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Abstract

Background. – The objective of this study is to outline a capabilities approach to the social determinants of population health and to compare its explanatory power and implications for public policy-making with psychosocial approaches.

Methods. – A model linking the structures of economic and social relations to health outcomes is developed and logistic methods used to confirm its base validity for a representative sample of 16,488 citizens in 19 developed democracies drawn from the World Values Surveys of 1990 and 2005. Self-reported health is the dependent variable. Age, gender, education, employment status, self-mastery, income, autonomy at work, ties to family and friends, subjective social status, associational memberships and sense of national belonging are considered.
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Results. – At baseline, risk ratios reflecting movement from the 25th to 75th percentile in the distribution of the variable indicate that increases in income reduce the likelihood of poor health (0.78; 0.73-0.82) as does higher autonomy at work (0.90; 0.85-0.94) but so does access to social resources reflected in ties to family and friends (0.89; 0.86-0.92), associational memberships (0.93; 0.89-0.98), subjective social status (0.77; 0.54-0.90) while the absence of feelings of national belonging increases the likelihood of poor health (1.14; 1.06-1.23).

Conclusion – The results suggest that population health is dependent on the distribution of social as well as economic resources along the dimensions predicted by a capabilities model. Governments should be attentive to the impact of policy on the distribution of social, as well as economic, resources.

Keywords: capabilities; population health; gradient; psychosocial; collective imaginary; stress; health policy.

1. Introduction

In recent years, well-developed literatures have established that, alongside the material factors long cited as contributors to health and illness, there are also social determinants of population health [1,2]. These effects manifest themselves in a variety of ways but are prominent contributors to patterns of inequalities in health. One of the recurrent findings in

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population health is the presence at the aggregate level of a gradient linking income or other dimensions of socioeconomic status to people's health [3,4]. This relationship holds for a wide range of measures of health, from life expectancy to self-reported health, and is repeated across space and time, even when the principal causes of mortality shift [5].

The observation that health has social determinants carries important implications for the types of policies governments should pursue if they seek to reduce inequalities in health. However, the issue of what policies to adopt turns on the question of what the principal social determinants of health are, and there is as yet no consensus about this [6,7]. The object of this article is to identify some formulations about the social determinants of health, with emphasis on those that contribute to the health gradient, and to explore their implications for public policy-making. We consider the dominant 'psychosocial' approach to the health gradient and then outline an alternative to it based on a 'capabilities' perspective, which has potential for modeling social determinants with more precision. This analysis carries a wide range of implications for public policy-making.

2. The Psychosocial Perspective

Following pioneering work on the social determinants of population health [1], research by Marmot and his collaborators [8,9,10], often based on the Whitehall study of British civil servants, as well as cross-national studies by Wilkinson and his collaborators [11,12] have done much to establish what we will term a psychosocial approach to the health gradient [13,14]. Although the specific formulations about causal mechanisms linking social arrangements to the health gradient vary across studies, the core contention of this approach is that all societies, of humans as well as some other primates, contain a social hierarchy that gives rise in its lower

ranks to status anxiety with adverse effects on health via a set of well-established physiological pathways whereby social experience 'gets under the skin' [15,16,17]. In short, a ubiquitous health gradient results from status anxieties, typically associated with feelings of relative deprivation, generated by a social hierarchy reflecting differences of social status present in all societies.

A considerable body of evidence suggests that, to some extent at least, the core contentions of this psychosocial approach have validity. Even when a wide range of factors correlated with social rank are controlled, lower rank is still associated with poorer health outcomes [10,13]. However, the psychosocial approach suffers from two limitations. First, the causal mechanisms linking social rank to poor health are not always well-specified. There are two parts to this causal chain. The ultimate segment specifying how experiences of stress or anxiety associated with lower rank induce physiological reactions with adverse effects on health has been relatively well-identified and tested [15,16,17]. However, the penultimate segment specifying how social arrangements give rise to experiences of stress or anxiety is left vague in most of the relevant studies. The link between status concerns and anxiety is plausible but relatively-untested in empirical terms; and it is not clear why social hierarchy should always give rise to status concerns. In societies marked by traditional customs of deference, for instance, possession of a lower social rank may not always induce feelings of relative deprivation [18].

