances in genomics are inextricably interwoven with the debates on race and ethnicity. The *Bell Curve* (Herrnstein & Murray, 1994) was sparked by the presentation and interpretation of the evidence of IQ differences between various racial categories, and the most recent controversy associated with Caspi et al.'s (2003) work discussed in the article, testify to the level of passion such debates evoke. Underpinning these disagreements is the old dichotomy about the influence of biological traits as opposed to environmental factors on human intelligence or health disposition and their contribution to successful life and well-being that has been around since the age of the Enlightenment. In other words, the question is whether and how far can biology explain human behavior. The more modern take on this debate has been phrased in terms of agency and

structure where personal traits enable individuals to interpret and act meaningfully upon external constraints imposed on them by the society and adverse environmental circumstances.

To start with, it is impossible to obtain pure estimates of genetic versus environmental contributions as one could not exist without the other. But because of persistent health inequalities in disease prevalence, access to services and prognosis of treatment among various races (USA) and ethnic groups (the UK), there is an enduring fascination with an attempt to find biological explanations for social behaviors and the unequal outcomes resulting from such behaviors. Underpinning these beliefs are two contrasting assumptions: that the effects of environments can be altered but those of genes cannot and that if genetic interventions were possible, they would succeed in addressing the causes of ill health that public health policies cannot. The discourse of racial etiology of disease tends to dominate public health, particularly in the USA, leading to huge scientific and political controversies, although there is little clarity of definition of what race categories entail in genetic terms. Race-specific therapy draws its rationale from the presumption that the frequencies of genetic variants influencing the efficacy of the drug are substantially different among various races but it has been difficult to demonstrate race-specific results for any class of drugs (Cooper, Kaufman, & Ward, 2003). This is because race and ethnic categories as currently defined do not appear to map onto or summarize well the molecular genetic variation present in the so defined population groups. Identifying such genetic influences will require measuring their frequencies in a specific population and in other genomic regions, while taking into account the environmental factors that are either difficult to measure or wholly unknown (Cooper et al., 2003).

However, the danger is that genetics, and more specifically genomics, are once more employed for political purposes to explain away the social roots of health inequalities. We must therefore pay due attention to how racial inequality becomes 'embodied—literally—in the biological well-being of racialized groups and individuals' (Gravelee, 2009). Advancements in genetics will most likely debunk the belief that susceptibility to disease is racially distributed, but this will not on its own ameliorate the effects of unequal distribution of power and resources on ill health that continues to be unevenly distributed across racial lines. Angel of the article might argue that addressing racialized health inequalities was not the intended subject of their contribution, because as they state 'the potential utility of a genetic approach or genetic explanations clearly depends on the question of interest' (p. 6). Even so, it is unclear how they conclude that genetic interventions could lead to reductions in human suffering without mention of the requisite institutional change. While these changes are yet to come and their effects on public health are hard to predict, the expectation that direct paths will be found from gene to disease has not proven fruitful for chronic somatic conditions let alone for complex psychiatric disorders. In contrast, much more is known about the impact of environmental conditions and socio-economic status on the onset and prognosis of various disease and sub-optimal health outcomes such as high blood pressure or low birth rate for various minority groups especially for blacks in the USA (Dressler, Oths, & Gravelee, 2005; Gravelee, 2009; Lauderdale, 2006). Of particular interest is the example of women with Arabic surnames in California who experienced a 34% increase in the likelihood of having a low birth weight infant after the attacks of September 11th 2001. Furthermore, infants who were given ethnically distinctive Arabic names had twice the risk of low birth weight compared to one year earlier (Lauderdale, 2006). This suggests that momentous political events can have a profound effect on the well-being and health of individuals because of their social positioning and actively embodied identity.

