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SOCIAL EQUITY AND HEALTH

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EDITORIAL

For anybody with even a cursory connection to global health issues, the vast disparities in health between those 'in the West' and those outside, are a regular reminder of the privilege that 'we in the West' enjoy by comparison with the rest of the world. Nothing lets us know more swiftly and immediately of 'our' superior good fortune than images of ravaged or emaciated sick people in sub-Saharan Africa or South Asia. The comparatively poor health of much of the world is one of the most powerful symbols of a globally divided identity of winners and losers. Here in Australia, few would have any doubts about which side of the divide we are on, and there is solid evidence for such a view. Most of us are doing extremely well in terms of longevity; there have been major gains in relation to managing the pain and suffering associated with chronic illness conditions and disabilities; and the death of mothers in pregnancy and childbirth is practically unheard of. However, the health privilege that Australia enjoys does not include its indigenous people. Large sections of the indigenous population may as well be living in sub-Saharan Africa or parts of South Asia where, as those media images suggest, life can be short and very nasty.

This special issue of *Health Sociology Review* is not about Australian Indigenous health. It is about the social arrangements and dynamics involved in producing the kinds of starkly differentiated health patterns embodied in the disparate health fortunes of Indigenous and non-Indigenous Australians. This issue focuses on what has emerged as one of the most pressing issues of global health governance – health inequities or inequalities. These are explored from diverse methodological perspectives and national settings, and by contributors from various national locations including Australia, Bulgaria, Canada, India, Norway and the United States. Despite these differences, a clearly discernible unanimity emerges from the collection. Although the *right to health for all* was enshrined in the Constitution of the World Health Organisation in 1946, the means for realising it remain unequally distributed both within and between countries internationally. Yet this disparity, as the authors show, is played out within a plurality of ways that are nonetheless underpinned by entrenched social divisions and differences. Moreover, the local and contingent character of this inequity demands close and systematic social investigation if policy makers are to come up with effective interventions.

The first article on health inequity and the social determinants of health explores this theme in some detail and argues that the predominant scientific approach to framing and analysing the problem of health inequalities – epidemiology – is a necessary but insufficient social scientific basis for understanding and addressing the social complexities and dynamics associated with the production of health inequity. Informed by the frameworks and methods of critical sociology, this article proposes that such an approach may make a significant contribution to identifying and analysing the specific *structures of practice* involved in health inequities and, in turn, to more efficacious policy interventions.

Lorraine Greaves' article takes up one of the major global health policy interventions to have emerged over the last twenty years – tobacco control. As her work shows, it faces a major challenge in the 21st century with tobacco smoking having assumed epidemic proportions throughout the world. Some progress has been made in the 'developed world', but the overall burden of tobacco production and tobacco use remains as onerous as ever with low and middle income countries now shouldering most of it. And while men's rates of tobacco use globally have peaked, and are starting to decline, the picture is different for women. The epidemic for women is estimated to be still gathering force and unlikely to reach its peak until later this century. In fact the rate of global female smoking is expected to increase to 20% from the current 12% by 2025. The exploding tobacco epidemic will thus have a particularly marked effect on women and low and middle income countries. As Greaves proposes, if the tobacco control movement and its associated public interventions are to be successful, it is vital that they embrace gender equality measures in order to tackle the gendered health inequities posed by tobacco production and its use.

Stephanie Short and her colleagues turn their attention to the inequities in accessing health care and health resources when a universal health insurance scheme permits providers to demand out-of-pocket payments for health services and goods. Based on a study of the introduction of a universal health insurance scheme in Bulgaria, this article reveals that equitable access to health care is a 'mirage'; as the vast bulk of health care is self-funded. Accordingly, those who are least able to pay, or who face other kinds of serious barriers to health care, such as geographical isolation, suffer the least access to health services and goods. The authors' conclusions have particular significance for understanding the social complexities faced by post-communist states in their attempts to achieve equitable health service outcomes through social democratic health policy reforms.

The possibility of health policy interventions to tackle the inequitable pattern of death rates in Norway, particularly in relation to education, is explored by Espen Dahl and his colleagues. They address this issue by asking 'whether the educational gradient in avoidable mortality differs from overall and non-avoidable mortality among men and women in Norway'. They explain that avoidable deaths are those 'caused by diseases that are either treatable if given appropriate medical care, or preventable if available preventive measures were implemented'. Their results provide compelling evidence of the relationship between low education and higher rates of 'avoidable mortality': a sound basis, they propose, for more focused public health and medical interventions among the least educated members of Norwegian society.

Anant Kumar explores the efficacy of 'self-help groups' in improving the health of women from poor and low-caste backgrounds in India. Self-help groups are designed to encourage poor and marginalised people to become financially more self-reliant by establishing and engaging collectively in market-based activities that are expected to generate income. They are strongly supported by the World Bank and the United Nations, having also been identified as a useful strategy for improving women's health. Based on a large, comparative study of women from different class and caste backgrounds who were participants of the same self-help group, Kumar's findings raise serious doubts about the power of such an intervention to make any positive impact on the health of India's most marginalised and impoverished citizens.

Liza Hopkins' article, based on a study of the health and social impact of creating an electronic community in an Australian high-rise public housing estate over a four year period, is unable to draw such a decisive conclusion. The study was part of a project that provided residents with access to personal computers, computer training, an intranet, internet and email, as well as establishing a training room, open access computer lab, repairs workshop and a help desk service for computer users. There was good evidence from the study that people suffering a combination of economic and social disadvantages can and do take advantage of new technology to improve their own, and especially their children's, access to the technological underpinnings of the contemporary knowledge society. There was no evidence, however, that this translated into self-reported better health.

The health impact of the dislocation that children and adolescents experience in response to the HIV/AIDS crisis in Africa is understood to be a significant global health issue but little is known about the specific day-to-day dimensions of the problem and how they are related to health. The final article in this collection examines the impact on the health of adolescent women in Kenya of living in non adult-headed households. According to the study's findings, adolescent women in such households face an increased range of health problems that their counterparts in adult-headed households do not have to confront. Resoundingly, ongoing education is a major strategy in reducing the likelihood of illness, especially among those identified as 'emerging adults'. Early marriage, however, is more likely to compound the risk of deteriorating health. Protecting the assets of young women when parents die may be a further potential strategy in maintaining their health because of the strong association between good health and wealth that the study found.

The findings and analyses of the studies presented in this special issue are not all informed by rigorously applied sociological frameworks and methods. Most of them nevertheless demonstrate that the social dynamics associated with health inequalities are complex and contingent. Specifically how these dynamics work, under what conditions, and with what consequences, are questions that remain largely unaddressed and unanswered by social scientific research; including that conducted by sociologists. Perhaps it is time for sociologists to re-engage with the problem of health inequity and consider how our research practice might contribute to these questions.

Toni Schofield
Guest Editor

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Health inequity and its social determinants: A sociological commentary

ABSTRACT

In 2005, the World Health Organisation (WHO) established the Commission on the Social Determinants of Health. It is to produce its final report in May 2008, identifying actions to address the vast health disparities that have accompanied global economic expansion and widespread political turmoil. The Commission and its anticipated report are a major part of a new research and policy approach committed to the advancement of global health equity. This paper explores the fundamental goals, principles and concepts of the health equity 'movement', and its relationship to the 'social determinants of health' approach. It argues that such an approach is an instrument for rendering the problem of health inequity real and actionable by institutional authorities and policy practitioners. However, its prevailing frameworks and methods impose significant constraints on its capacity to identify effectively the mechanisms by which health inequities are produced. Accordingly, the actions suggested by the prevailing approach to the problem of health inequity are likely to be less than efficacious. The paper suggests that a more dynamic understanding of the social, as provided by critical sociology, has much to offer in advancing efficacious policy interventions in the field of health and equity.

KEY WORDS

health inequity and inequality, social determinants of health, critical sociology, policy actions

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Introduction

In December 2006 *The Lancet* published a prestigious lecture presented at the Royal College of Physicians by the acclaimed Australian doctor and epidemiologist, Professor Sir Michael Marmot, on the subject of 'health in an unequal world'. Marmot's lecture outlined the breadth and depth of health inequalities within and between countries across the globe. Impressive for its detail and incisiveness, the information it provided on international health patterns was nonetheless very familiar to those acquainted with the social dimensions of health, particularly those involved in teaching or researching health from a sociological perspective. So, too, was the lecture's central 'take-home' message: 'Inequalities in health are not inevitable…(They are closely linked to) the way we organise our affairs in society' (Marmot, 2006: 9). Much of the lecture was taken up with explanation of how this is the case and what researchers and physicians can do if they wish to be part of the solution rather than part of the problem.

So what kind of approach did Marmot advance in his explanation? Not an explicitly sociological one. Rather, the patterns of health inequalities were explained in terms of what Marmot called a 'social determinants of health' framework: a social scientific approach that has been a major player in shaping prevailing international research and policy-based understandings of social inequalities and health, and of public strategies to advance health equity (Marmot and Wilkinson 2006). In this article I outline and discuss this model of understanding, and intervening in, health inequities from a sociological perspective. Its consequences, I argue, may be significantly less efficacious than intended in the absence of a critical sociological examination of how 'the social' produces and determines health.

Health disparities and equity: A new research and policy discourse

Arguably the current definitive text on the social determinants of health is the book of that name edited by Michael Marmot and Richard Wilkinson (2006). It was first published by the World Health Organisation (WHO) under the title, *Social Determinants of Health: The Solid Facts* (Wilkinson and Marmot 1998). It built on work that began to emerge in the field of health disparities and equity in the 1980s (see, for example, Townsend and Davidson 1982; Daniels 1985; Mooney 1987) and that gained considerable momentum in the 1990s. One of the contributors to this early work, the health economist, Gavin Mooney (1987), posed the question, 'What does equity in health mean?' He replied that there was no one, 'correct' answer because the various definitions that were appropriate for adoption in developing a response involved differing values and purposes. As his response suggested, equity is an inherently *normative* concept. Nevertheless, by 1990 the European Regional Office for the World Health Organisation had formulated a decisive response to the question. It outlined basic concepts and principles, subsequently elaborated in a publication by the author of the WHO report (Whitehead 1992). These were taken up in a variety of international studies and enquiries into health disparities throughout the 1990s (see, for example, Culyer and Wagstaff 1993; deKadt and Tasca 1993; Birdsall and Hecht 1995; Braveman 1996; Mackenback and Kunst 1997; Wilkinson 1997; Acheson *et al* 1998).

The WHO (1990) paper proposed that while health inequities are indivisibly related to health inequalities or differences, they are not the same. Health inequities should be understood in terms of 'differences in health that are unnecessary, avoidable, unfair and unjust' in relation to both individuals and populations. The achievement of health equity involved both individuals and populations in a project towards the elimination of avoidable health inequalities. Its fundamental objective was to promote the *opportunity* for individuals to achieve their maximum health potential and to face no disadvantages in doing so if the barriers to the attainment of such a goal could be avoided (Whitehead 1992). At the same time, *population-based* health inequalities should be reduced to the lowest level possible (Whitehead 1992). The overriding purpose of this project was the advancement of social justice and the basic human right to health established and ratified by the WHO Constitution (1946).

According to the keynote speaker at the inaugural International Society for Equity in Health Conference in Cuba in 2000, social justice in fact *demanded* the reduction of inequalities in health (Anand 2002:7). What he understood by social justice was largely informed by liberal political philosophy (as elaborated by John Rawls 1971) and its emphasis on the equalisation of opportunities among individuals to access what they *all* need to participate in looking after themselves and their families – that is, 'common goods'. From this perspective, health is a vital common good, access to which provides the functional agency that all people require for 'positive freedom' or the capability to 'achieve alternative "beings" and "doings"' (Anand 2002:4). The Canadian epidemiologist, Weiching Chang (2002), a further major contributor to the Equity in Health Conference, concurred with this view, emphasising that the common good of health involved not only health outcomes but health care. The latter included health care systems and services, health insurance schemes and the 'macro-management, micro-management and decision making of the health care system' (Chang 2002:4). Reducing health inequity, then, required interventions to ensure equality of opportunity to access, and participation in control over, health care, as well as to health.

Central to reducing health disparities, Chang added, was ascertaining whether they were 'preventable, avoidable, or justifiable', as the WHO (1990) report suggested: in other words, whether health and health care differentials were affected by 'social and environmental factors'. The determination of health equity thus required scientific approaches and tools for conducting causal analyses of health in which the social could be operationalised in terms of discrete and distinctive determinants that were strongly correlated with specific health conditions. According to this logic, the social determinants of health approach is an instrument for rendering the problem of health inequity *real* and *actionable* by institutional authorities and policy practitioners.

A recent contribution by the author of the original WHO (1990) report on health equity, Margaret Whitehead (2007), has reaffirmed this logic in an article entitled 'A typology of actions to tackle social inequalities in health'. However, by contrast with her original paper and those presented at the International Equity in Health Conference (cited above), her recent contribution departs from the distinction between inequities and inequalities, proposing that the latter term 'carries the same connotations of unfairness and injustice as the term "inequities"' (Whitehead 2007:1). She suggests that what is more significant than being able to identify whether inequalities in health are socially determined is being able to determine what can be done about those already identified. She proposes that there is now widespread consensus that social inequalities are the major determinants of health inequalities and that the way forward involves examination of a range of actions that might be adopted in 'tackling social inequalities in health'.

The 'social determinants of health' approach

Whitehead's recent commentary represents a significant divergence from the predominant focus of the social determinants of health approach. As one of the editors of *Social Determinants of Health* comments, its main purpose is to provide the evidence that policy makers need so that *they* can take action on health inequity and bring about change (Marmot 2006:4). Such evidence consists largely of combinations of correlations that suggest strong associations or even causes between social and environmental factors and specific health conditions. The presentation of evidence and identification of causality in relation to health inequity, then, occurs within a specific political context – one that demands the production of evidence that is acceptable to policy makers who are responsible for making decisions on what the problem of global health inequity is and how it should be addressed. Since 1946, it has been the WHO that has been the main player engaged in identifying what counts as major global health policy concerns and what kinds of public actions should be taken in responding to them. The predominant scientific approach and method the WHO has adopted in relation to the production of evidence for the problem of health inequity and its causes is epidemiology. This reflects the values and expertise of the dominant profession within the organisation: the medical profession.

Some have suggested that the World Bank has overtaken the WHO as the main influence on global health policy (Walt and Gilson 1994; Walt 1998). According to proponents of this view, the World Bank has established neo-liberal economics as the dominant approach to identifying global health problems and to formulating solutions to address them. This has been achieved primarily through technical and financial support for initiatives that adopt market-style solutions. Such initiatives eschew the importance of public infra-structure and other resources in responding to entrenched and widespread illness, disease and mortality, especially maternal and infant mortality (see for example, Kumar 2007, in this issue). Despite the challenge posed by the World Bank to the WHO's pre-eminence as global health policy leader, the WHO retains enormous scientific authority in relation to its analysis of, and recommendations about, global health problems.

Such authority does not derive simply from the legitimacy of its knowledge base, namely biomedicine and epidemiology. Rather, as a recent analysis of global health governance suggests, the WHO has initiated 'its own process of restructuring and repositioning as an agent for co-ordinating, strategically planning, and leading "global health" initiatives' (Brown *et al* 2006:623).

Nevertheless, within the WHO epidemiology remains the dominant scientific approach to rendering health inequalities real and actionable and this is amply reflected in Marmot and Wilkinson's *Social Determinants of Health.* Indeed, it is an epidemiological 'tour de force'. It marshals a vast and detailed collection of epidemiological evidence that demonstrates the scope and depth of health inequalities intra- and internationally, and their relationship to specific social factors or conditions that are identified as causal, strongly associated or contributory. Topics include health and labour market disadvantage, cigarette smoking and social disadvantage, social support and health, housing and health, and the social determinants of sexual behaviour and sexual health. The weight of evidence presented as a whole renders the book's fundamental case unassailable. Health inequalities are indisputably and overwhelmingly the product of social and environmental factors. Accordingly, they are 'avoidable' and 'preventable'. The *Social Determinants of Health* makes what is arguably one of the most influential contributions to our current knowledge and understanding of the shape and extent of global health inequity.

On the basis of the evidence presented, the book's sixteen chapters suggest particular kinds of social and economic policy actions to address and redress the inequities they identify (for example, McCarthy 2006:142-143; Shaw *et al* 2006:216-217), or they discuss policy implications. The problem with the recommended policy actions, however, is that the evidence presented in the body of the articles is often not the kind of evidence required to support the kinds of policy recommendations proposed. The evidence presented demonstrates the existence of a relationship between a social condition(s) or factor(s) and a specific health problem but it rarely shows the *mechanisms* by which the social produces the problem. In the absence of evidence and explanation demonstrating *how* the social works in producing the problem, the recommended policy interventions devised to address the social dynamics involved are *speculative*, not scientific.

This incongruence between evidence and policy action is not the fault of the approaches and methods of epidemiology. Rather, it is a function of using the wrong tool for the job. In this case, 'the job' involves the development of public action through policy formulation and implementation. In relation to health inequity, the problem for, or object of, policy is not a social or environmental factor, or even a combination of such factors. It is the *specific social dynamics and structures involved in producing* the identified relationship between health patterns and social and environmental factors. The kind of 'tool' needed for identifying and analysing the problem so that it is amenable to policy action is therefore not epidemiology. Rather, it is one that can examine the *social mechanisms* or *dynamics* by which the correlation between social/environmental factors and health problems is generated. This requires a different theoretical and methodological approach. As Whitehead (2007:10) has recently proposed:

> *... the search for effective actions to tackle health inequalities in health highlights more than anything the need for a new kind of evidence synthesis, one that casts its net wide over a broad social science literature base, interprets it against plausible theory and pieces the jigsaw together in a policy-relevant way. Serious efforts to tackle social inequalities in health need such approaches more than ever.*

Arguably the pre-eminent social scientific discipline involved in investigating social dynamics or configurations of social practice is *sociology*. There is some embryonic application of sociological theory and methods to the social determinants of health but it is somewhat limited as the following argues.

Sociology and the social determinants of health

In the *Social Determinants of Health*, David Blane's piece, 'The life course, the social gradient, and health' (2006:54-77), adopts a sociological approach to the complex social relationships and processes involved in the production of health inequalities. In explaining a life course perspective on health and its social determinants, Blane emphasises the symbiotically dynamic relationship between the social and the body. He states that a life course approach:

> *... sees a person's biological status as a marker of their past social position and, through the structured nature of social processes, as liable to selective accumulation of future advantage or disadvantage. The social is, literally, embodied; and the body records the past, whether as an ex-officer's duelling scars or an ex-miner's emphysema. In turn, the duelling scar, as a mark of social distinction, predisposes to future advancement and social advantage, while the emphysema robs the employee of their ability to work and predisposes to future deprivation and social disadvantage (Blane 2006:54).*

Such an approach recognises the indivisibility of the social and the biological but it also focuses on how social organisation 'structures life chances so that advantages and disadvantages…cluster cross-sectionally and accumulate longitudinally' (Blane 2006:55). According to Blane (2006:56), the central social dynamic at work in this process and the production of health inequity is the 'process of social accumulation'. This involves the ongoing reproduction or continuity of class circumstances of parents to those of their children and into adulthood. As Blane explains, no one factor is responsible as a major long-term health influence in this process. Rather, it is the incorporation of relatively minor events and conditions into a 'chain of advantage or disadvantage' that is crucial. The process of accumulation, according to Blane (2006:63), can be mediated by two other major social dynamics – 'social mobility' and 'social protection' – such that the patterns of accumulated social advantages and disadvantages that occur over people's lifetimes, and that produce health inequities, can be intercepted. Upward social mobility, for example, can interrupt the social accumulation of disadvantage and result in improved physiological outcomes.

The life-course perspective, according to Blane (2006:72), provides a basis for developing social policy that can intervene more effectively in redressing health inequities. It encourages policy actions that serve as 'springboards' to prevent the accumulation of further disadvantage and repair past damage rather than those that operate as 'safety nets' and that simply allow people to re-establish their habitual life circumstances. Yet such a broad proposal is hardly groundbreaking. Basically it amounts to saying that more active and preventive social policy is better than passive and palliative policy in intervening in health inequities. Who could, or would, argue with that? And while the social accumulation of advantage and disadvantage over the life course provides a sociological explanation for the 'gradient in health' that recognises the infusion of the social in the body over time, is it really necessary for proposing an active and preventive social policy approach in health? The more significant limitation of Blane's analysis derives from the absence of any critical discussion of the *inexorability* of the process of social accumulation of advantage and disadvantage, and the health inequalities associated with them. If the problem of health inequity is generated by the social accumulation of advantage and disadvantage, what makes the process happen? How does it work? What are the specific social dynamics or social configurations of practice that systematically generate the advantages and disadvantages associated with health inequity? What is the relationship between such dynamics and state-based *political* interventions such as redistributive and full-employment policies (see, for example, Navarro and Shi 2001; Whitehead 2007). These sorts of questions are not raised by Blane's analysis.

Such concerns signal an approach within sociology described as *critical* – a perspective first discussed by the German social theorist, Max Horkheimer (1976), in 1937. As the above suggests, it departs significantly from Blane's life-course perspective. A critical sociological approach is distinguished by its focus on 'definite individuals' (Horkheimer 1976:221) and their relations to other individuals and groups in specific locations and historical circumstances. Its main object of enquiry is *social practice* – as it is routinely enacted in everyday life and social institutions – and the historical forces that shape it. Such an approach is closely allied to social democratic reform and human emancipation based on the elimination of structures of exploitation and discrimination. When applied in a policy-based context concerned with the advancement of equity, critical sociological investigation involves systematic identification and analysis of *the specific social dynamics involved in the production of opportunities for, and barriers to, equity* (see, for example, Schofield and Goodwin 2005). This often involves 'mapping', with rigour and accuracy, the specific social arrangements or *configurations of social practice* (Connell 2002) *that promote or obstruct opportunities for action towards equity*, and the kinds of economic and political circumstances underpinning such arrangements.

The purpose of such analysis is not to produce explanation and evidence demonstrating linear cause and effect relationships. Critical sociological investigation, and the methods adopted in pursuing its objectives, is simply incapable of doing this. Rather, the desired outcome of such investigation, conducted within policy-based contexts, is the identification of the barriers and opportunities for action in specific settings towards clearly defined goals that have broad, democratic support. To achieve such an outcome, the social science required focuses systematically on the configurations of social practice within specific settings. It examines how these patterns of practice work and how they may be linked to other such structures.