Second, the universalism of the psychosocial approach, which posits a ubiquitous social hierarchy from which status anxiety invariably follows, militates against precision in comparative inquiry. Where the relationship in question is a physiological effect following, for instance, from chemical reactions in the brain or body, it makes sense to expect it to apply, *ceteris paribus*, to all men or women. But, where the relationship is one between a set of social

arrangements and emotional states, propositions couched in universal terms tend to obscure the range of variation in social arrangements across settings that may be pertinent to the outcomes. There is a need for more precise formulations about the multiple dimensions of social hierarchy that might generate the relevant health effects and about how they vary across societies, as well as more attention to the ways in which other features of social context might mediate the extent to which lower social rank gives rise to status anxiety and experiences of stress.

Wilkinson [11,12] addresses this problem to some degree, but in terms that attach overwhelming importance to the distribution of income. His formulations suggest that status anxieties will be more prevalent in societies where income is distributed more unequally, presumably on the premise that higher levels of income inequality generate a steeper status hierarchy and/or more intense feelings of relative deprivation. However, it is difficult to test these propositions about causal mechanisms and assuming their validity obscures some important issues. The extent to which status depends on income is itself something that may vary across societies and over time. In societies that attach high value to conspicuous consumption, for instance, status may be closely tied to income; but there are societies in which income or the possession of consumer goods is not the principal marker of status. Even where income matters, social status is typically a multidimensional phenomenon: people who do not secure it via income may do so on other grounds, for instance, through their craftsmanship at work, their prowess on the sports ground or their roles as good parents [19]. Thus, instead of assuming income is a proxy for status, research should investigate the relationship between these two variables; and, instead of reducing the relevant dimensions of social structure to the distribution of income, researchers should consider a wider range of dimensions of social relations and further formulations about how they might bear on health.

3. The Capabilities Perspective

To advance these objectives, we elaborate an alternative perspective on the social determinants of health that is broadly compatible with psychosocial perspectives but allows for a more expansive conception of the dimensions of social relations that condition health and offers more precision about the causal mechanisms linking those dimensions to the experiences of stress and anxiety that have adverse health effects. This is a 'capabilities perspective' on population health initially introduced in Hall and Lamont [20].

The starting point for this perspective, like its psychosocial counterpart, is the observation that the principal causes of mortality in advanced post-industrial societies are the chronic cardiovascular diseases and cancers that display strong associations with developments in the hypothalamic-pituitary-adrenocortical, sympathetic-adrenal-medullary, and immune systems, reliably related to cumulative experiences of stress and associated emotional states of anxiety, anger and frustration. In other words, 'the wear and tear of daily life' is closely linked to important types of morbidity and mortality in developed societies [15,17]. The observation that cross-national variations in population health are more substantial in the working-age population than among the elderly or young in these societies further suggests that wear and tear of this sort may be an important determinant of health in such societies.

Therefore, the problem is to explain variations in experiences of stress and related emotional states across individuals, socioeconomic groups and societies. The emphasis here is on the variation across socioeconomic groups associated with inequalities in health and the social determinants of such variation. At the core of the capabilities approach is a model that highlights the life challenges people face and the capabilities they bring to those challenges.

The central premise of this model is the contention that all people face a similar set of life challenges, such as those associated with securing decent housing and a livelihood, finding a spouse and caring for children or aging dependents. To these challenges, people bring a set of capabilities that enables them to cope with these challenges more or less easily. Where they have ample capabilities for coping with such challenges, people will have fewer experiences of stress. Conversely, where their capabilities are more limited, people will experience higher levels of stress, anxiety, anger and frustration with corresponding adverse consequences for their health. Thus, the life expectancy and health status of a person depends on the relative balance between the life challenges facing that person and the capabilities brought to such challenges.

Capabilities are to some extent a function of attributes of personality that are rooted in early childhood if not genetic makeup; and in that respect the social conditions affecting early childhood development are relevant to these outcomes and a potential source of systematic cross-national variation [21]. Evidence that the development of executive function associated with the pre-frontal cortex can be conditioned by social circumstances points to one pathway for such effects [22].