But the effects of social and economic positioning of individuals in society are not limited to ethnic minorities. In his path-breaking work, Wilkinson (1996) established that among the developed countries it is not the richest societies which have the best health, but those that have the smallest income differences between rich and poor: inequality and relative poverty have absolute effects on health as they increase death rates in ways that are best captured by psychosocial approaches. Given the well documented inequalities in health status and access to health services for ethnic minorities, it is possible that advancements in genomics, when translated into new medical technologies, will become an additional basis for perpetuating social exclusion. The tacit although probably unintended implication of the article is that genetics alone hold the key to improvements in public health: the evidence suggests otherwise. Another example that Angel quotes, which seems to support my assessment, is the epidemiological study tracing a gene-by-environment interaction, published by Caspie et al. (2003) in *Science*, suggesting that an individual's response to environmental insults including deficient and abusive care is moderated by his or her genetic makeup. While this work is not directly attributing depression to 'genes' it does revitalize the logic that prediction about the disease severity or its origins can be located at the molecular level, which Angel does not seem to be endorsing.

In the final section of my critique I will sketch the contours of the theoretical developments which I would like to contribute to a new twist on an old debate.

What might the new twist on an old debate look like?

Let me clarify at the outset that my intention is not to ignore biology in favor of social science. It is rather to use both to enhance our understanding of their implications for public health in its societal context. Rejecting biological determinants that make us human, including the existence of genetic variation is false and short-sighted. As the paper reminds us, there are still issues to be debated related to the various domains in which biology in general can be most fruitfully applied. But it is imperative to this reviewer that not only do we not throw out the proverbial baby (genetics) with the bathwater (biological determinism), but that we also exercise our critical faculty and resist the tendency for typological thinking where human organisms and subjects fit into a specific norm and variation is considered abnormal, whenever genetics promises to uncover a new mystery of life or marvel, be it a happiness or depression gene or decoding of the molecular location of a specific gene that may influence borrowing behavior. Here, I concur with Angel's warning that integrating genetic variations to predict welfare consequences, and/or drawing policy conclusions for differential treatment of individuals or groups who may or may not possess specific genes that contribute to certain (un)desirable social behaviors, might be the first step down a slippery slope. To avoid this we must not forget that science, as well as being an objective reality, is a social construct which is inter-subjectively embodied by those who produce, interpret and act upon its discoveries, as I will now outline.

My theoretical inspiration draws from the work of critical social theorists Michel Foucault (1970, 1976), Pierre Bourdieu (1986) and Judith Butler (1993). Although incredibly rich and diverse their work is united by their redefinition of agency and structure as inseparable from each other and inextricably interwoven with power. For reasons of space it is not possible to even attempt to summarize their philosophies, and for this reason I will restrict myself to explaining why I have turned to their ideas for a unique contribution to this debate.

First, I would like to argue for bringing forward Bourdieu's philosophical anthropology, which rests on the notion of recognition of

difference and its double misrecognition, because it offers a truly complex and realistic perspective on how health inequalities are created (Cockerham, 2005; Williams, 1995), providing a sophisticated vocabulary (e.g. 'habitus', 'social field' and 'social capital'), which allows us to grasp the dual nature of human behavior. It draws attention to cultural construction of, for example, racial categories, while being sensitive to the causal potential of these arbitrary categories when there is collective acceptance of such reality, which is an issue of great concern for public health (Dressler et al., 2005). For Bourdieu (1986), a capital is any resource effective in a given social arena that enables one to appropriate the specific profits arising out of participation and contest in it, while 'habitus' describes dispositions and embodied 'ways of being', including orientations, values and ways of comporting oneself, and is formed in interaction with 'social fields' representing a structured system of social positions and relations between those positions and the power they exert upon their occupants. Such insights might not only shed light on health inequalities and the means required for addressing them (Fotaki, 2010) but also help explain the means by which they are reproduced and how they can be contested. New tools for measuring social and cultural dimensions of race and ethnicity derived from such theoretical insights might allow us to progress with clear distinctions between race and genetic constitution of diseases that can be of use to medicine and public health. Some have argued that ignoring race and ethnic background altogether by discontinuing the collection of such information to monitor disease might be detrimental for those minority populations and persons it seeks to protect (Gonzalez, Ziv, Coyle, & et al, 2003). However, Bourdiesian approaches remind us that differences in health occur because privilege and power are unequal in racially stratified societies (Cooper et al., 2003).