There is little evidence of the application of a critical sociological approach to the study of health and equity. However, a pilot study informed by this approach is currently being conducted in New South Wales, Australia, to identify the opportunities and barriers for action to improve workplace health outcomes in response to legal sanctions and penalties for breaches of occupational health and safety legislation (McCallum, Schofield and Jamieson, forthcoming). Such a project is engaged with investigating the extent to which legal policy interventions can prevent serious workplace injuries and deaths by focusing on the social mechanisms by which workplaces respond to prosecution for serious occupational health and safety offences. Workplace responses involve the organisational and individual measures that employers take to avoid future infringement and prevent further serious injuries and/or fatalities. Both employers who have been prosecuted for serious occupational health and safety breaches, and those who have no such record, are included in the study. The purpose for doing so is to examine the extent to which a legal policy intervention can prevent serious workplace injuries and deaths.

In analysing how the social works in the prevention of serious workplace injuries and fatalities within the context of this specific legal policy intervention, the study focuses on the *social relations* and *practices* involved in employers' responses to legal prosecution. These include the specific interventions they have made in the workplace to change the organisation of the work processes associated with the occupational health offence, their negotiations with employees in organising work processes to prevent workplace injuries, their consultations with safety management expertise (both public and private) in ensuring the use of equipment, processes, materials and work practices that prevent serious injury, their understandings of how and why serious injury occurs in their workplace, their emotional responses to those who incur serious workplace injuries, especially in their own workplaces, and their plans for establishing a workplace that is free from serious injury. Overall, the study is guided by several key sociological concepts that are used to map and analyse the structures of practice involved in employers' responses. These include the organisation and division of labour, social relations of authority and decision-making, and conceptualisations or cultural representations of the problem and its possible solutions.

The identification of the barriers to and opportunities for action to prevent serious workplace injuries and deaths will depend on identifying the combination of patterns that emerge in relation to each of these arenas of employers' practice with reference to their specific responses to occupational health offences. In mapping such practices, the researchers can analyse how employers' responses to punishment for occupational health offences, both individual and organisational, actually work *in practice*. Once the patterns of practice are known and understood from the study, certain conclusions may be drawn about the constraints and possibilities for interventions that involve employers and that prevent serious workplace injuries. Obviously, one pilot study will not provide sufficient explanation and evidence for immediate application to evaluating the efficacy of current legal policy interventions designed to prevent workplace injuries and fatalities. However, the study's approach and methods – presumably revised in the light of the pilot – may be replicated in other similar locations to generate the amount and quality of evidence required to ensure the kind of policy intervention required. Such evidence could also be supplemented by investigations into other sites of practice associated with legislation and prosecution to prevent serious workplace injuries and deaths such as the judiciary (responsible for formulating and implementing such interventions), public sector authorities (responsible for administering the occupational health and safety legislation), and trade union organisations that are permitted to use such interventions to act on workplace injury prevention. The combination of such findings would result in an evidence base constituted by cross-bearings that would provide a more robust basis for devising effective policy action.

The study described above engages directly with working conditions and, as such, addresses a key factor in relation to health inequalities. As Whitehead (2007:6) has recently reminded us, there is a marked social gradient in relation to health-damaging working conditions and occupational position. In short, health-damaging working conditions increase with decreasing occupational position. Accordingly, legal policy interventions designed to reduce workplace injuries and deaths are intrinsically equity-oriented because such injuries and deaths are disproportionately distributed at the bottom of the occupational hierarchy. The most pressing issue for those wanting to advance health equity in relation to workplace health, then, is not simply to investigate the social mechanisms involved in generating the relationship between low occupational position and high rates of serious injury and death. Rather, and as significantly, it is to determine the social mechanisms by which policy interventions produce barriers to and opportunities for action to reduce workplace injuries and deaths.

'Unjust social structures' and health inequity

It is evident that in exploring the social mechanisms involved in the production of health inequalities from a critical sociological perspective, the major purpose of such an enterprise is to provide a social scientific basis for policy interventions to address 'unjust social structures'. Such an objective appears to have been central to the health equity movement from its inception albeit only implicitly. More recent discussion in the field towards effective actions to tackle such inequalities, however, has seen an increasingly explicit focus on addressing 'unjust social structures'. Whitehead's current work (2007) makes this absolutely clear. A further notable example of this trend is found in the work of two US health and human rights academics, Braveman and Gruskin (2003), who have sought to clarify prevailing understandings of health and equity specifically for research and policy purposes. They argue that while structures of exploitation and discrimination prevail, the *right to health* is seriously circumscribed. This is significant because, as they explain, the right to health is a *basic human right* established and ratified by the Constitution of the WHO (1946) and international human rights treaties. Governments who are signatories to such treaties are therefore publicly committed to the implementation of the principles and practices of justice that will secure the right to health for all. Braveman and Gruskin argue that such a right is contingent on the equalisation of opportunities to be healthy. Yet this is not a process confined to the arena of explicit public health initiatives or that of the health care system. Rather it requires the exercise of 'non-discrimination and the responsibility of governments to take the necessary measures to *eliminate adverse discrimination* (emphasis added) …' (Braveman and Gruskin 2003:4). Such measures demand a 'selective concern for worse off social groups' and the implementation of principles and practices committed to the advancement of basic *social rights* including those associated with a decent standard of living in households and communities, education, working conditions and the freedom to participate fully in one's society (Braveman and Gruskin 2003:5).

From this perspective, health inequities are strongly associated 'with unjust social structures; those structures (that) systematically put disadvantaged groups at generally increased risk of ill health and also compound the social and economic consequences of ill health' (Braveman and Gruskin 2003:6). Recognition of the significance of unjust economic and social structures in generating health inequities is also evident among Australian exponents of the 'social determinants of health' approach, such as public health researchers, Fran Baum and Liz Harris. In a recent publication, they propose that the formation of the Commission on the Social Determinants of Health by the World Health Organisation in 2005 demonstrates that there needs to be a greater focus on the 'causes of the causes' (Marmot 2006) or 'upstream determinants' of health: namely, 'the economic structures that shape our chances of health and illness' (Baum and Harris 2006:163). They suggest that when the Commission produces its final report in May 2008, it will be informed by such an approach. To date, the Commission has established nine 'knowledge networks' that have been investigating what have been identified as the priority areas for intervention to redress health inequity. These include early childhood development, employment conditions, health systems, women and gender equity, and social exclusion (WHO 2007). It is not yet clear what the networks are doing in these areas but summaries provided by the Commission on the approaches to be adopted suggest a more dynamic, sociological orientation to the social determinants of health. The network on women and gender equity, for instance, is focusing on 'mechanisms, processes and actions that can be taken to reduce gender-based inequities in health' (WHO 2007). Similarly, the social exclusion knowledge network 'will examine the relational processes that lead to the exclusion of particular groups of people from engaging fully in community, social life'.

Conclusion

Clearly, the priorities identified by the WHO's Commission on the Social Determinants of Health are vastly complex and its report presumably will only be able to scratch the surface in terms of recommended actions to intervene in health inequities or inequalities. It is anticipated, however, that given the contribution that a critical sociological study of health may bring to understanding the specific and local patterns of practice involved in generating health inequity, its frameworks and methods might be recognised and adopted in developing research and policy in health and equity. The incorporation of a critical sociological approach, I suggest, involves a representation and understanding of the social in framing the problem of health inequity that differs from that which predominates in the social determinants of health approach. It is one that focuses on the dynamics of the social within local contexts and that demands close and systematic investigation of *how such dynamics work* in producing current health inequalities. It is also able to closely examine the social mechanisms by which policy interventions work in seeking to redress and reduce such inequities. In the absence of a sustained and critical sociological examination of the specific and local patterns of social practice involved in the production of health inequalities, and even of policy actions to address them, the efficacy of the current social determinants of health approach faces limitations. It is not too late, I propose, for a more active dialogue and increased collaboration between health sociologists and those within the research and policy communities committed to advancing equity in health.

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CALL FOR PAPERS

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In response to the emergence of the holistic health movement in the early 1970s and the rising popularity of complementary and alternative therapies, a growing number of biomedical physicians and institutions have embraced complementary and alternative medicine (CAM), often under the guise of integrative medicine. Whereas alternative medicine is often defined as functioning outside biomedicine and complementary medicine beside it; integrative medicine purports to combine the best of both biomedicine and CAM. Some social scientists have argued biomedicine has become more holistic as a result of this development, whereas others suggest it has embarked upon a subtle process of absorbing or co-opting CAM. This special issue invites papers addressing changes in the health care sector associated with the adoption of integrative medicine or CAM. Authors are also asked to debate on some of the causes and consequences of this development. Is this a reframing of biomedicine itself? An erosion of medicine's political, economic, and social authority? A response to managerialism, the demands of consumers or market pressure? An expression of rising legitimacy for CAM? A new professional strategy for biomedicine? Where might the push for evidence-based medicine fit into this equation?

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Gender, equity and tobacco control

ABSTRACT

Global rates of tobacco use among men have peaked and are slowly declining, while rates among women are steadily increasing, raising important questions about gender, equity and health. The focus of this epidemic will be in low and middle income countries where women are also increasingly involved in the production and manufacturing of tobacco as well as being targeted by tobacco marketing. As the tobacco epidemic evolves in the 21st Century, increasing tobacco use and production affecting girls and women threaten to undermine not only their physical and mental health, but also their economic and social progress. This article explores how tobacco use and production will affect the status of women and their progress towards gender and health equity. Several strategies for responding to this are suggested, and it is argued that the tobacco control movement has a responsibility to adopt gender and equity based principles in its goals and practices.

KEY WORDS

gender, women, tobacco, equity, sociology, health

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Introduction

In the 21st Century, the global community is facing an explosion in the epidemic of tobacco use. At the same time, two trends are apparent. The global rates of tobacco use for men have peaked and are slowly declining and the burden of tobacco production and tobacco use is shifting from the developed world to the low and middle income countries (LMICs) (Mackay *et al* 2006). Some of these countries have large populations, presenting huge markets for exploitation by the tobacco industry and the development of new smokers. These countries are also being increasingly occupied by tobacco growing and production, and are experiencing rising tobacco use (John and Vaite 2002). Five countries alone – China, Indonesia, India, Russia and Bangladesh – account for half of all smokers globally (Rubenstein Communications 2006), and are poised to become some of the primary sites of the 21st Century toll of tobacco on human and environmental health. In many of these areas, tobacco control is not well developed, adding to the predicted burden of increased tobacco use.

Currently, about 20% of the world's population smokes and 5 million people die from tobacco use each year, but it is estimated that 1 billion people will die over the course of the 21st Century from tobacco (Rubenstein Communications 2006; MacKay *et al* 2006). Globally, male tobacco use rates are currently 48%, but these trends have peaked and are starting to decline (MacKay *et al* 2006). But for women, the picture is different. It is estimated that the epidemic for women will not reach its peak until later this century. Indeed, by 2025 rates of global female smoking are expected to increase to 20% from the current 12% (Samet and Yoon 2001:vi). Hence, the exploding tobacco epidemic will have a particularly marked effect on women and the LMICs.

These trends raise some questions about gender, equity and health. In addition to predictions of increased smoking related disease and death for women, how will the increase of both tobacco use and tobacco production affect women's status and progress toward gender equity? This article addresses these questions by first discussing prevailing theoretical explanations for the historical gender differences in male and female smoking patterns, and then introducing additional theoretical considerations. Speculation about how gender, equity and health may be affected by tobacco use in the future is contextualised in a discussion of inequity and tobacco use.

Will history repeat itself?

There are several questions regarding gender, equity and tobacco as we enter the 21st Century. Will 20th Century patterns of the diffusion of smoking, as reflected in the Four Stages of the Tobacco Epidemic model (Lopez *et al* 1994), be repeated in the 21st Century, or, will rapidly accelerating communications, modern migration patterns, technology and globalisation processes contribute to brand new patterns? In this context, will the historical gender gap in the uptake of tobacco persist, or will it close? Will women and men respond differently to tobacco control? How will tobacco use and production affect the status of women? How will gender and equity interact in the future context of tobacco use, production, marketing and tobacco control?

Gender is a malleable and evolving concept, but broadly refers to the social, cultural and economic influences on males and females that define their respective trajectories and opportunities. Various authors have provided definitions of gender (Health Canada 2003; Miers 2002; Krieger 2003; Knaack 2004) all of which similarly focus on its social construction. In all societies, the labels of male or female are assigned at birth, and evoke or ascribe a particular set of roles, understandings, norms and experiences. Indeed, gender is considered a 'fault line' in every society (Health Canada 2003; Papanek 1984). But gender has many elements. Gender refers to a range of differential aspects of relations, institutional practices and identity (Health Canada 2003; Miers 2002; Krieger 2003; Knaack 2004; Papanek 1984).

Of equal importance is the concept of diversity. Diversity refers to characteristics such as ethnicity, socioeconomic status, disability, sexual orientation, migration status, age and geography which interact with sex and gender to impact health (Health Canada 2003). The process of identity formation and the nature of our relationships and opportunities pivot around our gender and diversity. Gender is experienced differently in different social locations. It is understood differently in different cultures, sub-cultures and differently over time. Gender is a dynamic concept that is a challenge to measure and fully describe. For many of these reasons, the measurement of gender is still very under conceptualised (Phillips 2005) and non standardised. Nonetheless, gender is recognised as a determinant of health (Health Canada 2003) and the WHO Commission on the Social Determinants of Health is devoting attention to gender as a key component of health equity (WHO 2007a).

Despite the fact that many countries are actively trying to reduce health inequalities, health inequities are persistent within and between countries (Kelly *et al* 2006). Health equity refers to the absence of unfair and unavoidable differences in health among population groups defined socially, economically, geographically or demographically (WHO 2005c). Health inequities are unjust and go against political positions that assert the right to good health of the population at large and to the equitable distribution of the benefits of social, political, technological and medical advancement (Kelly *et al* 2006). Reducing health inequities, therefore, requires a commitment to valuing equity (Kelly *et al* 2006). In relation to tobacco use, it is already clear that the remaining smokers in the developed countries are often socially marginalised, of low socioeconomic status and often have other co-occurrent issues such as mental illness and homelessness (Greaves *et al* 2006b; Baker *et al* 2006; Wilson *et al* 2006). In the LMICs, the initial patterns may be different, in that tobacco use may be first introduced by higher class individuals, if past patterns repeat. The LMICs, however, will also have to cope with not only increased tobacco use and resultant health issues, but also the challenges to food security and environmental integrity that come from increasing tobacco production. On a broader level, the redistribution of tobacco use and production from higher income countries to lower income countries will likely contribute to increased global inequities as more governments, farmers, economies and people become addicted to tobacco.

How will women's health be affected? It is worth noting that research activity on sex based issues in women's response to tobacco is slowly growing, giving rise to more knowledge on specifically how women's bodies react to tobacco. For example, research indicates that consuming the same number of cigarettes produces higher relative risk for cardiovascular disease development among women than men (Mustonen *et al* 2005). Women's lungs are smaller than men's and require less exposure to nicotine to produce negative effects (Mustonen *et al* 2005). Due to underlying sex differences in lung anatomy and physiology, women experience different development of lung disease than men (Mennecier *et al* 2003). It is also thought that gender-specific products such as the light cigarettes marketed at women, are more deeply inhaled, partially explaining the trajectory of lung cancer in women (Thun *et al* 1997).These emerging factors, in addition to a range of other established health effects of tobacco use, will contribute to new patterns in the indicators and measures of tobacco's toll as more women use tobacco in the 21st Century.

Gender and historical patterns of tobacco use

In the past, tobacco use patterns have been gendered. Rates and uptake of tobacco use, as well as styles of smoking, have exhibited specific patterns for males and females. The Four Stages of the Worldwide Tobacco Epidemic model (Lopez *et al.*, 1994; Lopez, 1994) describes the shape of the tobacco use epidemic as it moves through a society, differentiating between women's and men's patterns. In Stage I, smoking rates are low for women and men (i.e. less than 10%), but cigarettes are increasing in popularity among men. Stage II countries experience a sharp increase in the prevalence of cigarette smoking among men, while women gradually begin cigarette uptake as well. In Stage III, men's rates of smoking have peaked and are beginning to decline, while women's smoking will also decrease, but at a slower rate. In Stage IV, while the decline in women's and men's smoking rates continues, the mortality due to tobacco is still increasing among women. The Four Stages model is a descriptor of past trends but often used as a predictor of future global trends.

Two main theories, diffusion (Ferrence 2001) and gender-equality hypotheses (Pampel 2003), have been used to describe and explain these differences in rates and uptake patterns. The diffusion of cigarette smoking has traditionally been gendered. Not only have females adopted the practice of tobacco use later than males in the same populations but their rates have typically peaked at lower prevalence rates. It has been argued this is in keeping with the diffusion of innovation theory (Ferrence 2001) and that men of high status were early adopters and women later adopters. Under this approach, smoking then works its way downward in social hierarchies and decreases first among high status groups. In part, this reflects longstanding inequities in access to innovation and resources that women have experienced compared to men and that lower class people have experienced in relation to higher class people.

As Ferrence (2001) notes however, this theory does not fully explain the gender and economic differences that arise across a population once initial diffusion has occurred. It is this situation with which much of the developed world is now faced. From a global perspective, it could also be argued that initial diffusion has already occurred and therefore diffusion theory may again not be adequate to explain the imminent patterns of the epidemic. Indeed, at this point in history the patterns of cigarette use are more

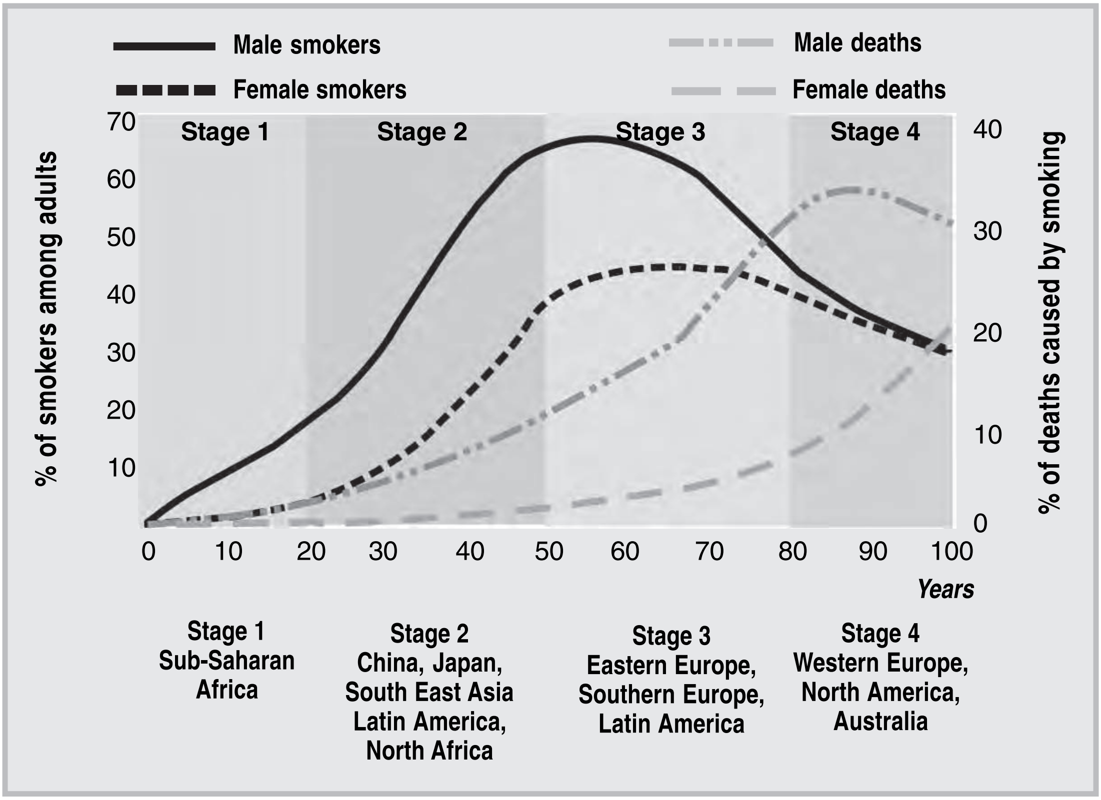

Figure 1. Stages of worldwide tobacco epidemic.

Adapted from Lopez AD, Collishaw NE, and Piha T. (1994). 'A descriptive model of the cigarette epidemic in developed countries' Tobacco Control 3: 242-7. (BMJ Publishing Group)

fragmented, reflecting the influence of a multiplicity of factors in addition to gender and class, such as globalisation, migration and urbanisation.

An alternative theory that has been advanced to explain women's patterns of tobacco is the 'gender-equality hypothesis', that attributes the uptake of cigarette smoking by women as a function of increased equality, emerging from a combination of increased labour force participation, decreased birthrates, or social, cultural and economic independence (Pampel 2003:47). Using this explanation, normative expectations regarding tobacco use change, taboos are reduced and women's internalised prohibitions decrease, resulting in increased uptake of smoking. Causality of the relationship between female emancipation and smoking is very difficult to test, but Pampel (2003) has tried by using lung cancer rates in high-income developed countries as a proxy for smoking uptake and compared them to a composite of indicators of gender equality (labour force participation, divorce rates, inversed marriage and birth rates) assuming that over time, women's equality has increased in these countries. He found no evidence to support this particular hypothesis in contemporary high income societies and proposes that any relationship is coincident with diffusion patterns.

If such a relationship exists it is likely spurious or correlative, and again, only explains initial spread of cigarette smoking, not the persisting patterns as a country moves through Stages 3 and 4. As Pampel (2003) points out, the diffusion model does not address differences in the adoption of specific products, such as low tar or filtered cigarettes (usually used by women in particular) or other more splintered patterns of diffusion in contemporary settings. Both the cultural diffusion and gender-equality hypothesis may be partial or inadequate explanations for the 21st Century. Further, both the diffusion theory and the gender-equality hypothesis assume male tobacco use patterns as normative and analyse female patterns against them. A more multi-faceted explanatory framework is likely required.

Gender, equity and contemporary tobacco use patterns

The distribution of tobacco use, and smoking related morbidity and mortality, have been *unequally* distributed, with males experiencing more smoking-related disease. Along the way, with a view to changing these patterns, the tobacco industry has long drawn the link between women's aspirations for *equality* in order to market tobacco to women. In this way, the tobacco industry has applied itself to linking liberation and freedom for women to the uptake of cigarette smoking (Amos and Haglund 2000; Richmond 2003). This link between tobacco use and equality has been a fairly resilient theme in tobacco marketing, and is now used in advertising in the LMICs (Amos and Haglund 2000).

However, the links between tobacco use and gender *equity* are more complicated, as they necessitate an examination of both gendered roles, identities and expectations, as well as prevailing gender inequities. Understanding gendered health inequity is less easy, as it requires consideration of the differential opportunities for health that exist for women and men, and the differential impacts of structural issues, such as poverty, housing or food security. This approach is being developed (Greaves and Jategaonkar 2006; Greaves *et al* 2006a) and suggests that a linear interpretation of linking tobacco use with broad based 'equality' measures for women should be tempered with a more complex understanding of equity related measures. It is clear that the social determinants of health, especially gender, as well as social structures and economic and social policy, are important influencers of tobacco use among women. Disadvantage, especially for women, has in developed countries led to predictable trajectories of tobacco use (Graham *et al* 2006).