However, the social determinants emphasized by this model are the institutional and cultural frameworks constitutive of the structure of social relations in each country. These frameworks condition health because they provide and distribute social resources on which individuals draw to cope with life challenges. Where a person's position within these structures supplies him or her with more such resources, that person will cope more effectively with life challenges, thereby experiencing lower levels of stress over time and better health. Although we emphasize the national features of such structures, there may also be regional variation.

It is well understood in the literature on health status that people are situated within a structure of *economic relations*, constituted by the institutional practices and frameworks distinctive to a country's political economy. That structure distributes economic resources, in the form of income, job security, workplace autonomy and unemployment benefits, to mention only those resources most pertinent to health [2,23]. Moreover, there are systematic differences across nations, not only in the distribution of income, but in other economic resources, rooted in institutional variations across varieties of capitalism [24]. These variations matter for health inequalities because each of these resources enhances a person's capabilities for coping with life challenges. Income is a multipurpose resource emphasized in many accounts; and job security reduces some of the potential stressors a person faces. For instance, it may improve an individual's ability to take time off work to cope with illness or care for dependents, while several dimensions of workplace autonomy are closely correlated with health outcomes [23]. Thus, at each position within a national structure of economic relations, a person is supplied with certain levels of economic resources with health-related value; and there can be systematic variations in the level of resources supplied at analogous positions in this structure across countries.

However, in each country there is also a structure of *social relations*, constituted by parallel institutional and cultural frameworks that convey corresponding social resources. This structure has vertical and horizontal planes. Its vertical plane is characterized by a social hierarchy that distributes social status or prestige, much as psychosocial approaches posit. But in the capabilities model the social hierarchy is a distinct dimension of social relations, which may or may not be tightly coupled to the distribution of income; and it figures, not only as a source of status anxiety, but as a source of capabilities, on the premise that coping with life challenges

requires the cooperation of others and people with higher status secure such cooperation more readily [25,26].

On the horizontal plane, the structure of social relations is composed, first, of sets of social ties that connect individuals directly with family, friends and others in society. These social networks may be more or less extensive or dense, and each type of network is more useful for some purposes than others [27]. But these direct forms of social connectedness are important to health because they offer individuals social resources in the form of logistical and emotional support that is constitutive of their capabilities [28,29]. In addition, as Durkheim observed [30], people are connected by an overarching cultural framework or *conscience collective*, which we term a 'collective imaginary', composed of the narratives that connect a community's past to its future, specify the social boundaries of the community, and indicate what its members owe one another [31,32]. This collective imaginary can supply people with a sense of belonging and purpose that is also constitutive of their capabilities or, by defining some groups as marginal to the community, it can limit their capacity to secure cooperation from others and their capabilities more generally [33,34].

Once again, the core contention is that each position within this structure of social relations confers specific sets of social resources on which people draw to cope with life challenges, thereby conditioning their health, and there can be systematic cross-national variation in this structure of social relations. There is some evidence, for instance, that the ratio for the density of social ties between the upper and lower social classes is larger in France than it is in most other European societies [35]. Figure One displays this model of the social determinants of health.

FIGURE ONE ABOUT HERE

4. Preliminary Empirical Assessment

If one implication of the most prominent psychosocial models is that a person's health is strongly conditioned by income, the implication of the capabilities perspective is that health status should be affected, not only by income, but by a wider range of dimensions of the structure of social and economic relations independently of the effects of income. In research fully reported elsewhere [35], we test these implications with multivariate logistic regressions and fixed country effects on representative samples of 16,488 citizens from nineteen post-industrial democracies drawn from the World Values Surveys of 1990 and 2005.

The dependent variable is a conventional measure of self-reported health status, dichotomized to reduce measurement error, and the explanatory variables of substantive interest are social connectedness (measured by the importance the respondent attaches to ties to family and friends), associational membership (measured by the number of associations to which the respondent belongs) autonomy at work (measured by how much freedom the respondent has to make decisions or to perform a job), social status (measured by self-rated social class), sense of national belonging (measured by pride expressed in being a citizen of the nation) and income (measured by average income in the income decile of the respondent expressed in US dollars at purchasing power parity and logged to reflect the usual shape of this relationship). Age, gender, level of education and an indicator for self-mastery are controls.