Second, the extraordinary durability of the concept of race which is present in popular culture as well as science, extending well beyond its evidence base is a result of our seemingly endless fascination with the possibility of uncovering the biological determinants that make us human. The fanfare with which the popular press announce recent advancements in genetics, attributing about one-third of the variation in human happiness to genes (De Neve et al., 2010) for example, testifies to this, despite authors stressing that genetic factors complement, rather than substitute for, existing studies showing the influence of socio-demographic, economic and cultural variables on life satisfaction. We can understand such tendencies and processes better by drawing on a second theoretician, Michel Foucault, and his ideas concerning the constitution of an episteme. By employing the method he termed 'the archeology of knowledge' to question the idea of its natural progression as a history which is not that of growing perfection, but that of its conditions of possibility (Foucault, 1970), we can uncover the political dimension of the drive for neophilia in the process of normalization of science. Foucault suggested that the schemata and norms within which such knowledge is situated create a world view of its naturalness and superiority from which people of a particular period cannot escape (Foucault, 1976). What constitutes knowledge is then strongly influenced by the existing network of power. The idea of modern race, which grew out of the experience of European colonialism in naming and organizing the populations encountered in the rapid expansion of their empires (Montagu, 1964), can be seen as one such eminent example. From the beginning, it has been used not just to organize populations, but to create a classification scheme that explains the meaning inherent to the social order, according to which some groups dominate others. This demographic category has been perfected as a virtually unique practice of surveillance of disease in the United States (Cooper et al., 2003) and this is why 'race-based explanations of supposed group differences in complex outcomes continue to be

published' as Angel (p.3) correctly states. Nevertheless, power for Foucault, as a property of all relations ubiquitous to social life, was productive allowing the participants to change the system from within.

Judith Butler's work, which is strongly influenced by Foucault's theorization on power, might be drawn upon here to provide original insights into the nature of fluidity that characterizes human subjects in post-modernity. Central to Butler's theorization is the notion of the subject which is always relational and tied in with the need for recognition via instituted social norms (Butler, 1997). Subjects must enact them in order to exist socially and not to experience the consequences of abjection. Such attachment to social norms is a precondition of the subjects' becomingness (Butler, 1993) and constitutes their agency but also opens up a possibility for resistance. Butler, who is the third proposed theorist, relies on the Foucauldian notion of power to oppose social norms by which bodies are produced and suggests various means to subvert gender categories as socially constructed and therefore arbitrary and unstable. Human bodies for Butler (1993) are composed of multiple forces which actively pursue self-enhancement, seeking political change to encourage this pursuit in the form of the subversion of gender or even sexual categories for example. Such theorization can be extended for understanding how race is relationally and inter-subjectively enacted in a society that orders people according to racial categories, by helping us to consider how these are inscribed in the subjects' psyches. It can for example, illuminate how even the arbitrary constructed categories create positive and negative racial affiliations by drawing on deep emotions about group identity and the importance of belonging. The psychic and embodied aspects of race that such theory adds on can then explain the reproduction of health behaviors that cannot be understood otherwise. The cumulative effect of negative experience over life could for example, become a prism through which choices in health are viewed, as in the case of African-American patients qualifying for renal dialysis who believe that a fairer system of allocating organs is not achievable (Klassen, Hall, Saksvig, & et al., 2002).

The insights from critical social theory drawn upon here, indicate how macro-level political and social arrangements, having to do with the asymmetry of power and unequal distribution of resources, become embodied at the level of individual subjectivities and groups affected by such structural disadvantage. The theories presented are united in rejecting the classificatory essentialism advocated by biological and social determinism, as they bring forward various aspects of the mutability and fluidity of the social world through which we embody ourselves. The idea of embodiment, present in all these theories provides opportunities for potentially new and novel interpretations of interactions between biological and social dimensions of human behavior. With the renewed attention to phenotypic plasticity and a complex view of

human biology as biocultural (Gravelee, 2009), the idea of embodiment has also gained a new traction in social epidemiology, physical anthropology and in research on health inequalities. A new twist on an old debate taking account of agency and structure as I propose, not only entails dismissing the belief that health inequalities and ill health are determined by our inherited differences but puts to rest the expectation that health improvement can simply be brought about by decoding the mysteries of life that advancement in genomics is expected to deliver.

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