It is only in recent years that the gendered pattern of the prevalence of smoking has undergone some shifts. In the 1980s, for the first time in history, young girls in several industrialised countries began to smoke more than their male counterparts (Chollat-Traquet 1992). More recently, and indicative of the global picture, the Global Youth Tobacco Survey suggests a narrowing of the gender gap is taking place, creating more similar rates of girls' and boys' tobacco use in all regions (Global Youth Tobacco Survey Collaborating Group 2003). In an era of globalisation, modern communications and technologies may be enhancing the marketing and distribution of cigarettes to young women and men via internet sales and advertising. In the context of the Eastern Mediterranean Region specifically, Jabbour and Fouad (2004) argue that the values and attitudes of the cyber-savvy younger generation, especially women, need more study and consideration. Factors such as the hybridisation of cultures (Pieterse 1994), and the integration of national economies (Yach and Bettcher 2000; Beaglehole and Yach 2003) that result from globalisation may have a broad effect on future tobacco use patterns among youth. In this new world context, not only will existing theories and frameworks be tested, but a new framework for describing and explaining smoking prevalence among girls and boys and women and men is required.

Lopez *et al* (1994) in describing the Four Stages of the Worldwide Tobacco Epidemic clearly showed that after tobacco use was introduced to a population, male rates of use peaked after about 60 yrs and overall prevalence eventually declined. However, these broad positive trends mask the fact that the poorest and most marginalised populations in industrialised countries have been among the last to reduce tobacco use and are most likely to constitute the remaining smokers in those countries well into the 21st Century. Specifically, the remaining smokers in developed countries are poor people, indigenous people, those with mental health issues, the homeless, gays and lesbians or young single mothers. These patterns are often gendered in that poverty and equity are gendered, with women having lower incomes, more child care responsibilities and less power in relation to men. Immigration into developed countries creates new tests for this model as well, as host countries investigate smoking acquisition patterns of new immigrants (Nierkens *et al* 2006). While the Four Stages model remains to be fully tested in a 21st Century globalised world, it has provided clear evidence of an historical gendered and equity related tobacco epidemic and offers a benchmark for analysing its future evolution.

In keeping with current trends and future predictions, a blended gender and health equity framework is useful for analysing tobacco use in developed countries. In addition, such a lens may be fruitfully applied to the emerging tobacco use across the LMICs. The spread of tobacco use in low and middle income countries (LMICs) has raised new issues of social, economic and health equity. The relocation of tobacco farming and production to the developing world has intensified the effects of the diffusion of tobacco use. Along with the increases in smoking in the LMICs, new markets with very poor economies are losing valuable assets such as arable land, nutritional food sources, trees and healthy citizens (WHO 2005b).

What does tobacco use mean in women's lives?

Women and girls have been inordinately affected by these trends, often serving as unpaid labour in tobacco farms registered in men's names, or labouring in tobacco product factories under poor conditions (Khalfan and Waverley 2006). In many countries, both rich and poor, women are direly affected by male smoking whether or not they themselves smoke, through exposure to environmental tobacco smoke, diversion of family food income to tobacco purchases or premature loss of earning power of family members. When women also become smokers, the inequities climb to include female and infant morbidity and loss of female paid and unpaid labour.

The lived experiences of women who smoke are also important. Integrating research addressing these aspects may assist in understanding, predicting and possibly preventing the future tobacco use epidemic among women in particular. The *meanings* of smoking to women have been probed in industrialised countries, with various themes emerging. For example, women in Australia and Canada described psychosocial benefits and functions of smoking, including identity development, emotional management, image creation, organising social relationships and providing a source of predictability and control (Greaves 1996). These women included self-described feminists, as well as women residing in shelters for abused women in order to examine the notions of (dis)empowerment and resistance as part of the meaning. In both groups, however, smoking represented a contradiction in their everyday life. While smoking may have first been initiated to control their environments and lives, most of the women stated that it ended up controlling them. In short, smoking mediated their emotional life and their external circumstances.

Among disadvantaged women in the UK, Graham found that smoking was highly connected with burdens of caring, coping with material deprivation and other health concerns (Graham 1993). The women described smoking when they wanted time alone, distance from their responsibilities, or were feeling stressed (Graham 1993). The women in Graham's study were more likely to smoke if they were single, lived in rented accommodation and had had parents who smoked. Daykin (1993) makes a similar argument with respect to young women's smoking, stating that explanatory models should address material conditions and the interlinking of behaviour and social processes.

These types of studies also underscore the lowered applicability of the cultural diffusion explanation of smoking in latter stages of the epidemic, when economic and social factors strongly influence smoking patterns. They also further negate the gender-equality hypothesis, pointing to the need for other explanations. It is possible that the rise of women's tobacco use is a function of modernisation or, more fundamentally, a response to the societal endorsement of certain female roles that are considered beneficial to a society. I have argued elsewhere that women's smoking assists women in carrying out certain gender roles and coping with the experiential aspects of these roles and expectations (Greaves 1996). For example, if women 'suck back anger' with every puff, and more generally manage negative emotions through smoking, this prevents or delays the eruption of women's anger, delaying the need for a social response or change at the structural level. In this example, women's smoking functions as a way to palliate women's emotions and to delay possible consideration of the need for systemic social and economic change.

Tobacco marketing is gendered

Interestingly, tobacco marketing practices have utilised and fed into *both* the diffusion theory and the equality theory of smoking prevalence by recognising their first markets as male and upper class, and yet soon after, indelibly linking smoking to emancipation and gender equality for women using campaigns such as the Phillip Morris, 'You've Come A Long Way Baby' (Richmond 2003). Indeed, tobacco companies have used a gendered approach to promoting tobacco use for almost a century (Tinkler 2001). Both male and female stereotyping and imagery have been used by the tobacco industry, with masculine images of strength, freedom and ruggedness prevailing in the early stages of establishing demand in a culture or country. Companies typically follow by developing specific products and advertising campaigns for women. Girls and women have been extensively targeted in advertising, focusing on themes of social and sexual desirability and independence (Surgeon General 2001). These have utilised a vast array of imagery and themes, incrementally increasing the acceptability of smoking for women (Greaves 1996; Amos and Haglund 2000). In addition, the *meanings* of smoking to women have also been artfully utilised in advertising campaigns (stressing time alone, relaxation and reward) and product development (such as slims and 'light' cigarettes) that address women's reasons for smoking, associations with tobacco and physiological responses to cigarettes.

Accordingly, in Stage Four countries, the messages have come to be focused on women 'deserving' a break and relaxation and time focused on self. However, now that the future of tobacco marketing and production is firmly located in the low and middle income countries (LMICs) marketing, messaging and imagery linked with health, upward mobility and western lifestyles have been used by transnational tobacco firms to seed and cement the spread of tobacco use. Advertisers have adopted more diverse faces as well, such as the Philip Morris, 'Find Your Voice' campaign featuring women of various racial and ethnic origins (Houston and Kaufman 2000), again stressing an empowerment theme.

Clearly, the social meanings and characterisations of women's smoking are culturally prescribed and temporal, closely influenced by dominant societal values about gender and equity. Historically, females who were early adopters of smoking historically were those on the margins of society, such as prostitutes, nonconformists and intellectuals (Greaves 1996). Female-specific marketing and product development over the 20th century used different themes each decade and reflected the cultural and political view of women's roles at each point. The cultural meaning of smoking for women as it related to gendered relations has ranged over the past century from being *bought* by men (prostitute) to being *like* men (lesbian/mannish/androgynous) to being able to *attract* men (glamour/heterosexuality) (Greaves 1996). Gender, particularly gender relations, has influenced theory and women's patterns and experiences of smoking. Clearly, gender continues to play a dynamic part in the product development and marketing that is specifically targeting women (Amos *et al* 1998; Amos and Haglund 2000).

Toward a new explanatory framework

A critical gender *and* equity lens has begun to be applied to tobacco use issues. For example several researchers have investigated the confluence of gender, disadvantage and smoking, particularly among women (Greaves *et al* 2004; Graham and Der 1999; Barbeau *et al* 2004b; Barbeau *et al* 2004a). Other researchers are emphasising the social context of smoking more broadly, arguing that a socially constructed and theoretical understanding of smoking offers the most explanatory promise, as well as justifying a new direction for the tobacco control movement (Poland *et al* 2006). Poland and colleagues (2006) want to highlight the 'centrality of power relations in shaping the uneven social geography of smoking' in order to expand the understanding of the social in tobacco control from merely considering smoking as an individual health behaviour to a more broadly defined result of a dialectic between agency and structure.

In the context of Stage Four countries, the intersecting issues of diversity (ethnocultural, indigenous or immigrant status, sexual orientation, ability), social class and gender are now the most appropriate lenses through which to view tobacco use and responses to policy and programs. As the tobacco epidemic evolves in LMICs increasing tobacco use among girls and women threatens to undermine not only their physical health, but also their economic and social progress. Specifically, costs of purchasing manufactured cigarettes deprive individuals of cash and reduce disposable income, and loss of arable land to tobacco production reduces food security and nutrition. Hence, at an advocacy level, a strong link has been made between the prevention of widespread global women's tobacco use and improving the status of women, in an attempt to formally marry gender and equity concerns for women (Greaves *et al* 2006a; Greaves and Tungohan 2007).

Obviously, the tobacco industry has long drawn on a mixture of both gendered and diversity based analysis to define and maintain its market and promote its products, with considerable success. The industry pioneered in applying a gendered lens to tobacco use and marketing, as early as 1928. Products, advertisements and campaigns have been specifically designed to appeal to girls, women, boys and men. Products especially tailored for the female body, such as low nicotine and light cigarettes were tested, developed and marketed to women in the last two decades of the 20th century (Amos and Haglund 2000). These campaigns and initiatives have been successful, as illustrated in Europe, where 48% of women smokers smoke light cigarettes (Joosens and Sasco 1999). Lately, the tobacco industry has adopted several additional attributes along which to stratify and focus its marketing, such as class, race, ethnicity, age, sexual orientation and region. This approach continues as the global epidemic broadens, with the industry expending equal effort in cultivating tobacco production (agriculture, processing and manufacturing) in the LMICs and other regions of the world.

Can tobacco control respond to these health and equity concerns?

Anti-tobacco movements have a long history. These have been based on a range of moral, religious or public interest grounds, in addition to any evidence about the impact of tobacco on health. Early campaigns invoked moral decline, temperance, prohibitions on sales to minors, and air pollution as bases for control (Sullum 1998). In the years since, responses to tobacco use, especially cigarette smoking, have ranged from medically-based exhortation to behaviour-based 'treatment' to massive health promotion and social marketing campaigns aimed at prevention and cessation. These modes of intervention have in large part been focused on changing individual smokers' behaviour, unlinked to social settings, structures, lived experience or health equity concerns. This approach is part of a wider movement to encompass prevention that focused on changing individual behaviour and has been dubbed 'the rise of "lifestyle medicine"' by Dorothy Porter (2006).

These medical efforts have been complemented by a tobacco control movement that has supported comprehensive tobacco policies in many industrialised countries, involving tax and price measures, restrictions on sales to minors, workplace and public place bans, and health warnings (Surgeon General 2000). As prevalence trends have peaked and begun to decline in Stage Four countries, an implicit or explicit goal of 'denormalisation' has been added to this package, focused on the message that smoking is a minority practice, not a normative one, and deriving social pressure from this fact (Health Canada 1999). These approaches have not been created or applied using a gender and diversity lens, nor with increasing health equity in mind, except in the broadest sense of improving population health. This has been despite the clear gendered and sub population based differences in the prevalence, effect, meanings of and factors affecting smoking.

There is now growing evidence that there are also gendered and diverse *responses* among smokers to tobacco policies and other elements of comprehensive tobacco programs. While these issues are under-researched, early data indicate that there are differential responses to tobacco control policies by gender, SES and specific characteristics such as lone motherhood, age, ethnicity, and these issues require much more research and potentially tailored program and policy responses (Shopland *et al* 2006; Kim and Clark 2006; Graham *et al* 2006; Greaves *et al* 2006c; Greaves and Jategaonkar 2006; Shavers *et al* 2006; Moore *et al* 2006). In the interests of health equity, there has also been a call for extending tobacco control to include social and economic policies that currently impinge on the ability of smokers to achieve health (Graham *et al* 2006). By its very nature, much of this research has been carried out in developed countries with well developed tobacco control movements and policies.

Both the medical profession and the tobacco control movement more broadly have been slow to adopt a gendered lens on tobacco use (and production). This has resulted in incomplete research agendas, incorrect or misplaced health promotion campaigns and many missed opportunities. For example, sex and gender linked aspects of tobacco use, disease trajectories or responses to interventions have been largely ignored until quite recently, as tobacco use (and research and policy) was typically approached as a gender blind activity. Both the medical sector and the tobacco control movement have been critiqued by feminist writers (Jacobson 1986; Greaves 1996a; Graham 1993) for the shortsighted sexism informing their agendas. The large exception to this record has been action and research on smoking and pregnancy, which has for several decades been presented as the sole issue regarding women and tobacco use (Jacobson 1986). These critiques have inspired advocacy organisations such as the International Network of Women Against Tobacco (INWAT www.inwat.org) and the women's health movement more broadly to address women's tobacco use. Nonetheless, in the last 20 years little support and action has emerged within either the medical sector or the tobacco control movement to integrate a social model of health that reflects gender and equity concerns. It has only been the emergence of population based prevalence trends, the transition of tobacco production to the poor countries, and continuing aggressive tobacco industry strategies that are now slowly forcing a new agenda on the global tobacco control movement.

The deliberations surrounding the development and passage of the World Health Organisation Framework Convention on Tobacco Control (WHO-FCTC) amplified these concerns. For the first time, a truly global view of the tobacco epidemic fuelled the emergence of the first international public health treaty in the world. The FCTC has been ratified by 168 countries and sets out a clear commitment to gender and diversity issues in its Preamble and in several of its Articles (WHO 2007b). It provides a legal framework for addressing gender in the context of global tobacco use and tobacco control and can potentially serve as a new paradigm for addressing the realities of the tobacco epidemic. However, questions remain. Will gender equity ever become a goal of the tobacco control movement? *If* gender equity is to become a goal embedded in the tobacco control movement, how will this be achieved?

New century, new model, new responses?

It is essential that tobacco control in the 21st Century not only respond to gender and equity issues, but that strides toward improving women's status not be compromised in the process. There are promising signs and approaches being taken. The emergence of the WHO-FCTC has been a key achievement, garnering negotiated support for presenting a more universal front for tobacco control. Its overt depiction of women, girls and gender as critical elements in the future of tobacco control is a key contribution to naming and maintaining a parallel interest in women's health and women's status. Using the FCTC and its commitment to gender and women is a key strategic opportunity for progressive tobacco control advocates. This will also raise gender awareness and encourages gender mainstreaming in the tobacco control movement.

Another key approach involves a blending of human rights with health, and naming the opportunity for health as a human right. While the human right to health was identified in World Health Organisation documentation in 1946, it was 54 years before clarification of this right was offered in the Covenant on Economic, Social and Cultural Rights (Lambert 2006). It was deemed an inclusive right, referring not only to access to health care, but more broadly to the determinants of health. Another international treaty, the Convention to Eliminate Discrimination Against Women (CEDAW) which has been ratified by 181 countries, requires the elimination of discrimination against women in all aspects of health care. Taken together, rights based treaties such as these will assist in forming new arguments for tobacco reduction and for tailoring policy initiatives according to gender and equity lines.

A third approach reflects the increasing complexities of understanding the links between equity and gender and health. While gender based analyses have been useful, there are multiple aspects of identity, experience and structural changes that impact on health. These factors and their more complex relationships require concomitantly complex theoretical frameworks. Feminist theory and its practical results – social movements for equity and women's rights – have been forced to consider factors such as the effects of globalisation and intersecting issues of diversity and class. The women's movement has inspired or taken forward feminist approaches to health and well being by integrating concepts of rights, equality and equity and by arguing for regulatory and legislative changes. Over the past decade, 'gender mainstreaming' described the action of integrating concern for women and women's rights into policy and program development, especially at the international level. Gender mainstreaming, however, does not necessarily involve a feminist perspective (Lombardo and Meier 2006). How will women's health be conceptualised, and women's status be enhanced, by more complex and evolving theories of intersectionality (McCall 2005) which call for a socially contextualised approach to understanding discrimination and women's experiences? These evolving perspectives call for an integration of multiple factors in analyses of health issues, and framing them in the temporal and dynamic processes of cultural change, urbanisation, modernisation and globalisation.

A fourth approach reflects the increasing acceptance of a social model of health, which has garnered support in recent decades in many countries and is now being taken forward at the international level by the WHO Commission on the Social Determinants of Health (WHO 2005c). This initiative embodies a range of determinants, inclusive of gender, and firmly identifies them as the key underpinnings of health and elements of health policy. Within this framework, developed countries in latter stages of the tobacco epidemic can find both a theoretical and practical home for understanding the vulnerability to tobacco use that characterises their populations. But most important, in the interests of changing the shape of the tobacco epidemic in the 21st Century, the LMICs will find a framework that more broadly assists in identifying preventive mechanisms with respect to tobacco use uptake, and possible rationales for preventing or limiting tobacco production and marketing in their countries and creating tailored responses.

Human rights advocates in tobacco control assume gender equity perspectives and invoke an understanding of the social determinants of health. Taken together, these approaches are increasingly used to situate social justice arguments for improvements in health, and to protect groups, including women, from inequities and exploitation that impair health and well being. It is posited by women's activists and advocates in tobacco control that the new wave of action on the tobacco epidemic will be fueled by these perspectives and by deliberately invoking a range of treaties in conjunction with the FCTC (Lambert 2006; Abaka 2001).

Will tobacco control integrate gender and equity concerns into its activities?

The advent of the Framework Convention on Tobacco control (FCTC) offers a unique and clear opportunity and commitment to embed concerns about gender, equity and tobacco control into action plans and monitoring systems across the world. It remains to be seen if the tobacco control movement improves upon its record of the past few decades. Will tobacco control actually advance gender equity for women by contributing to *transforming* social and economic relations, or will it *exploit* or *accommodate* such relations (WHO 2005a) as it goes forward? The FCTC presents an explicit opportunity to do the former (Greaves and Tungohan 2007) by combining its goals with those of the social justice and women's movement in the quest for health equity and for doing so in a way that is positive and transformational for women.

Indeed, Lambert argues forcefully that the current convergence of treaties regarding human rights, women's rights, health and tobacco that could be a powerful force in improving women's health and limiting the spread of tobacco among women in the 21st Century (Lambert 2006). However, the tobacco control movement has had a history of uncritically advancing messages and attitudes that are not geared to improving women's status, but rather exploiting existing sex roles or accommodating them by playing to dominant views of femininity and gendered behaviours. For example, approaches in tobacco prevention that uncritically utilise cultural or religious taboos are emerging in some regions (Jabbour and Fouad 2004). Those that would use religion to encourage stigma production regarding women's smoking can be seen as exploiting gender inequities. Tobacco advocates have encouraged using the smoking status of mothers who expose their children to secondhand smoke as leverage in custody disputes in some countries (ASH 2006). The continuing preoccupation with pregnancy and smoking can be seen as accommodating of the female-specific reproductive roles that women across the world carry out (Greaves and Tungohan 2007).

Will the tobacco control movement actively and critically repudiate the link between increased smoking and women's equality that has been convincingly advanced by the tobacco industry (i.e. the Phillip Morris, 'You've Come a Long Way Baby' campaign)? This link is obviously problematic as simplistic responses could focus on limiting gender equality measures as a route to tobacco control for women. A key challenge for the tobacco control movement in advancing measures to reduce tobacco use among women is to not only repudiate this belief but also to convey equal commitment to advancing women's equity concerns. Similarly, will the tobacco control movement counteract the links between various ethnic and racial characteristics and women's status made by tobacco company campaigns such as the Phillip Morris 'Find Your Voice' campaign? The tobacco control movement has an opportunity through the FCTC to converge with the Convention to Eliminate Discrimination Against Women (UN 1979), the WHO Millenium Development Goals regarding tobacco use and poverty (WHO 2005b) and the WHO Commission on Social Determinants to articulate a more radical agenda that could have a direct impact on reducing the female tobacco epidemic in the 21st Century.

Conclusion

This article has asked key questions about the future of the tobacco epidemic in the 21st Century in the context of gender and inequity. As the tobacco epidemic evolves, increasing tobacco use and production affecting girls and women threaten to undermine not only their physical and mental health, but also their economic and social progress (Greaves *et al* 2006b). Conversely, as CIDA (1996) points out, when women's health improves, so does their status. At the same time, according to Madre, the international women's rights organisation, 'inequality between men and women is a major threat to women's health' (2003). Will efforts in tobacco control in the next few decades undermine the progress of women and improvements in gender equity? Will the tobacco control movement adopt gender and equity concerns, especially in light of the stance highlighting both gender and women embodied in the FCTC, the world's first international public health treaty? Will new perspectives that blend both human rights and health be successful in advancing women's rights and health by limiting the development of the epidemic among women?

Or, will historical gendered patterns of tobacco use simply repeat themselves, but with more economic impact as tobacco use and production move to the low and middle income countries: countries already struggling economically. The gender and equity implications of this shift, in tandem with a predicted female tobacco use epidemic, could pose a considerable blow to the health status of women as well as to their prospects for improved social and economic status. The World Economic Forum has quantified the 'global gender gap' in 58 countries, using health and well-being as a key measurement criterion, and concluded that none had achieved gender equality (Lopez-Claros and Zahidi 2005). To close this pervasive and persistent gap, improvements in health must coincide with improvement in social and economic status (Greaves *et al* 2006b).

In the face of these trends, the tobacco control movement has a responsibility to adopt gender and equity based principles in its goals and practices. It also needs to work to eliminate gendered inequities arising from the process of tobacco farming, processing and marketing in the LMICs, activities that are exploitive of women, injurious to women's health and that deprive girls and women of other opportunities for education and safer work (Khalfan and Waverley 2006). Clearly, averting or reducing the female tobacco epidemic in the 21st Century will be a critical factor in contributing to gender equity and health. In light of the FCTC commitment to these concerns, will all parties rise to this important challenge?