Table One reports the risk ratios for the likelihood of reporting poor health associated with moves along each of the relevant dimensions when the other variables are held at their means. The magnitude of each move is reported in the Table and wherever possible reflects a move from the 25^{th} to the 75^{th} percentile in the distribution of the variable. The results provide broad support for a capabilities approach to population health. Income has a significant

association with health, as expected by both the psychosocial and capabilities approaches. However, a person's position within the structure of social relations also has significant effects on health; and the aggregate impact of multiple kinds of social resources is at least as large as that of income. Especially notable here is the strong positive association between health and a sense of national belonging, which suggests that cultural frameworks may be as consequential for population health as institutional frameworks. The control variables operate in the expected directions, although the coefficient on education is insignificant when controlling for income and subjective social status.

These results are important, not only for understanding systematic variations in health across populations, but for explaining social inequalities in health. As calculations based on this data (not reported here) indicate, income is not the only resource distributed unequally across the population in advanced societies [35]. With the exception of national belonging which tends to be distributed relatively equally, all the other economic and social resources highlighted by this capabilities perspective are also distributed unequally across income groups. In almost every country examined here, levels of ties to family and friends, associational memberships, subjective social status and autonomy at work were lower within lower income groups than they were within higher income groups. In short, like the structure of economic relations, the structure of social relations distributes resources unequally: the health gradient has social, as well as economic, roots.

4. Implications for Public Policy

This analysis carries multiple implications for what governments might do to address inequalities in health. While psychosocial approaches to the health gradient imply that status

anxieties with adverse health effects will be a feature of all societies, in recent formulations, advanced most prominently by Wilkinson [11.12], such effects are said to be larger where income inequality is greater. Therefore, the principal policy prescription is that governments should reduce inequalities in income in order to reduce inequalities in health. This prescription is consonant with a large body of research linking adverse health effects to material (as opposed to psychosocial) deprivation and policy recommendations of the sort expressed in the Black Report [36]. In a research tradition associated with McKeown [37], measures to improve the material situation of the least advantaged are seen as crucial to improving their health. Wilkinson's formulation differs, however, in its claim that reducing income inequality will improve health outcomes, not only for the poor, but for many in the population.

The capabilities perspective elaborated here does not take issue with the contention that the health of the poor can be improved by ameliorating their material circumstances. It sees income as a multipurpose resource that improves people's health by enhancing their capabilities. Therefore, redistribution of income towards the poor should contribute to the reduction of health inequalities. Because it associates people's capabilities with more than their income, however, this approach suggests a number of other steps governments could take to address inequalities in health.

On the economic plane, the capabilities approach directs attention to dimensions of economic relations other than the distribution of income. In line with a large body of research on the relationship between health and working conditions [38], it suggests that measures to improve the employment security of workers, their unemployment benefits, and the extent to which they control their work processes will tend to improve their health. Although governments cannot dictate working conditions, fiscal and regulatory instruments give them

considerable leverage over such issues. In some cases, governments can modify these conditions directly, through regulations to enhance employment security or mandate more flexible working time aimed at the work-life balance. In other instances, governments affect these conditions indirectly, as when they provide support for trade unions defending workplace rights.

However, the capabilities approach also suggests that governments can reduce inequalities in health via measures that address the distribution of social resources. For instance, government policies condition the social networks available to people in various ways [39]. Policies that establish recreation centers, sports grounds and youth clubs provide more than physical plant: they provide opportunities for the face-to-face interaction that builds social networks. Moreover, many policies not directly oriented to social connectedness affect it. At the municipal level, zoning regulations and other policies that promote or impede the development of local cafés, and pubs have an impact on opportunities for social contact. Local cafés (and in the U.S. fast food restaurants) are often meeting places for the elderly or retired members of a neighborhood. In some cases, well-intentioned efforts at urban renewal can inadvertently reduce or redistribute levels of social connectedness.