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On the inequitable impact of universal health insurance: The experience of Bulgaria in transition

ABSTRACT

KEY WORDS

sociology, universal health insurance, patient payments, equity, access to health care, Bulgaria

This article deals with the social democratic aspiration of equitable access to health care in Bulgaria, a country in transition since 1989 from communism and a command economy to democracy and a free market. The focus is on access to health services and resources after the introduction of a universal health insurance system, with particular reference to formal and informal out-of-pocket payments for health care. The paper reports empirical results from a national household expenditure survey, supplemented with a semi-structured interview, conducted at the end of the survey period (April-May 2002). The results bring to light the groups in society who suffer most in this scenario: the poor, Roma, older persons and those living in towns and villages. The study reveals that the stated aim of the National Health Insurance Fund, to provide equitable access to health care, is a mirage rather than a reality, as the vast bulk of health care is self funded. This paper has particular significance for understanding the challenges faced by post-communist states in their attempts to achieve social democratic health care reforms.

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Introduction

The transition from a centralised command to a market-oriented economy in Bulgaria includes as an inseparable part the transformation of the health system from governmental budgetary control to mixed public and private funding. However for this transformation, neither the state nor the society found themselves well prepared (Borissov and Rothwell 1996; Pavlova *et al* 2000, 2002; Balabanova and McKee 2004). Although political changes began shortly after the fall of the Berlin Wall, in 1989, for all practical purposes a significant transformation of the health system did not begin until 1999 (except for a few preliminary steps regarding regulation and policy discussion of a developmental nature): almost 10 years after the start of the political changes.

The real structural transition began with a reform of the health system laws, the passing of the universal health insurance legislation in 1998, and establishment of the National Health Insurance Fund (NHIF) in 1999 (Short and Hadjiev 2002; Short and Hadjiev 2004). This set of reforms set Bulgaria on the path towards realisation of the 'Right to Health'; consistent with the 1948 United Nations Declaration of Human Rights (Palmer and Short 2000:257). In Australia, Canada and other states with similar universal health insurance systems, the social democratic ideal of equitable access to health services is enshrined in legislation that aims to achieve equal access to health care on the basis of clinical need, rather than the ability to pay.

In Bulgaria, outpatient and inpatient medical establishments were transformed from health institutions with state or municipal ownership into limited liability proprietary companies or share companies through an Act of the National Assembly in 1999. The national system of contracts (National Framework Agreement) for outpatient care, contracts negotiated between the NHIF and providers of medical services, was introduced in 2000 and the partial funding of inpatient care, through the financing of clinical paths for hospitals under contract with NHIF, commenced in 2001 (Koulaksazov *et al* 2003). This health care transition was supported financially and technically by the World Bank, and partially modelled on the Australian Medicare system of universal publicly funded health care insurance (Hutton 2002; Palmer and Short 2000; De Voe and Short 2003). The key events in the lead up to this most significant reform process are summarised in Table 1.

Table 1: Key events in the lead up to substantive reform of the Bulgarian health care system, 1989 – 1998

1989 *Beginning of democratic transition.*

1990 *Re-establishment of Bulgarian Medical Association and Bulgarian Doctors' Union.*

1991 *New Constitution of the Republic of Bulgaria:* adopted.

1991 *Local Self-Government and Local Administration Law.* This law introduced the principle of decentralisation in economic and administrative spheres. The municipalities (n=262) were given the right to manage their own revenues and became responsible for education, health and social care of the populations within their respective municipalities, including the development of physical infrastructure, such as hospitals.

1991 *Regulation of medical private practice.* Private practice permitted (forbidden since 1972). This regulation set the terms and conditions for the registration of private practice and determined the method of calculating fees for medical services.

1994 *Government decree on contracting out for general services.*

1995 *National Health Strategy.* The first national health strategy was developed with the support of WHO. This document analysed the health status of the population and specified health system problems. No plans for health system reform were included.

1995 *Draft Law on Health Insurance*: withdrawn.

1995 *Law on Pharmaceuticals and Pharmacies in Human Medicine:* created the basis for restructuring the pharmaceutical sector. Ten EU Directives on Good Manufacturing Practices (GMP) were adopted with a package of 32 pieces of secondary legislation. This determined the methods and means for the production, testing, registration, sales, import, prescribing, dispensing, advertising and storing of pharmaceuticals.

1997 *Amendments to People's Health Act.* Approved in 1973 and endorsed from 1 January 1974, this is the main health law in the country. More than 30 amendments were introduced. The amendments of 1997 introduced paid medical services, under conditions of free choice of provider by patients.

1997 *Directive 22 on Conditions and organisation of the payment for medical care in case of patient choice (in Bulgarian).* This legislative document established fees for health services that must be paid out-of-pocket under conditions of free choice by the patient of physician or hospital services within public sector provision, as well as luxury services such as a private room with *en suite* bathroom. Introduced uniform fees for medical services paid by patients in public facilities, but not private practices.

1998 *Law on professional organisations of doctors and dentists.* Regulates role of professional organizations as partners of the NHIF in contracting health care services; jointly responsible for the provision of high quality standards and ethical requirements in health services provision.

Sources include Koulaksazov (2003).

The slowness in undertaking the reforms and in finding solutions brought the incumbent health system into a state of deep crisis and financial collapse. The main contributing factors for such an outcome came from the continued utilisation of a principle, established and applied for a number of decades, of residual funding of the health system, the relatively low percentage of the GDP set aside for the health system (3.5–4.4% of GDP), the worsening image of the system, the low level of pay for all categories of medical personnel (National Statistical Yearbooks, 1980–2000) and the aged material base of the health system (outdated and poor-quality equipment and facilities) (Borissov and Rothwell 1996). As a result, Bulgaria deteriorated to one of the lowest places in the rankings amongst the countries in transition in such aspects as life expectancy (World Health Organisation, European Health for All Database), the high general, premature and child mortality, and a continually deteriorating self assessment of the population of their health status (National Statistical Institute 2003). Despite a tendency for some improvement of these indices in the 21st century, their level is still unacceptably high (see Table 2).

Table 2: The coefficient of general, child and premature mortality, 1990–2003

Year	General mortality (%)	Child mortality (%)	Premature mortality as % of general mortality
1990	12.5	14.8	29.7
2001	14.2	14.4	25.2
2002	14.3	13.3	29.7
2003	14.3	12.3	24.3

Source: National Statistical Institute (1990-2003).

The transformation of the health system was made more difficult by a constantly rising level of impoverishment of the population. According to World Bank data, in 2002, 8% of the Bulgarian population earned US$2.15 a day, whilst 32% earned US$4.30 a day (UNDP 2003). The dynamics of poverty and the qualitative aspects of impoverishment show a growth in marginalisation and the formation of a stable group of chronically poor households.

During the years of the transition, corruption in the health system began to flourish and the grey economy became embedded in the health system. Under-the-table (informal) payments or gratuities were virtually legalised by the new practice of registration of charities and associations to which patients were strongly advised to make voluntary donations. The individual amount of these ‘donations’ was determined by the so called ‘eye method’ whereby the medical personnel looked at the patient and subjectively evaluated his or her ability to make one or another amount of donation. This approach is not totally unknown in world practice (Balabanova and McKee 2002). At the same time, the low pay of those working in health care (Ivanova 2007) raised their internal motivation to accept unregulated payments. Such behaviour is not atypical of those working within publicly funded health sectors in other countries as well (VanLerberghe *et al* 2002). As there was no transparency and accountability in the process, as a countermeasure in 1997, the Ministry of Health adopted Ordinance 22 for the Conditions and Processes for Payment for Health Services (see Table 1). This regulation was supposed to have a temporary application but this did not happen. It did not prohibit or have the effect of eliminating the practice of donations but, rather, added to it by officially allowing health care establishments to charge for some services that are not covered by the state or not sufficiently covered. Later amendments set the limits for the core health service charges. This, in practice, saw the beginning of official payments for health care and can be considered as the end to the former state socialist system of so-called 'free' health care.

The health insurance system is financed by compulsory health insurance payments and functions on a social principle. It ensures access to a basic package of health services for every insured citizen. The National Health Insurance Fund started paying for a package of minimal services for outpatient health care in 2000, and for inpatient health care from 2001. The universal health insurance model adopted in the Republic of Bulgaria, administered by the National Health Insurance Fund, does not provide for non-participation. Access to health care is regulated by the state and does not depend on the financial or property status of the person. Being compulsory, one has to pay whether one can afford it or not. Each year the package of social security laws determines the level of employee and employer contributions to the NHIF. The employee pays 1.5% and the employer 4.5%. For almost half the population, including children up to the age of 18, pensioners, civil servants, the military and others, the state covers the whole, so the citizen does not contribute directly. If one does not pay one's insurance then one is denied access to outpatient and/or inpatient health services, except in an emergency.

The country report for Bulgaria from the European Observatory on Health Care Systems found:

> *... the introduction of official co-payments for health care services, together with the continuing (reportedly unabated) practice of under-the-table payments, work against achieving equity. It is likely that there have been serious negative impacts on access to services and pharmaceuticals due to lack of affordability. This issue requires particular attention, especially for vulnerable groups; moreover, some of these groups are more likely to remain uninsured by the National Health Insurance Fund and therefore excluded from coverage (Koulaksazov* et al *2003:90).*

Formal and informal out-of-pocket payments

Very important for equity in access to health care are the questions linked to the level of out-of-pocket payments as a share of household budget. In the transition period in Central and Eastern Europe, one of the most sensitive social questions, linked to the problem of out-of-pocket payments, is the question of unregulated (informal) payments in the health care system. This question is particularly acute for transition countries such as Bulgaria and Hungary (Balabanova and McKee 2002; Gaal and McKee 2005). Research is however seriously hindered because of the nature of informal payments and difficulties in registering them; information is incomplete and imprecise (WHO 1997). Out-of-pocket payments or gratuities have been calculated to be 10% of expenditures in the Czech Republic, 20% in Hungary and 25% in Romania (Gaal and McKee 2005; WHO 2000). In Georgia, in the former Union of Soviet Socialist Republics, out-of-pocket payments (formal and informal) are the major source of health care financing, equal to approximately 70-80% of total health expenditure (Belli *et al* 2004). It is well to remember that informal payments for health care existed in communist countries prior to the transition (Bara *et al* 2003; Gaal and McKee 2005).

The problem of out-of-pocket payments, as a social problem, existing officially and being discussed in the public arena, dates back to 1997 when out-of-pocket payments were officially adopted. The problem attracted greater prominence with high levels of inflation; patients knew that they must pay, but for what, where and when, there was no precise or complete information.

As to the initial magnitude of this phenomenon, we get some indication from a survey conducted in 1994 (Delcheva *et al* 1997). The data from this survey showed that 43% respondents paid for services that were officially free. Payments were made for a wide range of services and to different health care professions, including medical, nursing and ancillary staff. Payments to individuals during consultations were between 3% and 4% of average monthly income but the average cost for an operation was 83% of the mean monthly income. Balabanova and McKee's (2002) representative study, conducted in 1997, a year of particular socio-economic crisis and turmoil, found that 21% of males and 27% of females paid some informal payment in cash or gift at a state health establishment.

A consumer fee (or co-payment), determined as a percentage of the minimum wage, was introduced on 1 July 2000 for outpatients, and from 1 July 2001 for inpatients (in accordance with the National Health Insurance Act 1998). Even before the start of reforms in the primary health care sector, prior to 1 July 2000, the public was prepared to accept to pay for public health services, if the services provided were of a good quality and provided promptly (Pavlova *et al* 2000).

Clearly, problems associated with out-of-pocket payments in Bulgaria - formal and informal - pose a serious potential threat to the principle of equitable access enshrined in the social health insurance model. The above indicates that it would be both valuable and timely to conduct an empirical study in order to provide a solid foundation for the measurement of all kinds of expenditure which Bulgarians make for health care as a basis for investigating further the implications for social equity and health. The empirical study reported here sought to cast light on this important issue: equity in access to health care services and products in Bulgaria following introduction of the national health insurance system.

Purpose of the survey

The purpose of the reported survey was the collection and analysis of information necessary to establish the amount Bulgarian households spent on health care, which includes the purchase of outpatient and inpatient healthcare services, pharmaceuticals and healthcare goods, as well as payment for health insurance contributions. Survey findings provided the basis for estimating the amount of total healthcare expenditure in Bulgaria using the National Health Accounts methodology (OECD 2000). The study is distinctive in two main respects: first, the general household expenditure diary was not used. Instead a specialised health household expenditure diary was developed in order to provide a more precise calculation of household expenditure on health services and products. In addition, administration of the diary was followed up by a semi-structured face-to-face interview.

Sample

The national sample incorporated two types of samples: the main sample, including 1000 households, plus complementary samples, which aimed to ensure valid, reliable and representative results for the main ethnic groups in the country – Bulgarians, Turks and Roma – and for elderly persons over the age of 65. The ethnic profile is 86% Bulgarian, 10% ethnic Turks and 4% Roma. The elderly comprise 16% of the population. Both the main and the complementary samples were representative, that is, their generation was based on the random selection principle. The global project size of the main and the complementary samples included 154 clusters (1540 households). While the planned size of the sample was 1540, the households surveyed and processed were 1512, that is a relative share of 98%, which indicates a high field realisation of the sample.

Having a general sample volume of n=3000, average internal cluster correlation of $\delta = 0.10$ and 30 persons surveyed on average per cluster, the expected sizes of the relative $\Delta\% = \frac{\Delta}{P} .100$ and the maximum stochastic error Δ of different relative shares (P) would be as follows:

P	$\Delta\%$	Δ
5	30.8	1.5
10	21.2	2.1
15	16.8	2.5
20	14.1	2.8
25	12.2	3.1

The full realisation of the main sample (households planned: 1000; households surveyed and processed: 1005) indicates that the survey findings were within the expected stochastic error values.

With reference to the Turks and Roma, and elderly people, higher values of the stochastic errors were observed due to the fact that the sizes of their samples were around 3 times smaller, which accounts for the increase in stochastic errors' values by around 1.7 times.

Questionnaires and methods for primary data collection and processing

As indicated above, two types of data collection methods were used to collect the necessary information: a household diary followed by a household questionnaire. The specially developed diary of household expenses, from 15 April – 14 May, 2002, was based on the method for studying the budgets of households used in the European countries utilising the methodology of the Classification of Individual Consumption According to Purpose, the statistical methodology introduced by the United Nations in 2001. What is distinctive with our methodology is that coding the expenses in the diary rested on classification of these expenses in accordance with this COICOP methodology combined with of the methodology developed for the calculation of National Health Accounts for the OECD (2000).

The linking of the information from the diary with information gleaned from the sociological survey enriched the capacity for analysis of the personal health expenses by the criteria in accordance with income, composition of the household, place of residence, ethnicity, age, frequency of use of medical services, unregulated health services payments, self limitations by households in utilising medical goods and health services and the reasons for this, the satisfaction from the utilisation of different health institutions (GP, outpatient, inpatient, emergency), and the level of satisfaction with the health reforms as a whole. Nowhere in the literature have we found research of a similar nature pertaining to household expenditure on health services and resources.

Household diary

During the survey period of one month, information about healthcare expenditures that were incurred during that period was entered in the diary on a daily basis. All household expenditures (between 15 April–14 May 2002) on drugs, physician consultations, transportation to the physician, deductibles, out-of-pocket payments and gifts to a health care provider, outpatient and inpatient health care services and examinations were registered on a daily basis. Expenditures were reported separately for each household member. Any pharmaceuticals (health services) utilisation entry was accompanied by a record of the specific coverage – free of charge, partially covered or fully paid; the manner of prescription – by physician, dentist or other health professional; as well as the specific treatment of the household member for whom the pharmaceuticals were purchased – person treated at home, hospitalised or for common household usage.

Household questionnaire

Following the end of the period for diary completion (not earlier than May 15), a standardised interview was held with the household member who completed the diary for the household. The Household Questionnaire registered the following:

- Information about the type and character of healthcare services utilised by the household member during two periods – the past month preceding the survey (March 2002) and during the previous year (2001);
- Information about the type and character of healthcare expenditures of each household member in the month prior to the survey (March 2002) and in 2001;
- Information about the health insurance status of household members;
- Opinions and evaluations of the health status, opportunities, obstacles and reduced utilisation of health care services and their payment;
- Socio-economic and demographic status of the household – social and labour status, sex, age, education, marital status, place of residence, ethnic identity, number of household members, household income for 2001.

The primary data collected from the household diary and household questionnaire were processed using the SPSSX standard software.

Organisation and field work

The field work was conducted in three stages. During the first stage (April 10–15, 2002), on the basis of the interviewers' written reports, the households to be surveyed were selected. Following the consent of the selected households to take part in the survey, each household was handed a household health expenditures diary and was instructed by the interviewer on data completion requirements and the household member to be in charge.

At the intermediary stage, the interviewer visited the households under survey at the end of April (between April 27–30, 2002), to ascertain the proper and timely recording of all health expenditures incurred. The family head or the household member in charge were asked if there were other health expenditures not registered in the diary and if any these were entered following the established order.

The third major stage took place at the end of the field work period (after 14 May 2002). Each household was visited for a third time, in order to collect the completed household diaries and to interview the family head or the household member in charge.

Household healthcare expenditures

We need to elaborate here on the similarities and the differences between our survey and the monthly household budget surveys conducted by the National Statistical Institute. Such elaboration is necessary as there is a significant difference between the two surveys and subsequent results. Monthly healthcare expenditure is several times higher in our survey. These differences are attributable to the following:

First, there were differences in the classification of the products and services registered as health expenditures. The food expenditures of inpatients, the household expenditures for personal, city, intercity or taxi transportation of the medical staff to and from the patient's home, the transportation household expenditures made to satisfy the household's healthcare needs, gratuity payments and so on were registered as health expenditures in this survey, while in the National Statistical Institute's survey they are incorporated into other sections. Secondly, our household diary recorded a higher expenditure due to the rapid increase in the price of drugs and other medical goods and services, especially during the first quarter of 2002, due to the imposition of the value-added tax (VAT) on pharmaceuticals.

Household health expenditures are strongly influenced by the organisational pattern of the health care system and the level and amount of expenditures which it covers. In relation to the latter, in 2002 health insurance contributions reimbursed by the National Health Insurance Fund were as follows (in million Leva): Outpatient Curative Care (256); Pharmaceuticals (131); and Inpatient Curative Care (100); to a total of 487 million Leva (approximately US$240 million). These amounts are very modest in terms of state expenditure since total public health expenditure amounts to only 4.3% of the GDP and represents a very slow rate of increase since 1990 (The Council of Ministers 2001).

Household income levels also exert a major impact on household healthcare expenditures. While income levels have increased both in nominal and real terms across all types of monetary income (wages, pensions, social welfare) (see Table 3) since 1990, Bulgaria continues to experience widespread impoverishment. This is indicated by low GDP per capita ($1542 in 2000), the high relative share of food expenditures (over 40%), the large difference in the disposable income between the richest 20% and the poorest 20%, and the very high level of unemployment (varying between 16% and 18% in the period 1991–2002). All limit household capacity regarding the level of healthcare (National Statistical Institute 2002).

Household health expenditures: size and structure

Average household health expenditures: size and structure

Overall, household health expenditures of all 1005 households under survey amounted to a total of 59 000 Leva. The households surveyed spent an average of 64 Leva (US$32) per month on health goods and services.

Table 3: Income of the population and inflation rate, 1990 – 2000

Absolute amounts (Leva) and percentages	1990	1993	1995	1997	1999	2000
Average monthly salary	545	3642	8612	168 720	206	241
Actual change on the basis of the previous year		–20%	4%	28%	4%	5%
Actual change since 1990		–60%	–68%	–77%	–74%	–73%
Average monthly pension	179	1247	2765	51 111	71	81
Actual change on the basis of the previous year		3%	9%	25%	15%	3%
Actual change since 1990		–59%	–69%	–79%	–73%	–73%
Inflation rate (%)	n.a.	n.a.	34	579	6	4

Source: Ministry of Labour and Social Policy.

Table 4: Average household healthcare expenditures (Leva)

Type of medical goods and services	Average annual healthcare expenditures per person (Leva)	Average annual healthcare expenditures per household (Leva)	Average annual healthcare expenditures per household Relative share (%)
Curative care	90	269	35
Including:			
- inpatient care	12	36	5
- outpatient care	77	230	30
- curative home care medical services	1	3	–
Rehabilitation medical services	3	7	1
Pharmaceuticals	134	401	52
Health insurance contributions	20	60	8
Other	9	28	4
Total expenditures	256	765	100

Note: Other includes prevention and public health services, long-term nursing and ancillary medical services.

The structure of healthcare expenditures, as summarised in Table 4, indicates the following:

First, drugs dispensed to outpatients had the highest relative share: 52 % of the total amount of household healthcare expenditures. Expenditures for services of curative care ranked second: 35%. All other types of healthcare expenditures had a combined total of 13%.

Secondly, outpatient curative care expenditures represented 86% of the total amount of curative care expenditures while the relative share of inpatient care services was 14%.

Thirdly, 82% of the total household healthcare expenditures were spent on outpatient goods and services.

Fourthly, for an average three-member household, every household member spent annually 255 Leva on healthcare services, which amounted to 15% of the total average annual income per household member (1672 Leva in 2001). Such an amount of healthcare expenditures per person means that in 2002 the Bulgarian population paid out-of-pocket healthcare expenditures amounting to over 2 billion Leva ($1 billion).

Finally, the minimum average monthly healthcare expenditures per household in 2002 provided it was not utilising any medical goods and services but only paid the obligatory health insurance contributions was less than 5 Leva, and less than 2 Leva per person. The maximum average monthly healthcare expenditures per household in 2002, provided it had incurred expenditures equal to the average expenditures on all categories defined by the OECD international classification of health care accounts**,** amounted to 221 Leva, or 74 Leva per person.

Impact of socio-demographic factors on healthcare expenditures

Different socio-demographic factors influenced the size of household healthcare expenditures. Most important in this respect were the following: level of income; place of residence; age and ethnicity.

Healthcare expenditures by level of income

The size of households' income has a determining influence on the structure and size of expenditures. Regardless of the fact that it is frequent for healthcare expenditures to be of an imperative character, eventually it is the household budget capacity that determines the imposition or non-imposition of restrictions on healthcare expenditures. In order to ensure a higher degree of correspondence between the analysed income and expenditures of households, the information about income reflects the month preceding the collection of information on healthcare expenditures, namely March 2002. The total average income per household was 283 Leva and 94 Leva per household member (less than US$50 per household member).

Considerable differences were established between incomes of households belonging to different ethnic groups. The level of income was lowest for the Roma, where more than two thirds of the households reported an income less than 150 Leva (Figure 1).

Furthermore, village households tended to belong to lower income groups, whereas more than one-third of town households belonged to the highest-income groups (Figure 2).

Expenditures on medical goods and services by households belonging to different income groups indicated considerable differences (Table 5).

There was a very clear tendency towards increase in the total amount of healthcare expenditures as income increased. The difference in the absolute amount of expenditures between the lowest income group, up to 100 Leva, and the three groups with highest income, was three-fold. The analysis of the relative share of healthcare expenditures from the average income by separate household groups indicates that low-income households carried the heaviest burden (Figure 3). Households from the lowest-income group spent 39% of their average income on healthcare goods and services. This compares to 24% in the case of households from the income group of 201 to 300 Leva, and 12% from the highest income group (over 500 Leva). The data in Figure 3 show that health care expenditure as a relative proportion of monetary income is generally higher in the lower income households. Approximately 70% of the surveyed households reported monthly healthcare expenditures as a proportion of average income higher than those reported in countries in the European Union (WHO 2002).

The relative household budget burden is influenced by the extent to which the National Health Insurance Fund and/or the state covers household healthcare expenditures. Access to free-of-charge and/or partly covered medical goods and services for the health insured is negotiated periodically through the National Framework Contract. The NHIF accounts for only a small proportion of household healthcare expenditures. At the same time, due to the lack of state financed special programs to facilitate access to medical goods and services for persons from low-income groups, the latter tend to be in relatively less favourable positions and exposed to higher social risk. An indication of that is the distribution of households from different income groups according to the level of cash payments for health goods and services (see Table 6).

The data from Table 6 indicate that households covered the bigger part of medical goods and services expenditures, while the share of those free of charge or partly paid formed only a small portion. At the same time, no tendency towards an increase in the share of free-of-charge

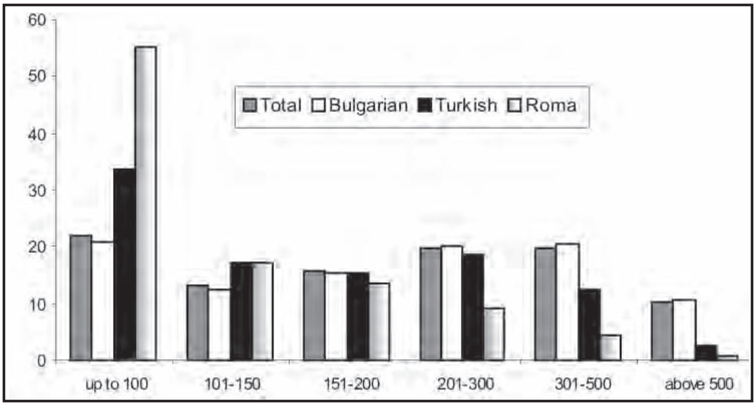

Figure 1: % Distribution of households from different ethnic groups by income level (Bulgarian Leva)

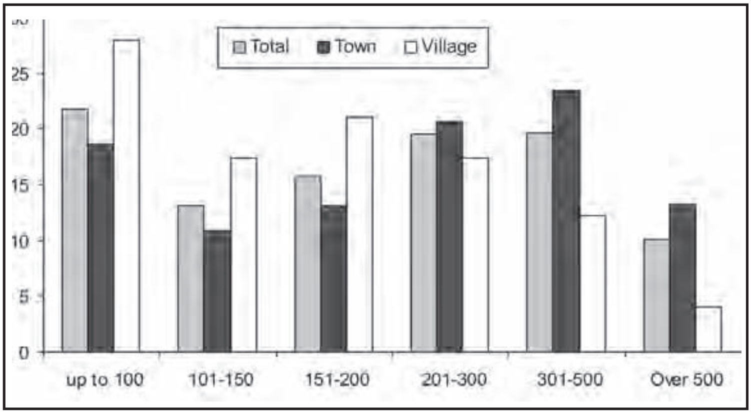

Figure 2: % Distribution of households by monetary income (Leva)

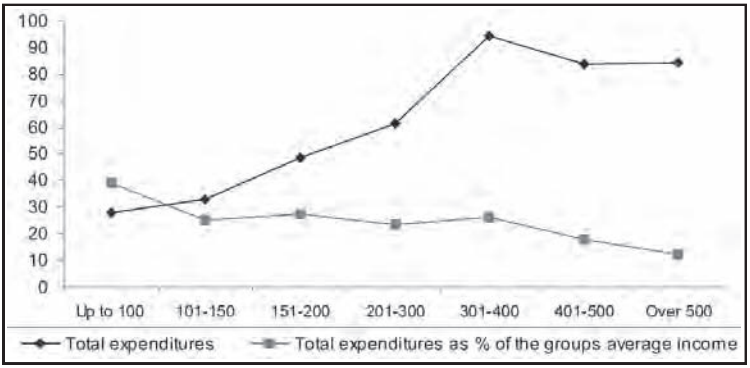

Figure 3: % Average monthly healthcare expenditures by income group (Leva)

Table 5: Average monthly healthcare expenditures by income group (Leva)*

Type of expenditures	Income ≤100	Income 101–150	Income 151–200	Income 201–300	Income 301–400	Income 401–500	Income >500
	Healthcare expenditures (Leva)						
Curative care services	6.50	6.89	16.25	25.43	44.48	37.24	31.74
Including:							
- inpatient care	1.05	1.13	3.60	4.09	3.94	3.24	4.49
- outpatient care	5.27	5.39	12.33	21.22	40.48	33.44	27.25
- curative home care services	0.18	0.37	0.32	0.13	0.06	0.56	0.0
Rehabilitation services	0.0	0.52	0.17	0.33	0.51	4.01	0.08
Long-term nursing care	0.0	0.0	0.0	0.0	0.52	0.05	0.0
Ancillary medical services	0.97	1.62	1.91	1.89	3.83	2.27	3.37
Medical goods to outpatients	20.73	23.99	30.35	33.88	44.85	40.16	49.31
Prevention and public health services	0.0	0.1	0.0	0.03	0.0	0.0	0.0
Total	28.19	33.04	48.68	61.55	94.19	83.73	84.50

* Total expenditure does not include health insurance contributions

Table 6: Distribution of households from different income groups on the basis of the level of cash payment for the goods and services (%)

Level of payment	Total	≤100 Leva	101–150	151–200	201–300	301–400	401–500	>500 Leva
Free of charge	5.0	7.5	4.3	4.7	4.1	5.3	6.5	3.7
Partly paid	7.6	6.9	5.0	8.9	8.8	8.3	6.6	6.9
Fully paid	87.2	85.1	90.6	85.8	87.0	86.2	86.8	89.3
Difficult to estimate	0.2	0.5	0.1	0.6	0.1	0.2	0.0	0.0

and partly covered services was identified as far as low income household groups are concerned. The small differences between the relative shares were most probably due to the lower level of medical goods and services utilised by low income households (see Table 5).

Healthcare expenditures by place of residence

The place of residence (Sofia, town, village) influenced the size and structure of healthcare expenditures due to the limited access to general and specialised care (see Table 7).

Analysis of the size of expenditures by place of residence reveals:

First, Sofia households spent one and a half times more on healthcare goods and services in comparison to the average expenditures by regional households, and nearly two times more than village households.

Secondly, expenditure of households from regional towns was 106% of the average

Table 7: Average monthly household healthcare expenditures by place of residence (Leva)*

Expenditure type	Total	Sofia	Regional town	Town	Village
Curative care	22.41	34.69	24.98	27.37	11.83
Including:					
- inpatient care	3.01	4.22	3.96	2.71	1.77
- outpatient care	19.19	29.98	20.89	24.40	9.91
- home treatment medical services	0.21	0.49	0.13	0.26	0.15
Rehabilitation services	0.62	–	0.64	2.00	0.03
Long-term nursing care	0.07	–	0.10	0.20	–
Ancillary medical services	2.16	2.13	2.07	2.19	2.25
Medical goods to outpatients	33.45	50.11	33.36	32.17	27.18
Prevention and public health services	0.10	–	0.02	–	
Total expenditures	58.81	86.93	61.17	63.93	41.44

* Total expenditure does not include health insurance contributions

Table 8: Average monthly healthcare expenditures by ethnic group (Leva) *

Type of expenditure	Bulgarian	Turkish	Roma
Curative care	23	12	9
Including:			
- inpatient care	3	5	5
- outpatient care	20	7	4
- home treatment medical services	–	–	–
Rehabilitation services	1	1	–
Long-term nursing care	–	–	–
Ancillary medical services	2	2	1
Medical goods for outpatients	35	24	20
Prevention and public health services	–	–	–
Health insurance contributions	5	6	7
Total expenditures	66	45	37

* Total expenditure does not include health insurance contributions

expenditure of households for health care, while that of households from small towns was 112%.

Thirdly, village household expenditures represented 76% of the average total healthcare expenditures.

Healthcare expenditures by ethnic group

The size and structure of healthcare expenditures showed significant variation in health spending based on ethnic group (see Table 8).

Healthcare expenditures of ethnic Bulgarian households represented 103% of the total average healthcare expenditures of all households surveyed (Table 8). Each member of those households spent an average of 23 Leva. This accounted for 111% of the total average expenditure per person in all surveyed households. The structure of expenditures indicated that the relative share of outpatient care expenditures was the highest, accounting for over 86% of all expenditures.

Average healthcare expenditures of a Turkish household amounted to 45 Leva, or 71% of the total average expenditure per household. The average expenditure per person was 12 Leva. Here again, the major part of expenditures went to outpatient care.

Roma households' average healthcare expenditures amounted to 37 Leva. The average expenditure per household member was 8 Leva. This represented only 58% of the average total expenditures of all households surveyed. The structure of expenditures was similar to that of the other ethnic groups, but all types of expenditures had considerably lower absolute values.

Equity in the size of expenditure and in medical goods and services utilisation

The findings indicate that the following factors have to be taken into consideration when analysing equity in access to healthcare resources: household income, place of residence, ethnicity and age. It should be noted that the influence of these factors is combined and the negative influence of one usually reinforces the negative impact of the others. Thus, negative influences tended to operate cumulatively leading to both relative and absolute increases in health care inequity.

The survey results showed that the main factor influencing the size of household healthcare expenditures for medical services and goods was level of income. The negative influence of this factor on equity of access to healthcare resources is most clearly demonstrated when comparing the relative shares of healthcare expenditures by different income groups. The NHIF's approach to fully or partially cover the expenditures for certain pharmaceuticals to one and the same extent for all income groups further aggravated the elements of negative influence on income stratification.

From the point of view of place of residence, those living in small or remote locations experienced more restricted access to healthcare resources because of the necessity to travel long distances and/or to pay additional transport costs. This inequity is exacerbated by difficulties experienced in accessing specialised care due to remoteness. In winter, this remoteness turns into a significant obstacle for residents of mountainous and semi-mountainous regions due to the fact that many of the roads are closed. The possibility of gaining access to state-covered emergency or urgent care is also limited because of the lack of telephone or telecommunication connections, and/or of mobile telephone coverage. Inequity in access by place of residence was especially marked for older people. The relative share of elderly people from villages who used fully or partly covered NHIF goods and services amounted to 10%, compared with 26% of elderly people in Sofia and 22% in regional towns.

The survey results also indicated that ethnicity was strongly associated with differential access to health resources for persons from different ethnic groups. This is particularly marked for members of the Roma ethnic group who demonstrated a considerably lower rate of household expenditure for medical goods and services, and a lower level of utilisation of free or partly covered medical services and goods as indicated in Figure 4.

Finally, the older age of household members was significantly correlated with an increase in the proportion of healthcare expenditure. This became more pronounced with a progressive decrease in income and rendered older people's access to healthcare resources considerably more constrained than their younger counterparts. On the other hand, the level of healthcare expenditures of children, aged 15 and under, was very high, especially among children from the Roma ethnic group.

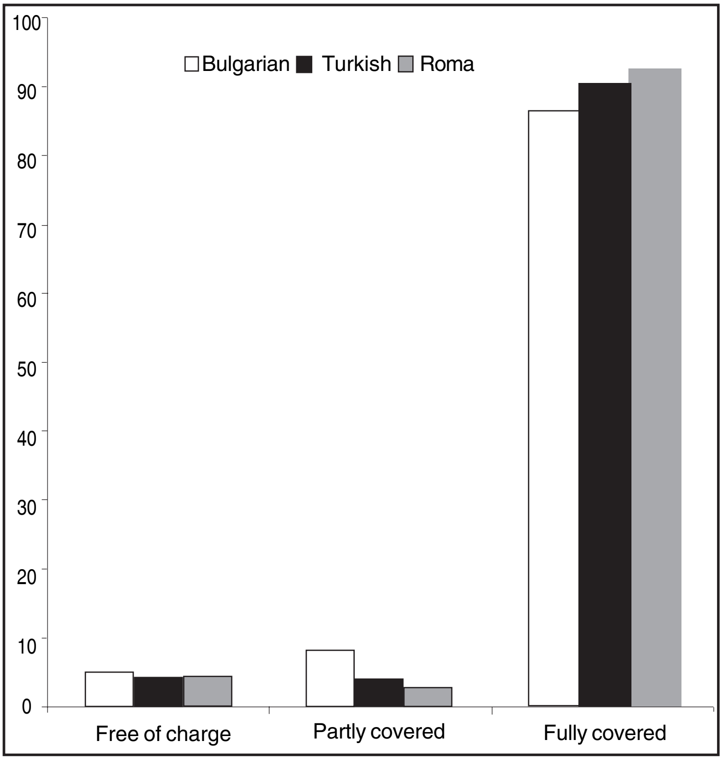

Figure 4: % Distribution of persons from different ethnic groups depending on the level of utilisation of free of charge, partly covered or fully covered medical services and goods

Discussion

Health expenditures are an important item in the household budget due to the fact that they ensure the maintenance, improvement and reproduction of one of the most precious social goods: human health. In Bulgaria, despite the introduction of a universal health insurance system, the better part of household health care expenditure is imperative rather than discretionary. This exerts a significantly inequitable impact on households. Such a consequence is largely attributable to changes in the philosophy, organisation and funding of the Bulgarian health-care system since 1990. The most significant of these changes has involved the introduction of official co-payments for health care services together with the continuing practice of under-the-table payments for pharmaceuticals and other health care goods and services. Average household expenditure on healthcare equals 21% of total household income. This relative share of income is higher than that expended in European Union countries and is extremely onerous for the majority of Bulgarian households.

Despite the high level of expenditure on the part of households and the correspondingly low levels of health expenditure by the state through the budget and the NHIF, there are no national, regional or local programs that aim to achieve fairer and more equitable access to health resources for those groups who are least able to purchase health care privately: the poor, Roma, older persons, and those living in towns and villages. In fact, our research suggests that the poorest and the richest households rely on their private capacity to purchase health care. Services that are provided free of charge or partly paid by the state account for less than 15% of health care expenditures; and this proportion is virtually the same regardless of household income. In real terms, high income groups are in receipt of more state support than low income groups. Thus, the universal health insurance system is regressive in its effect, rather than progressive.

Exacerbating this problem is the issue of unregulated gratuity payments and corruption in the health sector. This 'grey economy' operates outside the regulatory framework and does not pay taxes. During the surveyed period, over 12 % of the households paid unregulated sums to municipal and state health care establishments. These sums varied between 20 and 210 Leva in inpatient facilities, and up to 40 Leva to see a doctor. This may help to explain why 13% of households failed to approach their general practitioner as they could not afford to pay for the consultation. At the same time, 29% of those who needed to consult a specialist and had a referral from their GP failed to do so. The above-mentioned data point to the existence of corruption (the grey economy) in the health sector which undermines efforts to carry out health-care reforms. These illegal costs increase household health expenditures and further impede attempts to achieve equitable access to healthcare resources.

Implications for equity of access to health care

Universal health insurance systems in social democratic countries such as Australia, Canada and Bulgaria aim to ensure that all citizens have equal access to basic health care on the basis of health need rather than the ability to pay (Palmer and Short 2000:257-258). The European Observatory on Health Care Systems (Koulaksazov *et al* 2003: 90) country report for Bulgaria raised the concern that the introduction of official co-payments for health care services, together with the continuing practice of unregulated payments, could work against achieving equity in access to healthcare services. This study, conducted through administration of a household healthcare expenditures diary plus a household survey to a random sample of households (n= 1512) in 2002, indicates that the aspiration of equity of access to health care was seriously compromised in the period under investigation. The study identified more limited access to health resources for disadvantaged social groups: most notably the poor, Roma, older persons, and those living in remote towns and villages.

The study brought to light restricted utilisation of health care services by a considerable portion of Bulgarian households. Low-income households carry the heaviest burden, with households from the lowest income group spending 39% of their income on health care, compared with 12% in the highest income group. Approximately 70% of Bulgarian households are spending a higher proportion of their income on health care than their counterparts in the European Union. For the majority of households healthcare expenditure is incongruent with their financial ability to pay. This very inconsistency between abilities and needs is at odds with the principle of equity that underpins the universal health insurance system.

The extent to which the Bulgarian National Health Insurance Fund and/or the state cover part or all of household healthcare expenditures can considerably relieve or increase the household budget burden. Yet the state and the National Health Insurance Fund account for a very small proportion of health care expenditure. Only a tiny proportion of health care is provided free of charge or partly paid by the NHIF or the state (13% in the case of the poorest households and 11% in the case of the richest households). Thus, the national health insurance system exerts virtually no impact in ensuring equitable access to health care. In the transition from communism and a command economy to democracy and a market economy, health care has become a commodity rather than a right; more accessible to those with the ability to pay.

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Educational inequalities in avoidable deaths in Norway: A population based study

ABSTRACT

KEY WORDS

Socioeconomic inequalities in mortality, education, avoidable deaths, sociology, Norway

The question we raise in this paper is whether the educational gradient in avoidable mortality differs from overall and non-avoidable mortality among men and women in Norway. By avoidable deaths we refer to deaths caused by diseases that are either treatable if given appropriate medical care, or preventable if available preventive measures were implemented. The data set is derived from official administrative registers and includes all Norwegian men (1,107,427) and women (1,087,842) aged 25–67 years with information about status alive/dead during the period 1994–1999. Adjusted for sociodemographic and socioeconomic factors, education forms a marked and independent gradient in overall and non-avoidable mortality and an even steeper gradient in avoidable mortality – in particular in ischemic heart disease and preventable deaths. The educational gradient is shallower for deaths considered treatable by health care, but is still present. These patterns apply to men and women alike. The findings of our study suggest that health care and health policies may play a role in reducing inequalities in deaths that are 'avoidable, unnecessary and unjust'.

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Introduction

The research question addressed in this paper is whether there is an educational gradient in avoidable deaths among Norwegian men and women similar to that in overall and non-avoidable mortality. The existence of socioeconomic inequalities in health has been documented in a number of Western countries (Mackenbach *et al* 1997; Mackenbach 2005). The egalitarian Scandinavian social democratic welfare states are no exception (Dahl *et al* 2006). These health inequalities are persistent and there is also a trend towards growing inequalities in a number of countries (Kunst *et al* 2005; Rognerud *et al* 2003). Politically, the issue has been defined as a public health problem in a growing number of nations, the UK, Sweden and The Netherlands being amongst the pioneers (Mackenbach and Bakker 2002).

Not all health inequalities are considered equally relevant for public health policy. In a much quoted WHO-report from 1990, Whitehead claims that the term 'inequity in health' should be reserved for differences in health that are 'unnecessary and avoidable but, in addition, are also considered unfair and unjust' (Whitehead 1990:5). These are the inequalities that should be of political concern and subject to political action. Recently, the Norwegian health authorities, i.e. The Directorate of Health and Social Affairs have launched an action plan against health inequalities which basically pursues this approach to the problem (The Directorate of Health and Social Affairs 2005). However, empirical analyses of health inequalities seldom address those inequalities that fulfil these criteria. This paper aims to fill in this knowledge gap by analysing socioeconomic inequalities in avoidable deaths. These inequalities are relevant for two reasons: first they are, as indicated, the kind of health inequalities that politicians and public health policy makers explicitly refer to, and second they are related to unnecessary deaths, i.e. deaths from causes considered to be amenable to intervention from the health services or preventable by public polices: and thus responsive to political action.

The political context: Norwegian policies on health inequalities

Until recently, shifting Norwegian governments and health authorities had not been particularly concerned with socioeconomic inequalities in health. Reviewing relevant political documents, Dahl (2002) concluded that Norway was located at the lower end of what Whitehead (1998) have dubbed the 'action spectrum'. The action spectrum provides a framework for describing national policies to tackle health inequalities, ranging from a situation where health inequalities are not even measured to a situation in which a comprehensive and coordinated political strategy is being implemented. Dahl (2002) located Norwegian policies at that time somewhere around 'indifference', 'need for measurement', and 'awareness raising', whereas for example Sweden and UK were closer to the other end of the spectrum characterised by 'comprehensive and coordinated' policies.

In recent years, however, this situation has changed. In 2002, a White Paper produced by the Ministry of Health and Care (St.meld. nr. 16, 2002-2003) represented a shift in the focus of public health policies. The White Paper brought Norwegian policies a step up the ladder on the action spectrum, onto a stage of concern and a stronger commitment to take political action. The document states that there are two broad aims for public health policy: to contribute to more healthy life years for the entire population, and to reduce differences in health between social strata, ethnic groups and the two genders. A further step was taken in January 2005, when the Norwegian Directorate of Health and Social Affairs published the previously mentioned Action Plan to tackle health inequalities. The foreword of the document stated: 'Inequalities in health are unacceptable when they are unjust, avoidable and unnecessary'. The Plan's aims were thus both to strengthen efforts to increase knowledge about health inequalities and to develop policies and measures to reduce socioeconomic inequalities in health. Compared with the White Paper three years earlier, the Action Plan progressed in at least two ways. First, more of the pathways that may link socioeconomic inequalities to health and mortality were highlighted. Health related behaviour, the key issue in the White Paper, was supplemented by discussions on the life course model, the psychosocial model, materialist explanations, the role of the health services, and health related social mobility. Second, in contrast to the individualistic bias of the White Paper, the Action Plan focused on 'the challenge of the gradient' and advocated population-based and universal measures and interventions. The attention was directed to the entire hierarchy of stratified inequalities in wealth, power and prestige and not to vulnerable and disadvantaged groups in particular.

Against this political backdrop, the present analysis of avoidable mortality is pertinent and timely. Our aim is to identify socioeconomic inequalities in mortality that are avoidable, i.e., which could be judged to be either treatable or preventable, and hence considered 'unnecessary, unjust, and possible to influence' and therefore ripe for political action.

Avoidable deaths

First coined by Rutstein and colleagues (1976, 1983), the term avoidable mortality aimed at measuring the quality of health services systems.

A set of 'sentinel health events' was defined to serve as a warning sign that health care was not up to standard and could be improved. In the original paper, Rutstein and colleagues (1976) understood health care in the broadest sense including the use of relevant medical knowledge, research to increase medical knowledge, the services of health personnel, health care institutions, the resources of governmental, voluntary and social organisations, as well as the co-operative responsibilities of the individuals. Based on this idea, the authors selected a set of sentinel health events based on the assumption that 'if everything had gone well, the condition would have been prevented or managed' (Rutstein *et al* 1976:583).