However, policies can also be designed to improve social connectedness even when that is not their principal objective. Support for young parents that takes the form of cash benefits enhances their capabilities in some ways, for instance, but provides no network benefits. By contrast, support for collective day-care centers provides, not only help for child care, but also contact with other parents who may be additional sources of support. By designing policies with their network effects in mind, governments can often secure a 'social multiplier effect' whereby citizens gain not only from the material support a policy provides but also from the ways in which it enhances their social connectedness [40].

The pronouncements of policy-makers can also shape the collective imaginary in ways that enhance or erode feelings of belonging that feed into people's capabilities. In such respects, symbolism can have tangible effects. Public statements that stereotype or disparage specific minority groups, for instance, may reduce their sense of belonging and the cooperation they receive from others. For such reasons, racial profiling by a police force has adverse effects that can extend widely into a community [41].

However, governments rarely consider their policies from such perspectives. Few national governments would implement a new economic policy without considering what unintended effects it might have on the structure of market relations. By contrast, governments rarely ask if their policies have unintended effects on the structure of *social relations*. As a result, one unintended consequence of policy can be an erosion of social resources. Therefore, the capabilities approach suggests there is value in seeing public policy-making in new terms, namely as a process of social resource creation that can enhance or erode social resources. Just as contemporary governments are concerned about the conservation of national resources, we suggest they should evince a parallel concern for the conservation of social resources.

5. Conclusion

We have developed a 'capabilities approach' to the social determinants of population health, which moves beyond a focus on income inequality to identify a wider range of pathways through which economic and social relations condition health. This is an alternative to psychosocial approaches which emphasize the pathways operating through feelings of relative deprivation and status anxiety. From this approach, we derive implications for public policies aimed at mitigating social inequalities in health, which focus on the ways in which policies can

improve multiple dimensions of social relations and redistribute social resource, especially toward those in the disadvantaged ranks of society. We view these policies as supplements, rather than alternatives, to policies designed to reduce material deprivation. In the absence of further evidence, it remains uncertain to what extent approaches to public policy-making that are attentive to social-resource creation can reduce inequalities in health. However, we see promise in this approach and value in further investigation into the issue both of how social resources can enhance capabilities and of how policies might augment such resources.

Disclosure of Interest

The authors declare that they have no conflicts of interest concerning this article.