It is evident from this approach that the selection of a particular condition that is deemed unnecessary and avoidable depends on social, historical, medical and other circumstances in any given country at any given time. Accordingly, deaths considered avoidable in a rich and mature welfare state today may be different from those deemed as such 30 years ago. Developments in medical science and treatment regimes may transfer conditions previously considered 'non-avoidable' to the list of conditions classified as 'avoidable' causes of death. Hence, we needed a list of avoidable deaths that was more up to date. In this paper we use an updated list of avoidable deaths suggested by Korda and Butler (2006) who in turn have largely followed the work of Nolte and McKee (2004). This approach distinguishes between three broad categories of conditions, i.e. deaths amenable to medical care, deaths responsive to health policy, and ischemic heart disease, i.e. conditions lying somewhere in between the first and the second category. The exact coding list based on ICD9 and ICD10 is provided in Table 1.

The avoidable deaths method has been used to assess the effectiveness of health care over time and within and between countries (Manuel and Mao 2002; Treurniet *et al* 2004). Several studies have furthermore documented differences in avoidable deaths between different population groups, i.e. between men and women (Niti and Ng 2001), between blacks and whites in the US (Collins undated; Schwartz *et al* 1990) and in vulnerable groups such as child welfare recipients (Hjern *et al* 2004). All these studies may be read as indications that economic and social circumstances affect quality of health care and health outcomes.

Inequalities in avoidable deaths

Recently, several studies have focused specifically on socioeconomic inequalities in avoidable deaths, in Canada (Wood *et al* 1999), Sweden (Westerling *et al* 1996), and Korea (Song and Byeon 2000). In Canada, Wood and colleagues (1999) demonstrated that for every amenable cause of death, the mortality rate was higher among the lower social classes. This was true regardless of whether education, occupational class, or income was used as a socioeconomic indicator. The Korean study (Song and Byeon 2000) showed a clear socioeconomic gradient in avoidable deaths among male civil servants aged 30-64 based on their monthly salaries. This gradient was similar to mortality from non-avoidable deaths. In Sweden, Westerling and colleagues (1996) studied avoidable deaths among blue-collar workers, white-collar employees, self employed and non-employed. They found small differences in avoidable death outcomes among different socioeconomic groups within the workforce, but marked inequalities between the employed and non-employed section of the population. The authors see this as an indication of equal quality in care among groups in the labour market, but state that the difference between the employed and non-employed is a warning sign.

Thus, the concept of avoidable deaths has proven fruitful to assess the accessibility, effectiveness and quality of health care in a broad sense. This applies to comparisons between countries, and over time within and between countries. More important, however, is that the idea of avoidable deaths also seems fruitful and potent in the realm of health inequalities. By adopting this approach, we do not necessarily imply that health services and health policies are the major factor generating socioeconomic health inequalities. Socioeconomic inequalities in illness, disease and mortality derive from a broad set of circumstances which involve differential exposures to health-damaging environments as well as differences in class-based resources for engaging in health-enhancing lifestyles and practices (Bartley 2004; Link and Phelan 1995; Marmot and Wilkinson 1999; Muntaner *et al* 1999). The specific contribution of health services to the improvement of population health is also questioned (McKeown 1979), although it has been argued that the role of medical interventions in increasing longevity probably has increased in recent decades (Bunker 2001).

Nevertheless, the question of socioeconomic differences in avoidable deaths appears as a topic worthy of examination. This approach might suggest an answer to policy-makers' wish to reduce health inequalities that are 'unnecessary and unjust'. Furthermore, the distinction between unnecessary deaths from causes amenable to medical treatment and from preventable causes involves not only the institutions of diagnosis, treatment and care, but also the broader policy-making system in the combat against health inequalities.

The focus of this study

In this study, the focus is on educational inequalities in avoidable deaths among men and women in Norway. To indicate positions in the socioeconomic structure, the most common indicators are educational level, income, and occupation, or some type of index summarising these aspects. There are complex interconnections between the different indicators (Lahelma *et al* 2004), and from a theoretical point of view, educational level is not necessarily the most preferable indicator. Education was chosen, however, because this information was easily available for the entire sample. Moreover, education has several attractive properties: it is easily measured; it is applicable also to people outside the work force; it is rather stable over the life span and is therefore less sensitive to reverse causation than for example income; numerous studies in Norway and elsewhere show that education is clearly associated with ill-health (e.g. Sund and Krokstad 2005). For these, partly practical, reasons, education is utilised as indicative of placement in the socioeconomic structure in this study. It should be noted, however, that there are a number of different mechanisms that could engender associations between educational level and health and mortality (Blane *et al* 1996). We conceive of the term 'educational inequalities in mortality' as neutral as to whether resources (material or immaterial), or rank/status are involved in the processes generating the association between educational level and mortality.

The analyses are carried out for men and women separately because it has been repeatedly shown that socioeconomic inequalities in health in Norway may not be the same for the two genders. In general, health inequalities are not as pronounced for women as for men (Sund and Krokstad 2005). Inequalities in mortality by education and income increased during the 1980s and 1990s, and more so for men than for women (Zahl *et al* 2003). Moreover, the reduction in heart disease mortality from the 1970s to the 1990s has been smaller for less educated persons of both genders, but smaller for men than for women (Meland *et al* 2004). For self-reported, long-lasting or chronic disease, one cannot say for certain whether gender differences exist, but the ratio for the odds of reporting poor general health among the highest educated and the least educated seem to be higher for men than for women (Krokstad *et al* 2002).

Data and methods

Data

The data set is derived from official administrative registers and includes the entire Norwegian population recorded in 1992, i.e. about 4.3 million people. The registers involved have been linked by means of the personal identification number and have been made available for this project by Statistics Norway. The present analyses are restricted to men and women aged 25–67 years who were alive by the end of 1993 and whose vital status could be followed through 1999. The decision to include only persons above 25 years of age follows from the fact that to sort mortality by education, the analysed data set must contain only persons that were old enough to have reached the highest education level. It should be noted that this decision affects the number of 'avoidable deaths' by excluding completely those deaths that are defined as avoidable only for persons under 14 (e.g. measles, any respiratory disease, and whooping cough).

Missing data are infrequent in these registers. The largest number and percentage of missing pertains to the variable describing total mortality. On this variable we miss information for 1.4% of men and women within the selected age span. Emigration is the most common reason for this.

Dependent variables

We have information on six-year mortality, i.e. registered as 'Died 1994–1999' or 'Still alive at the end of 1999'. All deaths occurring in Norway during this period have been recorded and assigned an appropriate cause-of-death ICD-code. The deaths were categorised as avoidable or not according to the approach provided by Korda and Butler (2006, see also Nolte and McKee 2004) who distinguish between three categories of avoidable deaths: deaths from conditions amenable to medical care, from preventable causes, and ischemic heart disease. The exact ICD-codes (both the 9th and the 10th revision) and the full coding scheme are presented in Table 1.

Referring to Table 1, examples of treatable causes of deaths ('medical care indicators') are pneumonia, diabetes mellitus and appendicitis. Examples of preventable deaths ('health policy indicators') are lung cancer and liver cirrhosis.

Independent variables

Our main research interest is how mortality varies by education. Education is classified into five levels, and entered as a categorical variable. The reference category is the highest educational group, i.e. top level university degree e.g. MA, MD.

The effect of education on mortality is controlled for a number of variables. Their coefficients are not reported (but are available from the first author upon request). The analyses included the following control variables, all measured at baseline, i.e. 1992–93:

> Age: *Grouped into five categories, see Table 2, and entered as a continuous variable.*
> *Marital status: Classified into married, never married, or previously married (widow/er or divorced).*
> Immigrant status: *Whether or not or not the person is a Norwegian citizen by birth.*
> Disability pension: *Recipient or not of disability pension. Disability pension is granted if health conditions constitute a serious hindrance against gainful employment.*
> Unemployment: *Whether or not the individual received unemployment benefit.*
> Income: *Disposable equivalised family income, derived from taxation data and calculated as the sum of the incomes of all family members, and equivalised by taking the square root of number of family members. The income variable is divided into quintiles based on the entire population under study. The highest quintile is selected as the reference group.*

Descriptive data are presented in Table 2 for men and women respectively.

Within this age range nearly twice as many men than women die during the six years period 1994–1999. The proportion of avoidable deaths is rather similar among men and women, around 50 per cent. The different causes of death, however, vary distinctly by gender: relative to all deaths, among men ischemic heart disease is the largest group of avoidable deaths (24 per cent), while among women the largest group is deaths amenable to medical treatment (29 per cent).

Analysis

Age standardised mortality ratios (SMR) were calculated for both genders and for all causes of death. Multiple logistic regression analysis was applied to control for sociodemographic and socioeconomic confounders and to single out the separate and independent effect of education on the different mortality outcomes for each gender. To quantify the total variability of the educational inequalities in mortality, we also present the standard deviations of the distributions of the ORs and the SMRs for each mortality outcome.

Table 1: ICD9 and ICD10 codes for the three categories of avoidable deaths according to Korda and Butler (2006)

Cause of death	**Age group**	**ICD-9**	**ICD-10**
Medical care indicators			
Intestinal infections	0-14	001-009	A00-A09
Tuberculosis	0-74	010-018, 137	A15-A19, B90
Other infections (diphtheria, tetanus, poliomyelitis)	0-74	032, 037, 045	A35, A36, A80
Whooping cough	0-14	033	A37
Septicaemia	0-74	038	A40-A41
Measles	1-14	055	B05
Malignant neoplasm of colon and rectum	0-74	153-154	C18-C21
Malignant neoplasm of skin (excluding melanoma)	0-74	173	C44
Malignant neoplasm of breast	0-74	174	C50
Malignant neoplasm of cervix uteri	0-74	180	C53
Malignant neoplasm of cervix uteri and body of uterus (excluding overlap with above codes)	0-44	179, 182	C54-C55
Malignant neoplasm of testis	0-74	186	C62
Hodgkin's disease	0-74	201	C81
Leukemia	0-44	204-208	C91-C95
Disease of the thyroid	0-74	240-246	E00-E07
Diabetes mellitus	0-49	250	E10-E14
Epilepsy	0-74	345	G40-G41
Chronic rheumatic heart disease	0-74	393-398	I05-I09
Hypertensive disease	0-74	401-405	I10-I13, I15
Cerebrovascular disease	0-74	430-438	I60-I69, G45
All respiratory diseases (excluding pneumonia/influenza)	1-14	460-479, 488-519	J00-J06, J20-J99
Influenza	0-74	487	J10-J11
Pneumonia	0-74	480-486	J12-J18
Peptic ulcer	0-74	531-533	K25-K27
Appendicitis	0-74	540-543	K35-K38
Abdominal hernia	0-74	550-553	K40-K46
Cholelithiasis and cholecystitis	0-74	574-575.1	K80-K81
Nephritis and nephrosis	0-74	580-589	N00-N07, N17-N19, N25-N27
Benign prostatic hyperplasia	0-74	600	N40
Maternal deaths	All	630-676	O00-O99
Congenital cardiovascular abnormalities	0-74	745-747	Q20-Q28
Perinatal deaths (excluding stillbirths)	All	760-779	P00-P96, A33-A34
Misadventures to patients during surgical and medical care (including complications)	All	E870-E876, E878-E879	Y60-Y69, Y83-Y84
Asthma	0-74	493	J45-J46
Ischemic heart disease	0-74	410-414	I20-I25
Health policy indicators			
Malignant neoplasm of trachea, bronchus and lung	0-74	162	C33-C34
Chronic liver disease and cirrhosis	0-74	571	K70, K71.7, K73-K74, K76.0
Motor vehicle accident	0-74	E810-E825	V02-V04, V06.1, V09.0-V09.3, V12-V14, V19.0-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83.0-V83.3, V84-V88, V89.0, V89.2-V89.9

Table 2: Descriptive statistics, ca. 1,107,427 men and ca. 1,087,842 women, aged 25–67 years

Variables	Values	Men		Women	
		N	%	N	%
Deaths, all causes		40803	100,0	23205	100,0
Non-avoidable deaths		20570	50,4	11240	48,4
Avoidable deaths		20233	49,6	11965	51,6
- Treatable deaths					
- Ischemic deaths		5902	14,5	6759	29,1
- Preventable		9675	23,7	2777	12,0
deaths		4656	11,4	2429	10,5
Age group	25-34	321761	29,0	307037	28,2
	35-44	306572	27,7	294528	27,0
	45-54	252192	22,7	245959	22,6
	55-60	104663	9,4	107387	9,9
	61-67	123438	11,1	133944	12,3
	All	1108626	100,0	1088855	100,0
Marital status	Married (ref. category)	685053	61,9	712422	65,5
	Never married	294534	26,6	187611	17,2
	Previously married	127840	11,5	187809	17,3
	All	1107427	100	1087842	100
Education	University high level (ref.cat)	138643	12,5	114994	10,6
	Medium university/college	113226	10,2	111511	10,3
	High school high	346480	31,3	201893	18,6
	High school low	234089	21,1	358413	32,9
	Basic	274989	24,8	301031	27,7
	All	1107427	100,0	1087842	100,0
Equivalised family income NOK (Norwegian kroner)	1. Lowest quintile	177015	16,0	205336	18,9
	2.	202416	18,3	220482	20,3
	3.	225179	20,3	234145	21,5
	4.	238602	21,5	225691	20,7
	5. Highest quintile (ref.cat)	264215	23,9	202188	18,6
	All	1107427	100,0	1087842	100,00
Disability pension	No (reference category)	1009704	91,2	961481	88,4
	Yes	97723	8,8	126361	11,6
	All	1107427	100,0	1087842	100,0
Unemployment benefit	No (reference category)	1019586	92,1	1012014	93,0
	Yes	87841	7,9	75828	7,0
	All	1107427	100,0	1087842	100,00
Immigrant	No (reference category)	1058629	95,6	1042057	95,8
	Yes	48798	4,4	45785	4,2
	All	1107427	100,0	1087842	100,0

Results

Table 3 (men) and Table 4 (women) show odds ratios as estimated by means of multiple logistic regression analyses and SMRs pertaining to educational level.

We see from Table 3 that among men, education forms a systematic gradient in all mortality outcomes, but the steepness of gradient varies considerably, which also is evident from standard deviations (SD). The gradients for all avoidable deaths are steeper than for all cause mortality and for non-avoidable deaths. We also observe that the SDs of the the SMRs, which only adjust for age, tell the same story as the SDs for the odds ratios.

The three components of avoidable deaths show rather different socioeconomic gradients. The flattest slope is for deaths amenable for

Table 3: Six mortality outcomes among men 25–67 years

	All cause[2]	Non-avoidable[2]	Avoidable[2]	Treatable[2]	Ischemic[2]	Preventable[2]
1 Basic	**1.66** (217)	**1.46** (198)	**1.87** (239)	**1.36** (193)	**2.02** (259)	**2.34** (271)
2 High school low	**1.51** (182)	**1.41** (173)	**1.62** (192)	**1.28** (162)	**1.73** (206)	**1.90** (215)
3 High school high	**1.33** (152)	**1.22** (141)	**1.46** (167)	**1.22** (143)	**1.52** (174)	**1.71** (192)
4 Medium university/college	**1.23** (128)	**1.15** (120)	**1.32** (137)	1.16 (122)	**1.39** (145)	**1.44** (146)
5 University high level (ref.cat)	1 (100)	1 (100)	1 (100)	1 (100)	1 (100)	1 (100)
SD	0.25 (45.6)	0.19 (39.5)	0.33 (52.9)	0.14 (35.9)	0.38 (60.3)	0.50 (65.4)

[1] Mortality standardised for age (age groups: 25–34, 35–44, 45–54, 55–60, 61–67)

[2] Bold odds ratios indicate that they are statistically different from the reference category at the .01 level.

Odds ratios and (SMRs[1].) Odds ratios adjusted for age, disability pension status, marital status, unemployment status, immigrant status and household income. SD = standard deviation. N = 1,107,427.

Table 4: Six mortality outcomes among women 25-67 years

	All cause[2]	Non-avoidable[2]	Avoidable[2]	Treatable[2]	Ischemic[2]	Preventable[2]
1 Basic	**1.77** (215)	**1.75** (210)	**1.77** (219)	**1.37** (163)	**4.86** (595)	**2.31** (216)
2 High school low	**1.43** (151)	**1.48** (153)	**1.40** (149)	**1.20** (124)	**3.31** (355)	**1.71** (150)
3 High school high	**1.26** (138)	**1.26** (135)	**1.26** (141)	**1.13** (125)	**2.48** (261)	**1.44** (156)
4 Medium university/ college	**1.13** (114)	1.15 (115)	1.11 (113)	1.06 (106)	**2.34** (229)	1.02 (91)
5 University high level (ref.cat)	1 (100)	1 (100)	1 (100)	1 (100)	1 (100)	1 (100)
SD	0.30 (44.6)	0.29 (42.7)	0.30 (46.2)	0.14 (24.6)	1.42 (185)	0.54 (50.2)

[1] Mortality standardised for age (age groups: 25–34, 35–44, 45–54, 55–60, 61–67)

[2] Bold odds ratios indicate that they are statistically different from the reference category at the .01 level.

Odds ratios (SMRs[1]). Odds ratios adjusted for age, marital status, immigrant status disability pension status, unemployment status, and household income. SD = standard deviation. N = 1,087,842.

medical treatment, the gradient is steeper for ischemic heart disease and steepest for preventable deaths. This indicates that what drives the steep inequality in all avoidable deaths is the inequality in mortality from preventable causes. It is worth noting that these clear educational gradients in mortality indicated by the odds ratios are present after we have controlled for a number of indicators of sociodemographic and socioeconomic status: age, equivalised family income, marital status, ethnic minority status, unemployment and disability. Thus, this significant net effect of educational status prevails after accounting for a number of other well known risk factors for mortality.

As shown in Table 4, women's experience is similar but not identical to that of men. As for men, the SDs based on the SMRs and the odds ratios give basically the same picture of the size of the educational inequalities in the different mortality outcomes. The educational gradients in overall mortality and non-avoidable mortality are similar to that of avoidable mortality. Again, however, there are large variations in this latter category: the steepness is quite modest for treatable deaths, considerable for preventable deaths, and large for ischemic heart disease mortality. Women's gradient in ischemic heart disease mortality is much steeper than the one among men.

Summary and discussion

In this study we have compared socioeconomic gradients in 1994–1999 mortality in the entire adult Norwegian population aged 25–67 and alive by the end of 1993. We have distinguished between different mortality outcomes, with a focus on non-avoidable and avoidable deaths. Age standardised mortality ratios (SMRs) as well as multiple logistic regression analysis were applied, the latter to adjust for several sociodemographic and socioeconomic factors. The analyses reveal that education forms a clear gradient in overall mortality and an even steeper gradient in avoidable mortality. This latter pattern is mainly generated by the steep mortality gradients in ischemic heart disease and preventable deaths. The gradient in deaths amenable to health care interventions is, however, less steep than the gradients for the other mortality outcomes we have examined. These patterns apply to men and women alike. The SMRs and the odds ratios reveal a similar picture of inequality.

Which deaths are avoidable and which are not?

There is no wide consensus as to which specific causes of death that should be regarded as avoidable and which that should not. Some argue that alcohol is involved in a number of accidental deaths like drowning and fire (Mäkelä 1998). It is also debatable whether suicide should be considered as unavoidable as in our framework. Rutz (2001), for example, argues that to a large degree suicides are preventable. This disagreement stems both from different views on the nature of specific causes of death but also on time period and context. It might, for example, be more reasonable to suggest that alcohol is involved in more accidents in Finland than in Norway. Further, the fact that the findings of Westerling and colleagues (1996) depart at least partly from ours, may be due to the different treatment of several specific causes of death. These include suicide and more cancers in the category of avoidable deaths. There are, however, other interpretations of these mixed results as the context, time period and measure of socioeconomic position vary between the studies. As Westerling and colleagues themselves point out, inequalities by occupational class may be underestimated because of the 'healthy worker effect'. In this connection it should be noted that their study found very distinct disparities in avoidable death between the employed and non-employed population. Despite the fact that one could dispute whether a specific cause of death should belong to the avoidable or the unavoidable category, we wanted to stick to the list suggested by Korda and Butler (2006).

Inequality in deaths amenable to health care

Educational inequalities in treatable deaths are rather moderate and very similar for men and women alike (SD odds ratios: 0.14 for both genders). We can of course only speculate on the possible causes of inequalities of deaths amenable to health care since here we lack data to examine them empirically. It cannot be precluded that socioeconomic variations in incidence as regards these types of conditions is a factor (Treurniet *et al* 1999). Besides, unequal access to, delayed contact with, and under use of health care, are obvious candidates. Some Norwegian empirical evidence suggests that higher educational groups have better access to general health care and make more use of medical specialists (Carlsen 2006; Iversen and Kopperud 2005). This latter finding also indicates that the better educated may have access to health care of higher quality. The finding that the higher educated diagnosed with cancer survive longer than those with less education is consistent with this (Kravdal 1999). It appears then that medical care providers, consciously or unconsciously, are inclined to provide higher quality services towards patients who resemble themselves in terms of social and socioeconomic status. Also, particular characteristics of the less educated may play a role, for example the existence of co-morbidity which makes successful cure of the condition in question less straightforward. Another possibility is that the less educated have fewer resources, e.g. in terms of knowledge, money and social networks, to adhere to medical advice and regimens, or to endure aggressive therapy. The advantages that the better educated enjoy in these respects may also underlie part of the 'non-compliance' phenomenon.

Consequently, a number of different mechanisms may help explain the gradients in treatable mortality, and one should of course be cautious to immediately 'blame' health care for the current situation. Strictly speaking, our results only permit us to conclude that the pattern of inequality in treatable mortality is a warning sign which, we think, deserves to be taken seriously. But it could also be noted that the reforms in health care, particularly in the hospital sector over the past decade, have hardly contributed to counteract health inequalities. A common denominator of these reforms is the aim to increase productivity by introducing quasi market measures and economic incentives to regulate the behaviours of the patients as well as the health personnel. These reforms entail, for instance, activity-based funding based on *Diagnosis Related Groups,* a new owner structure of the hospitals, and the establishment of 'professional' boards in the hospitals (Lian 2003). In the community health services, user fees have increased over the past decade. In light of our findings it seems worthwhile to conduct a Health Impact Assessment of these reforms with a specific focus on inequalities in treatable mortality.

Inequality in preventable mortality

The educational gradient in preventable deaths is relatively steep and is at the same level for both men and women (SD odds ratios: M: 0.50, W: 0.54). Preventable deaths include motor vehicle accidents as well as causes of deaths related to unhealthy lifestyles, i.e. smoking and excessive drinking. Smoking in particular has a sharp educational gradient in Northern Europe compared with Southern Europe (Giskes *et al* 2005). It appears from our data that many untimely deaths might have been postponed if more people adopted the healthier lifestyles of the better educated as these deaths are avoidable in the sense that their causes are well known and that they are possible to change, in theory. Current medical knowledge warrants such a statement. However, contemporary medical knowledge, or knowledge derived from the social sciences for that matter, has less to offer as to how to influence the health behaviours among the less privileged. It is reasonable to assert that public health policies up to now have had little success in reducing health inequalities, given the steep gradients that still exist. As of today, not much is known as to what kinds of interventions and policies would improve the health condition of the less educated. A recent review of interventions and policy measures gives a number of recommendations (Mackenbach and Bakker 2002). Rather few of these are specific, and available evidence does not permit one to choose between broader strategies, e.g. between individual and population based strategies.

It is somewhat easier to point out which strategies are likely to fail since the evidence for this is more abundant. Enlightenment and information are a strategy with obvious limits. The relationship between lifestyle and health is well propagated and widely known. The overwhelming fact that people still choose to live the way they do, indicates that one should not base one's public health strategy on the hope that each individual makes a rational decision to change to a healthier lifestyle. The sharp educational gradients in smoking, for example, may be seen as much a symptom of an unsuccessful health policy than as a reflection of the lack of morale or knowledge among the less educated. More generally, broadly targeted health campaigns may increase health inequalities because the better educated are more ready to adopt healthier lifestyles – a factor that is largely attributable to the fact that they have greater opportunities to do so. Further, to stay with the example of smoking: easy access to cigarettes at affordable prices and ample opportunity to smoke them in public places make it easier to allow smoking to damage one's health. The idea behind the concept of avoidable deaths is that the major part of the responsibility for these deaths lies in the public health and health policy sector. The Government has the power and also the obligation to influence 'the causes behind the causes' i.e. the social circumstances that frame people's behaviours. This is precisely what the before-mentioned 'Action Plan of the Directorate of Health and Social Affairs' says: the Government should not only communicate to the less advantaged the wisdom of adopting healthier lifestyles. It must also make it easier for them to do so: each individual constructs his or her own health prospect, but under circumstances laid out for them by their social context. Again, as for treatable deaths we can only speculate on what explains the educational gradients in preventable deaths and how to reduce them. Nonetheless, our argument is that these are deaths and gradients that are possible to eliminate or drastically reduce, and that the Government therefore should take action to do so.

Inequality in IHD mortality

The gradient in mortality from ischemic heart disease is steep among both genders and in particular among women (SD odds ratios: M:0.38, W:1.42). A number of risk factors have been listed for ischemic heart disease; e.g. risk factors embedded in lifestyles such as lack of exercise, unhealthy diets and smoking (Marmot, 2005), unfavourable socioeconomic conditions during childhood (Marmot 2005; Næss 2004; Strand and Kunst 2007) and the experience of chronic stress in the workplace and at home (Marmot 2005; Siegrist and Theorell 2006). Lower socioeconomic groups tend to fare rather badly on most of these (Sund and Krokstad 2005). On the basis of findings like these, Marmot (2005) argues that it is the 'status syndrome' associated with social hierarchies that matters. Underlying the status syndrome are degrees of control and social participation. In other words, to prevent gradients in ischemic heart disease it is not sufficient to try to change people's lifestyles, but to reorganise the society to enable low status groups to take more control over their lives and to participate in society. If we accept this argument, effective preventive measures to reduce the very steep gradients in ischemic mortality are likely to have profound consequences for the organisation of our society, i.e. our everyday lives, our working conditions and our welfare arrangements. The warning sign raised by these steep gradients in ischemic mortality may thus call for rather radical measures.

Inequality in mortality among men and women

A number of studies, in Norway as in other countries (Dahl 1991; Lahelma and Arber 1994; Sund and Krokstad 2005; Östlin 2002), have demonstrated that inequalities in ill-health are smaller for women than for men. Koskinen and Martikainen (1994) suggested several reasons for this general pattern. One possible explanation is that it is an artefact of methodology: classifying persons by occupation excludes the non-employed, of whom many are housewives. In this regard, a Finnish study showed that the smaller differences among women stemmed totally from the married subpopulation. In other marital groups the inequality was at least as great among women as among men. Another explanation is that causes of death for which social inequality is pronounced are more common among men: the male role includes more dangerous behaviour (e.g. smoking, drinking) in circumstances of material disadvantage and/or psychosocial stress (Mackenbach *et al* 1999). A third possibility is that although most Norwegian women of working age are occupationally engaged, their social status still depends on the position of their husbands. With the exception of IHD our own findings suggest similarities in inequality between the genders for most of the mortality outcomes. Reasons for this may be that we use education rather than occupational class, that our mortality outcomes are rarely scrutinised in an inequality perspective, or that we have controlled for an unusually high number of variables also known to influence mortality.

What is noteworthy is that our data show that women have significantly wider IHD inequalities than men. This finding is not unique, however. Studies from Norway and several other countries show that socioeconomic inequalities in IHD are larger among women than among men (Strand and Tverdal 2004:706; Östlin 2002). In the study by Strand and Tverdal, 'traditional' risk factors for IHD deaths (e.g. smoking, physical activity, blood pressure) accounted for 91 per cent of the educational inequalities among men and 67 per cent among women. It is unclear why this gendered inequality pattern exists (Løchen and Njølstad 2007) and whether it can be attributed to health care or preventive public health policies. Evidence on use of health care among men and women with cardiovascular disease seems rather mixed, and it is hard to draw any firm conclusions as to whether men have better access to such services than women (Løchen and Njølstad 2007).

Conclusion

In this paper we have documented the existence of educational gradients in avoidable deaths: significant gradients as to deaths from treatable conditions, and very steep gradients as to deaths from ischemic heart disease and conditions classified as preventable. A noteworthy pattern is that as a whole, the gradient in those conditions which could be classified as avoidable, i.e. amenable to medical care and health policies, is no less steep, but partly even steeper than the gradient in conditions classified as non-avoidable. Although we cannot identify the causes of this pattern, this is a warning sign of suboptimal organisation of health care and health policies in Norway. Ideally, medical care and health policies – a major institution of the Norwegian welfare state – should act to ameliorate the sources of socioeconomic inequalities but, as the findings of this study indicate, this is not occurring. Rather, the disadvantages of being placed at the lower levels of the socioeconomic hierarchy, including exposures to health-damaging environments and a lack of resources for maintaining health, seem to be replicated in the socioeconomic inequalities in causes of death. Our findings suggest that medical care and public health policy can do a better job in reducing health inequalities which are 'unnecessary and unjust'.

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Health inequity and women's self-help groups in India: The role of caste and class

ABSTRACT

With the United Nations Millenium Declaration of 2000, the establishment of Self-Help Groups (SHGs) has been identified as a significant strategy in addressing the alarming levels of poverty and marginalisation that have accompanied global development. SHGs are small, voluntary associations of people from the same socio-economic background that have been established for the purpose of solving shared social and economic problems through self-help and mutual help. Such grass-roots commonality, it has been assumed, will promote community empowerment and prevent economic marginalisation. Such an assumption is largely based on the global, neo-liberal agenda of seeing the withdrawal of the State from social provisioning. SHGs have been widely adopted in India, especially to eliminate the social exclusion of poor women and improve their access to health. This article reviews the scope and limitations of SHGs in improving women's health, focusing on their implementation in the State of Bihar in India. It critically assesses the extent to which SHGs can be involved in attaining better health for women and children by exploring the crucial role of caste and class in access to health services. The article concludes that solutions such as SHGs, which emanate from international policy circles, fail to capture local structural contexts such as caste and class and, as a result, develop instrumentalised approaches that are unlikely to produce equitable health services provision to poor and marginalised people.

KEY WORDS

Sociology, self-help groups, health, caste, class, equity

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Introduction

The United Nations' Millenium Declaration was adopted by 189 nations in 2000. With it came a commitment to fulfilling, by 2015, ten key objectives – the Millenium Development Goals – designed to enhance the economic and social well-being of the vast army of impoverished people throughout the world (United Nations 2006). One of the strategies identified for advancing these goals was the establishment of Self-Help Groups (SHGs), particularly in rural regions with high levels of poverty (IFAD 2006). Self-Help Groups (SHGs) are small voluntary associations of people from the same socio-economic background established for the purpose of solving common problems through self-help and mutual help. These groups are known by different names in different places. Some of the terms used in India for these groups are Sangha, Samooh, Mandal, Dangham, and Samiti and so on, depending upon the region. In India, SHGs are usually oriented to the needs and interests of women, with most of their activities concentrated on financial savings and credit activities (apart from specifically designated activities focusing on women's empowerment, health and educational attainment).

Self-help groups and women's health

There is a common perception in development literature that the increased participation of women in savings and credit activities, or economic attainment, will empower women (Zeller *et al* 1997:25-8) by helping them to access and utilise better health services and facilities, and by elevating the health, nutritional, and educational status of their families, in particular that of children (Goetz and Gupta 1996:46). One of the major consequences anticipated to result from this empowerment is the enhancement of women's welfare, particularly in relation to their health. The underlying approach to women's participation in micro-finance programmes, then, has been highly instrumental, not only in terms of their own socio-economic well-being but in relation to that of their families as well. Numerous studies have shown, however, that while women may be empowered in one area, this does not necessarily translate into empowerment in others (Malhotra and Mather 1997; Kishor 1995, 2000; Hashemi *et al* 1996; Beegle *et al* 1998). This is attributable to a number of factors but fundamental to the constraints on interventions such as SHGs are structural inequalities.

SHGs, caste and class in health inequity

Inequality between men and women is one of the most critical disparities in India. This is not only reflected in educational opportunities but also in relation to the basic human right for survival, and the conditions associated with it, such as adequate nutrition and health. This disparity is clearly reflected in the unbalanced sex-ratio that prevails in India (927 women per thousand men) (Census of India 2001) and which has deteriorated over time. Not surprisingly, in the absence of adequate nutrition and basic health care, women are more vulnerable to disease and experience a higher rate of mortality. Malnutrition and anaemia are also more common among women, leading to problems during pregnancy and childbirth and contributing more than any other factor to high maternal mortality. The lower literacy rate among women (53.7 per cent) (Census of India 2001) compounds the situation, posing a major barrier to women's improved health outcomes.

Attempts to improve women's health in India thus face formidable structural barriers, one of which is gender inequality. No less significant are class and caste. The caste system is a pattern of Hindu social classes. It is a variegated structure comprised of individual and discrete groups or castes. The caste system is the traditional, hereditary system of social stratification of India in which social classes are defined by a number of hierarchical, endogamous groups. Though predominantly a Hindu institution, the caste system is also widely practised in India by Muslims, Sikhs and Christians. As such, it is a major institutionalised source of structural inequalities. Combined with the effects of gender inequality, the system of class and caste in India is one of the key factors involved in the mass impoverishment and social exclusion of women.

Self-Help Groups have been implemented in India to eliminate or at least dramatically reduce gender inequity and the impoverishment and marginalisation of women that accompanies it. It is anticipated that SHGs will also provide equitable health access beyond caste and class distinction, helping to advance the UN's 'Millennium Development Goals' in developing countries. Self-Help Groups are expected to play an important role in ameliorating health care delivery in low and middle income countries and to contribute to improving population health outcomes in the face of reducing government health expenditure (see for example, Nayar *et al* 2004). Such an approach is based heavily on the global neo-liberal agenda of limiting the State's provision of social and economic resources for broad public purposes associated with the advancement of society as a whole. From this perspective, 'the State is often characterised as inefficient and considered ill equipped to handle social sectors such as health. This inefficiency argument is applied to both issues of financing as well as the implementation of health programs' (Nayar *et al* 2004). The precepts and aspirations of neo-liberalism have exerted enormous influence on governments in developing countries, frequently resulting in their withdrawal from investments in health and other welfare sectors. In India such a development has had significantly deleterious social consequences including a deterioration in standards of living among the poor and increasing privatisation of medical services (Nayar *et al* 2004).

In this context, the establishment of SHGs as a major strategy for eliminating poverty and improving women's access to better health services and resources has attracted significant scholarly criticism. Contributors to this critique argue that SHGs can be used as a strategy for local level health interventions and development, but they cannot be adopted as a strategy to provide equitable health access. According to this view, economic benefits generated by SHGs may not necessarily empower women who participate in them. Moreover, women's access to health cannot be achieved in the absence of an adequate standard of living, including the public provision of functional health infra-structure, services and facilities. They argue that socio-economic and political conditions have a greater impact on access to health services. Without addressing these developmental issues and challenging the social structures of class and caste, it is simply not possible to provide equitable health access to women and children.

The study: Aims and methods

The study reported in this article was conducted in order to explore the linkages between SHGs and women's access to health services. It sought to understand the scope and limitations of SHGs in improving women's health and in providing equitable health access by examining the role played by caste and class. As such, the study sought to analyse the extent to which SHGs can be involved in attaining better health outcomes for women. The findings of the study are based on field surveys, interviews, focus group discussions, and select case studies with a sample of 200 women members of SHGs in the Patna district of the State of Bihar. Both qualitative and quantitative methods of data collection and analysis were used.

Study area and sampling

Bihar was selected for the study because of the poor status of the women who live there. This is well reflected by various reliable indicators that compare the social and economic status of women in Bihar with the national average. Among such indicators are the low percentage of working women, the low exposure of women to mass media, the high maternal mortality rate, the low literacy levels, the high prevalence of child marriage, and the high incidence of anaemia. The *Gender Disparity Index* for Bihar is only 0.469, which is much lower than the National Index of 0.676 in 1991 (Indian Planning Commission 2002). This suggests that gender inequalities in Bihar are significantly worse than those for the country as a whole.

Patna district was chosen from the 38 districts in the State of Bihar because of the presence of a relatively higher number of SHGs (UNICEF, no date). Patna has a well established network of NGO supported SHGs in addition to the government supported ones. Patna also features concentrations of 'blocks', which are the primary units involved in development works. A block is comprised of a group of villages and has many Gram Panchayats or village councils. The administration of each block is handled by a 'Samiti' of Mukhaiyas drawn from the village councils. The Samiti looks after primary health and education, animal husbandry and agricultural development of the village. The government appoints one development officer for each block.

Two blocks, Maner and Phulwarisharif, were selected for the study. These were chosen because of the strong presence of SHGs and the levels of education, health and infrastructure provision. The latter were used as selection criteria because they are supposed to have direct relevance for women's empowerment and health. In operationalising these criteria, literacy levels were used as the measure for assessing educational level, while the rates of household use of electricity were taken as the measure of infrastructure provision. For health, the percentage of households reporting a drinking water source outside their premises and having no latrine was used as the main indicator. Other family and community members were identified and recruited with the help of the NGO, Integrated Development Foundation.

Two hundred women who were members of SHGs were interviewed. All of them were Hindu reflecting the predominance of Hindus in the district. The women were drawn from different castes such as Paswan, Yadav, Kurmi, Harizan Pal and so on. There were few differences among them in terms of lifestyle but there was a marked distinction in the sample as a whole that was based on caste. This involved a division between women from what are called the 'Other Backward Classes' (OBCs) and the 'Scheduled Castes' or Tribes (SCs). Of the 200 women, 55 percent belong to the SCs and 45 percent to the OBCs. The OBC population is better positioned socially than the SCs. They are more highly educated and enjoy higher incomes. While they are comprised of castes officially recognised as being traditionally subject to exclusion, they still enjoy a higher status than the SCs. OBCs comprise about half of India's population, and are entitled to 27 per cent of the job reservations in government employment. In India's constitution, OBCs are described as 'socially and educationally backward classes', and governments are enjoined to ensure their social and educational development. The SCs, on the other hand, are communities that are accorded special status by the Constitution of India. These communities were considered 'outcasts' and were excluded from much of the life of Hindu society in the Indian subcontinent for thousands of years. They were traditionally relegated to the most menial labour with no possibility of upward mobility, and continue to be subject to extensive social disadvantage and discrimination.

In addition to the 200 women, a few family members, neighbours and other people from the community, including field level officials actively involved with the SHGs, were also interviewed. This provided an opportunity to gain access to some of the perceptions and experiences of other people in the community regarding the efficacy of SHGs for women's empowerment and access to health services.

Tools and techniques of data collection

Given the complex and multi-dimensional nature of issues involved in the study, both qualitative and quantitative survey methods were used for the purposes of data collection. Participants fell into three categories as outlined in Figure 1. Information was gathered from each of these groups using a variety of techniques, also outlined in Figure 1.

Results

The findings are based on a field survey, interviews, case studies and focus group discussions that examined a wide range of topics including: women's perceptions of their health, their health related practices and beliefs, disease patterns and prevalence, their access to health services and their role in facilitating that of their family, knowledge about family planning, use and type of family planning methods used, discussion

Participant category	**Technique of data collection**
SHG women members	• In-depth survey interview with both open-ended and closed questions • Focus group discussions with all members of the selected SHGs • Select case-studies
Family members including husbands, in-laws, parents, children etc.	• In-depth interviews
Prominent people among the community such as local political leaders, administrators, service providers, school teachers etc.	• Interviews

Figure 1: Categories of participants and techniques of data collection

on health issues within the family, and the role of SHGs in facilitating health knowledge and related behaviour and practices. The findings are drawn from field observations and visits to several public and private health facilities which included a sub-centre, a primary health centre, and community health centres and private clinics. The quantitative findings are summarised and presented in tabulated form in Table 1.

Table 1: Type/location of health service use by percentage of SC and OBC group members

Type/location of health service	% of SC members	% of OBC members
Nearby/village	7	2
Govt. hospital/dispensary	7	32
Nearby town	2	0
Private doctor	84	66
Total	100	100

Table 1 shows that the use of 'private doctors' is greater among members of the Scheduled Castes than among women of the Other Backward Classes. Such doctors are frequently 'quacks' or unlicensed practitioners who exploit the women's lack of knowledge and education by charging inordinately high fees. Most of the women from the SC who use the services of such practitioners take loans from SHGs or money lenders to pay them. Members of the OBC, by comparison, rely more on public health care and government dispensaries that do not impose significant charges.

Table 2 demonstrates that members of the OBC experienced a markedly greater increase in their health knowledge across all categories as a result of their participation in SHGs: around twice the rate of SC women. This was especially marked in relation to contraception, pregnancy, childbirth and infant care. At the same time, the rate of women from the SC reporting *no change* in their health knowledge as a result of their participation in SHGs was two to three times higher than that of their OBC counterparts.

Table 3 shows a similar pattern. According to the participants, the benefits of participation in SHGs in relation to health behaviours and practices were much greater for women from the OBC. The latter reported a significantly greater use of the Primary Health Centre, ante-natal and post-natal care. Women from the SC, on the other hand, reported a markedly higher rate of *no change* in their use of these services despite being involved in the SHGs.

Not surprisingly, as Table 4 shows, women from the OBC were approximately three times more likely to report a full improvement in their health and that of their families as a result of their involvement in SHGs than SC women. Almost two thirds of SC women reported no change in their health or that of their families as a result of their participation in SHGs by comparison with around a quarter of OBC women.

Table 2: Reported change in health knowledge by percentage of SC and OBC members

Health knowledge category	% reporting an increase		% reporting a decrease		% reporting no change	
	SC	OBC	SC	OBC	SC	OBC
Health and hygiene	40	78	0	1	60	21
Vaccination	49	72	0	2	51	26
Contraceptives	31	63	0	2	69	35
Care during pregnancy	22	58	0	3	78	39
Care of self post childbirth	27	65	0	2	73	33
Care of infant	27	72	2	1	71	27
Awareness of personal health care/needs	36	70	0	2	64	28
Awareness about existing health services	44	76	0	1	56	23

Table 3: Reported change in health behaviour and practices by percentage of SC and OBC members

Health behaviour/practice category	**% reporting increase**		**% reporting decrease**		**% reporting an no change**	
	SC	**OBC**	**SC**	**OBC**	**SC**	**OBC**
Visit to PHC	12	41	24	10	64	49
Visit to private doctor/nursing home	49	74	0	15	51	11
Ante-natal care during pregnancy	29	63	0	2	71	35
Post-natal care	27	73	0	1	73	26

Table 4: Reported improvement in health by percentage of SC and OBC members

Category of health improvement	**% reporting full improvement**		**% reporting part improvement**		**% reporting no change**	
	SC	**OBC**	**SC**	**OBC**	**SC**	**OBC**
Improvement in personal health	16	48	22	25	62	27
Improvement in family health	14	50	23	24	63	26

Table 5: Change in health expenditure by percentage of SC and OBC members

Category of health expenditure	**% reporting an increase**		**% reporting a decrease**		**% reporting no change**	
	SC	**OBC**	**SC**	**OBC**	**SC**	**OBC**
Food and other basic materials	0	7	0	1	100	92
Children's medicine	0	19	27	39	73	42
Medicine to prevent diseases	5	23	14	36	81	41
Health services	39	77	2	1	59	22

The most striking difference between OBC and SC women in relation to health expenditure, as Table 5 shows, is that the large majority of SC women reported no change in spending on food and other basic materials, children's medicine and preventive medications. Over a third of OBC women reported a decrease in expenditure on medicines while participating in SHGs compared with approximately only 20% of SC women. At the same time, more than 75% of OBC women reported increased expenditure on health services. The proportion of SC women reporting increased expenditure on health services was significantly less than their OBC counterparts (39%). This was nevertheless the category of expenditure that revealed the greatest rate of change among SC women.

Discussion

When the SHGs were established in Patna, it was assumed that the major beneficiaries would be women from the Scheduled Castes because they occupy an inferior social and economic position by comparison with women from the Other Backward Classes. Despite this disparity, the rates of participation by OBC and SC women in SHGs were roughly the same. Yet, as the results of this study demonstrate, the overall health impact of participation in SHGs, as demonstrated by the changes the women reported, was significantly greater for OBC women. This had caused some resentment among SC women as the following comment indicates:

> 'Sab fayada to bari Jaat le rahe hain, humlog ko koi fayada nahi mil raha. Na ghar hai na kamai. Fayda usiko pahunch raha hai jiske pas paisa or pahchan hai'. *(All benefits are taken by the upper castes; we are not getting any. We have neither house nor job. Benefits of the programme are reaching people who have money and connections).*

It was assumed that participation in the SHG programme would mainly benefit SC women, particularly in relation to improving their health and that of their families. As the study's results show, however, OBC women and their families derived much greater health benefits overall. Better-off caste groups experienced more health knowledge and access to health services than the disadvantaged groups from the SC. Their rates of health improvement were particularly more marked. The findings suggest that without any change in the barriers of caste and class based discrimination, it is not possible to provide better health resources and improved health outcomes to poor people, especially women. The class and caste based differential in health service use was also evident in the incidence of severe sickness that, in turn, impacted on health service use. Women from the SC were more likely to experience very severe illness that imposed greater burdens on the routines of everyday life, including seeking treatment beyond the village in government hospitals. The daily life complications of severe illness further compounded constrained access to health resources by the poorest women.