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Figure One

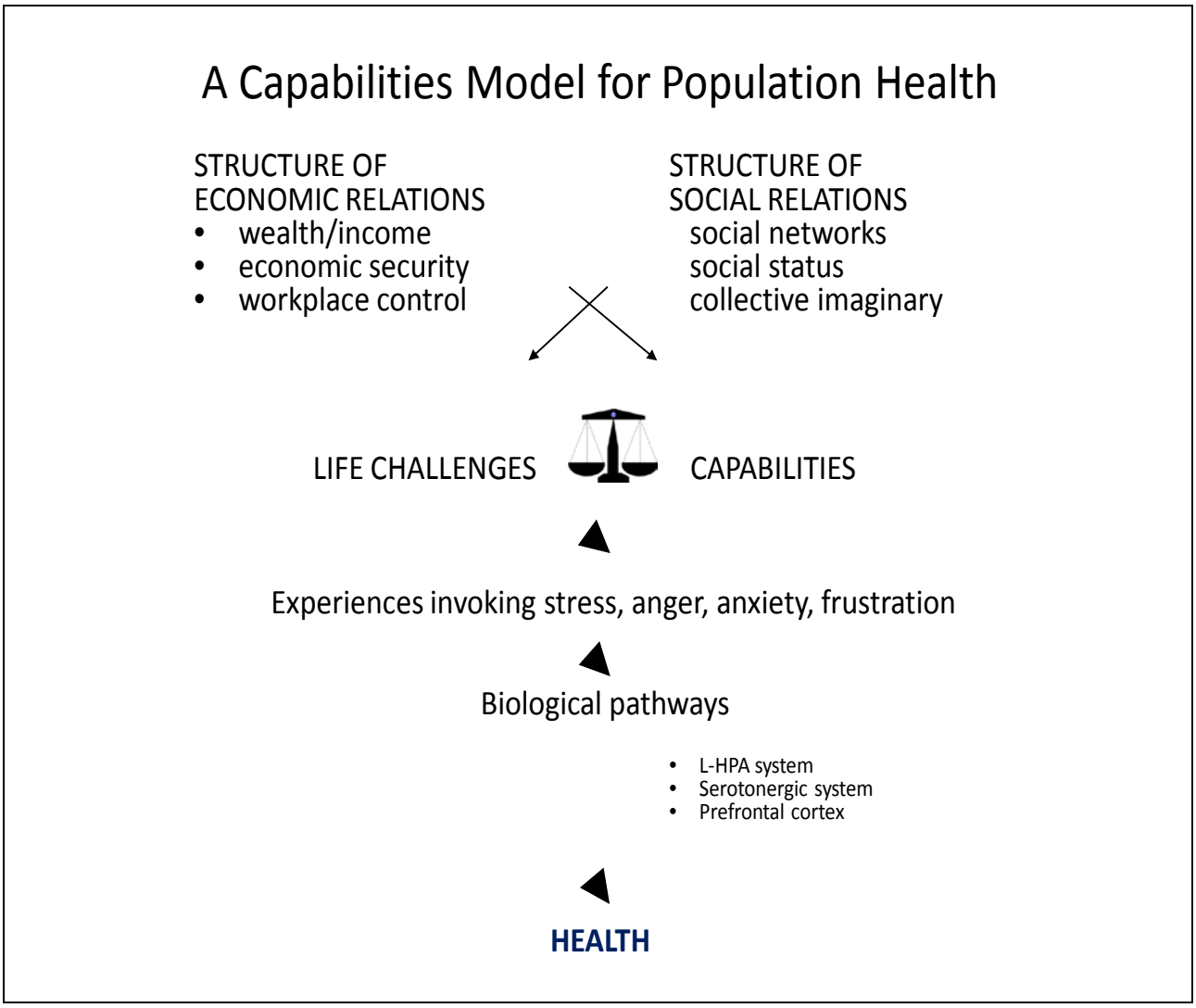
A Capabilities Model for Population Health
STRUCTURE OF ECONOMIC RELATIONS
• wealth/income
• economic security
• workplace control
STRUCTURE OF SOCIAL RELATIONS
social networks
social status
collective imaginary
LIFE CHALLENGES
CAPABILITIES
Experiences invoking stress, anger, anxiety, frustration
Biological pathways
• L-HPA system
• Serotonergic system
• Prefrontal cortex
HEALTH

Table One: Risk Ratios for the Likelihood of Reporting Poor Health based on the Indicated Changes in Social or Economic Position (derived from logistic regression)

	Risk Ratio	***2.50%***	***97.50%***
Gender (from male to female)	**1.16**	*1.10*	*1.23*
Age: (from age 31 to 59)	**2.12**	*2.0*	*2.27*
Employment status (employed to unemployed)	**1.31**	*1.11*	*1.53*
Education: (left school at 18 v 21)	**0.97**	*0.97*	*1.00*
Ties to Friends and Family (p25 to p75)	**0.89**	*0.86*	*0.92*
No. of Associational Memberships (1 to 3)	**0.93**	*0.89*	*0.98*
Workplace Autonomy (p25 to p75)	**0.90**	*0.85*	*0.94*
Income: ($11,614 to $34,892 USD at PPP)	**0.78**	*0.73*	*0.82*
Feelings of National Belonging: (yes to no)	**1.14**	*1.06*	*1.23*
Subjective Social Status (working class to upper-middle class)	**0.77**	*0.54*	*0.90*
Attributes of Self-Mastery: (p25 to p75)	**0.83**	*0.80*	*0.85*

Note: The baseline holds other variables at their means. All continuous variables show the mean effect of a move from the 25^{th} to the 75^{th} percentile in the distribution of the variable, translated where possible into 'natural' units. Confidence intervals are in italics. For details of estimations, see [35].