According to the data from focus group discussions, participation in the SHGs has made SC women less dependent upon the Sahukars or moneylenders in the event of illness. Yet their dependence has not ended. The SHGs have a limited savings capacity and they cannot meet the credit needs of members. The SC women are still approaching the moneylender and frequently for bigger amounts than ever. It was also reported during focus group discussions among SC women that there is inadequate food provision for the family in many households. Many women and their families do not consume enough food to meet their nutritional requirements. Moreover, they do not have access to safe drinking water and sanitation facilities.

Local public medical services in Bihar are uneven in their distribution and quality, and address only the most basic of health needs. Indeed, Bihar leads the country in terms of private health care delivery for both inpatient and outpatient services. This is despite the fact that most of the patients do not have the means to make out-of-pocket payments for private health services except at the cost of other essential expenditure for items such as basic nutrition. Hospitalisations often result in patients and their families dropping below the poverty line. It is thus very difficult for poor women to access and pay for accredited private practitioners for treatment of minor infections and ailments which need to be taken care of and controlled to prevent the spread of disease in the SC community. While members of the traditionally better-off caste groups, such as those from OBC households, were able to utilise government health services, the same was not true for the SC households who were reluctant to use the government health system. Apart from the fact that SC households were less likely to be located near government hospital services, it also appears that the SC households were not confident of accessing the government health services. On the basis of the data collected, it is not evident why this is the case. Clearly, more investigation is required.

Conclusion

In India, class and caste play a definitive role in access to health care. One of their most visible effects, especially in the context of increasing privatisation through health sector reform, is the greater increase in benefits of initiatives such as SHGs to the better off. This distinction is most apparent and pervasive among poor women. The following case study is illustrative of this trend:

> *Chinta Devi is 45 years old and a member of the Scheduled Caste community associated with a SHG for the last four years. Her family comprises husband, four children and in-laws. Chinta's major worries are health expenses. She says that all the time someone is ill in*

> *the family even though nobody has a serious chronic illness. But seasonal and other diseases are common because of unhygienic conditions. She spends half of her earnings on her family's health. Although her own health is a serious matter of concern, she rarely consults a doctor. Whenever she visits the local (unlicensed) doctor to obtain medicines for her children or in-laws, she also buys pain killers for herself. She has had back pain for the last two years but she does not consult a registered doctor because she would have to go to the city. The costs involved are well beyond her capacity to pay. She says that her children's health is more important than hers. She has lived her life and is now living for her children and the family.*

The findings of this study show that with structural economic reform, class based inequities have become more severe in affecting access to health care among women from the most marginalised castes. The combination of caste and class, however, remains a powerful force in determining women's opportunities to access improved health. Such is the strength of this combination that it imposes serious limitations on the extent to which SHGs can be used in improving women's health. Women's health is very much dependent on existing gender relations, and their interaction with income, education and general standards of living. To the extent that SHG programmes are functioning in a vacuum without addressing these contextual issues, they are severely constrained in being able to have a significant effect on women's health. To do so demands participation by the entire community in addressing the problem and in sensitising men about gender equity. It is also clear that decentralisation and local accessibility of public health facilities is a pressing requirement to advance the health of poor and marginalised women.

The findings do not lend support to the assumption that women's financial empowerment through micro-credit programmes has a direct impact on women's health. However, there may be indirect positive impacts on health if SHGs provided functional health services and facilities available for all. By denying basic public infrastructure, and an enabling social, cultural and economic environment, it is not possible to empower women economically and socially. Indeed, development programmes for women need to address the specific social and economic contexts in which women live, and the needs that arise from these. The enthusiasm of the Indian Government, the international donor community, and the World Bank for SHGs needs to be tempered by evidence that SHGs are, in fact, able to deliver the eradication of poverty among women and improvement of their health. SHGs are unlikely to be effective solutions in advancing health equity among Indian women because they emanate from the international policy circles that adopt instrumentalised approaches without addressing local structural dynamics, such as caste and class.

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CONDUCTING LONGITUDINAL RESEARCH

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Social capital, health and electronic community in public high-rise estates: An Australian case-study

ABSTRACT

KEY WORDS

sociology, electronic networks, social capital, health, well-being, community capacity

The four years from 2001 to 2005 saw the roll out of an innovative social enterprise on one of Melbourne's high rise public housing estates, Atherton Gardens. It provided residents with access to personal computers, computer training, an intranet, internet and email, as well as establishing a training room, open access computer lab, repairs workshop and a help desk service for computer users. This paper reports on a three year research project which was undertaken to assess the impact of this initiative and to analyse its effects, not only on residents' access to and use of new forms of information and communication technologies, but also the less tangible effects of an electronic network on health, social capital and community well-being.

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Introduction

Atherton Gardens in Melbourne's inner northern suburbs is a typical high rise public housing development built in the 1970s at the tail end of the post war slum clearances. It consists of four towers, each twenty floors high, with ten flats to each floor, making a total of 800 dwellings and a population of between two and three thousand individuals. The estate is managed by the state government's *Office of Housing,* and provides housing for public tenants who meet strict eligibility criteria and who have usually been on a waiting list for accommodation for some time. Whereas the original plan for these types of public housing estates was to provide high density housing for low income workers and families, over time, as pressure has grown both in demand for public housing and for governments to reduce welfare costs, public housing estates have shifted towards accommodating the poorest, most marginalised and disadvantaged groups in the community.

Broadly speaking, tenants in the high rise towers are not only amongst the lowest earners in society, with the overwhelming majority reliant on government payments as their only source of income, but also face multiple other factors of disadvantage. Many of the residents were born overseas and have come to Australia as refugees and asylum seekers from Europe, Southeast Asia and most recently Africa, with all the trauma of dislocation, displacement and uncertainty that that entails. They face barriers of language, literacy, lack of formal education, social isolation, cultural adjustment and racism in establishing a new life for themselves and their families. Other residents who were born in Australia find themselves living in public housing due to any number of factors which can include substance abuse, domestic violence, mental or physical ill health, unemployment, lack of education, crime and intergenerational poverty. Most of the families living at *Atherton Gardens* are headed by a sole parent. Tenants speak more than thirty languages and come from more than 70 different countries.

In the face of a rising tide of gentrification of the inner city suburbs which surround the high-rise estate, an innovative social enterprise decided back in 1999 to initiate a project to increase access to technology for public tenants. InfoXchange, a not for profit internet service provider, began working at *Atherton Gardens,* setting up a unique computer network initially known as Reach for the Clouds and now known simply as e-ACE (the electronic *Atherton Community Enterprise)*[1]. This project has grown and developed over the years, involving partnerships and contributions from all tiers of government as well as private businesses and not for profit organisations.

The project has involved the refurbishment of donated second-hand internet ready computers and provision of these to residents for free providing a certain minimum number of hours of computer training is undertaken. In addition, the entire estate has been wired with high speed data cabling, and free access to an estate intranet and world wide email has been provided. A helpdesk and computer workshop have been established in a vacant flat on the estate to provide ongoing hardware and software support. Training in the use of the internet is also available, and on completion, residents can establish a low cost internet connection from home. More recently, with an upgrade in the connection between the estate and the wider world, the low cost unlimited high speed broadband access which some online games and movies require has been made available. There is an ongoing attempt to establish a small enterprise using the infrastructure which has already been set up to provide a revenue stream to ensure the sustainability of the network.

The research

In 2001 Swinburne University began a three year study into the effects of the computer network on residents' lives. Our research, called Wired High Rise[2], investigated not only the immediate impacts of computer access and network availability in the home, but also more diffuse and long lasting changes in aspects of residents' lives which can be grouped under the rubric of social capital. The e-ACE project always had an explicit aim, not just to provide access to technology, but to increase opportunities for participation, to develop community networks both online and offline and to reduce social isolation. Our research has looked at how people on the estate are using the new technology in practical terms and also at how less tangible factors such as trust, community and cooperation have changed as a result of the opening up of online networks.

One of the themes which we have pursued as part of our research project is the impact on mental and physical health of the establishment of a computer network for a vulnerable population. As has been recently noted: 'Social exclusion … is increasingly recognised as an important determinant of population health' (Reidpath *et al* 2005:469). Yet previous research has proved inconclusive in regard to the effects of time spent online on people's mental health and feelings of connectedness and well being (Galston 1999; Howard *et al* 2001; Kraut *et al* 1998; Nie and Erbring 2000; Pew Internet and American Life Project 2000; Drentea and Moren-Cross 2005).

As part of our research we conducted a series of surveys of residents which examined people's feelings of safety and well being using a model of social capital before the network was installed and again one year after it had been set up. We also asked people about their own health both before and after the network was established and once the network was in place we asked them whether they had used their computer or their internet connection to do any of a series of things relating to their own or their family members' health.

The survey was first undertaken over six weeks starting in May 2002[3]. At that stage the roll out of computers to residents had begun, the training program was in operation but the network connections were not yet in place. Interviewers who could speak Vietnamese, Cantonese, Mandarin, Macedonian Turkish and Arabic were employed to administer the survey. This left a number of languages spoken on the estate not covered, including Spanish, Laotian, Khmer, Somali, Dutch, Greek, Afrikaans, Dari, Polish, Russian, Farsi and sign language. One of the computer training rooms on the estate was used to conduct interviews with residents, with some residents preferring to be interviewed in their homes. Interviews were generally arranged during daylight hours. The questionnaire was designed to provide the study with baseline data that could help us to quantify the social impact of the e-ACE project. Key topics covered in the questionnaire include:

- Basic household demographic information;
- Current media and technology consumption;
- Labour market and education information;
- Patterns of communication with family and friends;
- Involvement in groups and activities on and off the estate;
- Attitude to living on the estate including relationship with other residents.

The questionnaire was designed to be completed by one member of each household with the respondent answering questions about themselves, other individuals in the household and the household as a whole.

Two hundred and sixty-nine households were contacted, with around 70 declining to be interviewed, resulting in a total of 199 responses. The response rate to the questions was high: 74% for those households contacted. Most respondents answered most of the questions (respondents were advised by the interviewers that they could choose not to answer any or all questions). The only questions not commonly answered were those regarding personal income level and personal health. Some of the respondents were also reluctant to provide details about computer use by other members of their household.

In terms of ethnicity our sample broadly accords with the *Office of Housing's* record of the population as a whole. Although we did not have interpreters for all of the languages spoken on the estate the sample did include people born in 31 different countries. Respondents were mostly female (62.3%) which is to be expected given the large proportion of female headed households on the estate and the time of day that most interviews took place.

The second round of the survey was conducted over a period of eight weeks in May–June 2004, after the connection of the intranet and internet for those residents who wanted it. There were six interviewers who conducted interviews in English, Vietnamese, Cantonese, Mandarin, Somali and Arabic. Interviews were again conducted in respondents' homes or in the community centre on the estate with a small number undertaken in the InfoXchange office. The aim was to reach at least 200 households out of the approximately 720 flats on the estate which were occupied at the time.

The questionnaire used in the 2004 survey was similar to the one used in 2002 survey, with the addition of some more detailed questions regarding the use of the computers and the network itself. As was the case in the first survey these questions were designed not only to elicit information about the impact of the project on tenants computer skills, but also on less tangible matters such as social capital and personal and community empowerment.

The final sample size was 159, slightly lower than anticipated as a result of a number of factors. The first was a change in state government privacy legislation just after our first survey which meant that it was no longer possible for researchers to gain access to up to date tenant contact details. As with the first survey, making telephone contact to arrange the interviews was the most effective means of successfully arranging interviews, yet we were only able to contact around 10% of the flats this way.

Two of the interviewers chose to approach additional households by door knocking, whilst the others used a combination of word of mouth and approaching residents at events such as estate meetings, computer training classes and even in lifts and corridors. An electronic notice posted on the *Atherton Gardens* website elicited one response.

While some respondents had taken part in the earlier survey, high turnover of tenancies meant that many respondents answered the questions only in 2002 or only in 2004. Respondents included those with computers only, those with computers and network access and those without computers. A broad cross section of household types participated, including two parent families with children, single parent families, young singles, older couples and older singles. More than a dozen countries of origin were recorded.

Almost half the questionnaires were completed by Vietnamese speakers, reflecting both the predominance of that ethnic group in the estate population and the excellent work done by the two Vietnamese speaking interviewers. The two interviewers from Somalia also did an excellent job of making contact with the small but growing population of migrants from the horn of Africa. It was unfortunate that, for a number of reasons, we were unable to employ Arabic, Macedonian or Turkish speakers for this survey. Fortunately several interviews were conducted in English with residents from Turkish and Macedonian backgrounds. Other English speaking respondents came from a number of different ethnic backgrounds and included speakers of English as both a first and second language.

The majority of the respondents answered most or all of the questions, with the exception of the question about household income (which is consistent with the situation in 2002). The one area that is noticeably missing is the demographic details of household members other than the respondent. This was particularly the case with some African households, where the interviewer could clearly see that other people lived in the household, despite the respondents' denials that this was the case. Respondents in this group also sometimes claimed not to have a television or other electronic goods, in case 'the government wants to give us those as well [as a computer]'. However the interviewer would answer 'yes' to this question if she could see the items in the house, even if the respondent had answered no.

Social capital as a research framework

Social capital refers to those features of social relationships – such as levels of interpersonal trust, and norms of reciprocity and mutual aid – that facilitate collective action for mutual benefit (Putnam 2000). It is a difficult concept to define (see Winter 2000:22), but social capital is believed to play an important role in the functioning of community life across a variety of domains, ranging from the prevention of juvenile delinquency and crime, the promotion of successful youth development, and the enhancement of schooling and education to the encouragement of political participation. More recently, researchers have begun to apply the concept to explain variations in health status across geographic localities (Baum 2000:250). In preliminary analyses, the higher the stocks of social capital (as indicated by measures of trust and reciprocity in social surveys), the higher appear to be the health achievements of a given area. Strengthening the social capital within communities may provide an important avenue for reducing socioeconomic disparities in health.

There is some debate, however, as to the usefulness of social capital as an explanatory catchall to fully explain the wellbeing of communities and their members (Bryson and Mowbray 2005). Despite problems with the concept or difficulties with the terminology, there continues to be a role for understanding and investigating the links between strengthening community capacity, increasing interpersonal communication and improving trust on the one hand and, on the other, improvement in health, well being and social participation.

It might well be expected that the establishment of an electronic network across the estate would have major implications for the way residents interact both with other residents and with the global networked community to gain information and support across a range of issues, some of which will impact directly or indirectly on health and wellbeing. Some of these will undoubtedly reinforce pre-existing social networks, as is the case with the initially most popular application, namely email access to communicate with diasporic communities of family and friends which may be scattered across the globe. Others may be expected to facilitate the development of new friendships, new networks, new ways to communicate and receive information and new ways to participate in wider social, economic and civic society.

Health and social issues for the Atherton Gardens community

As in any community, the health and well being of themselves and their families are important considerations for residents at *Atherton Gardens*. There are a number of factors which impact directly and indirectly on residents' health, some of which arise in part merely from the fact of living in this environment. Whilst there are relatively few residents with severe physical disabilities, many residents rely on the disability support pension for a range of conditions including depression and anxiety, arthritis, diabetes, respiratory conditions and heart disease. There has been much research which shows a strong correlation between health and social factors such as income (Stolzenberg 2001:62), socio-economic status (House *et al* 1990; Adler *et al* 1993; Mulatu and Schooler 2002; Grzywacz *et al* 2004; Reid and Herbert 2005), family structure, social inclusion (Cohen and Syme 1985; Reidpath *et al* 2005; House *et al* 2001) and environment (Ross 2000; Latkin and Curry 2003; Whitley and Prince 2005). Any or all of these factors are likely to have an impact on the residents of *Atherton Gardens,* both in terms of physical health and wellbeing and on mental health and psychological distress.

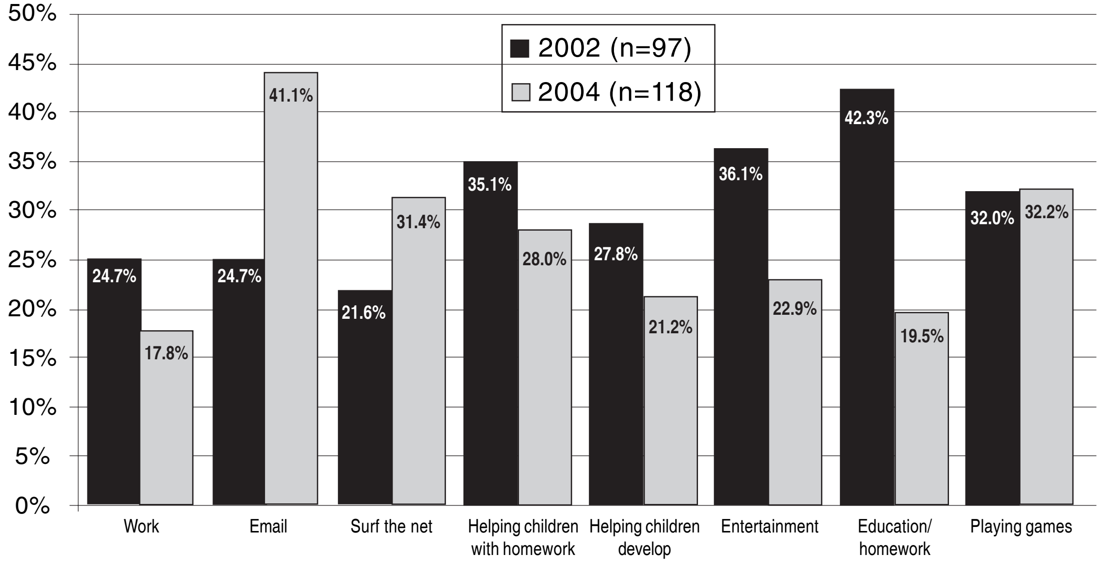
In our first survey, almost 30% of respondents noted that they or someone in their household had suffered from at least one serious medical condition in the past six months. Allied with this high rate of ill health is a range of other factors which can have an impact on heath and perceptions of health. Our early research showed that many residents on the estate are highly fearful of their neighbourhood, only feeling safe when actually inside their homes, and feeling unsafe in public areas such as corridors, lifts, foyers and playgrounds. Many did not know their immediate neighbours by name, or were unable to communicate with them in the same language. A high proportion said they feared drug users who were frequently seen coming onto the estate to buy, sell and use illicit drugs. Many people also feared the violence which they had seen and sometimes experienced, associated with illicit drug use in their laundries, stairwells and common areas. Most knew of someone who had been a victim of petty crime on their own estate, such as suffering the theft of a wallet, handbag or mobile phone.

The community is characterised by high levels of distrust, suspicion, fear, dispersal and fragmentation. Many residents' social networks are established far and wide around the globe rather than in the area in which they currently live. Some groups who have lived in the area for a long time have established strong, tightly knit groups based on language, ethnic and religious affiliations. The Vietnamese Mothers' group and elderly Chinese association are examples of this sort of bonding capital, which emphasises strong links within a small network of people all known to each other, at the possible expense of establishing ties with others outside the group. The estate population therefore is best seen as a series of small communities living in geographical proximity, rather than as an integrated community in its own right.

Computer usage: What are people doing?

In 2004 we conducted the second survey with residents about their experience and use of the e-ACE network once it had come online. The e-ACE initiative has not only raised rates of computer access and connectivity in the home, but has also made the use of online information and communication possible for educational, employment, informational and leisure purposes, and to enhance levels of social connectedness.

Thirty percent of respondents reported using the internet for a health related use. These uses included: seeking information about a health or medical condition; contacting a health service provider; finding out about health services or



Source: ISR survey

Figure 1: Main uses of computer, 2002 and 2004

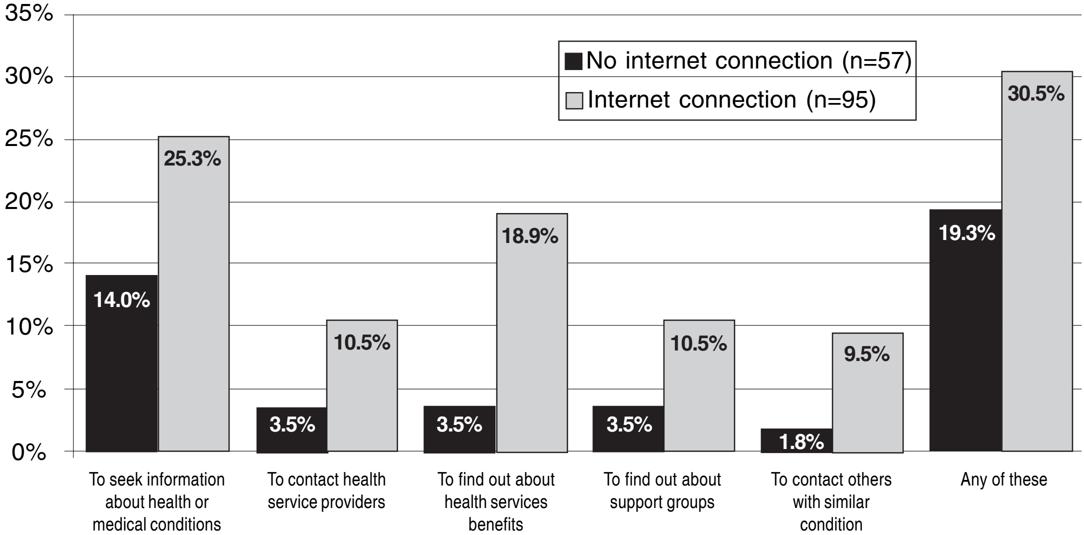


Figure 2: Health related use of internet by access to internet at home, 2004

benefits; finding out about support groups, contacting others with a similar condition. When the responses are further broken down into those with a serious medical condition and those without, the figure for people with a medical condition using the internet for one of the above purposes rose to 42%. Only 17% of people with a serious medical condition but no home internet access had used the internet for any of these purposes. Residents were also making use of the internet to make contact and communicate with others online about health issues.

Other research data suggest that *Atherton Gardens* residents are using the world wide web to seek information about a range of health and medical issues. Health related sites which were accessed by tenants include: blood donation at the *Red Cross,* a herbalists association, an American site on teenage pregnancy; *Workcover*/workers' compensation and the *Australian Health Insurance Commission.* In addition, a very large number of sites were accessed which contained information in languages other than English. It is likely that at least some of these may have included health or medical information. Other health related sites which were accessed included those run by for-profit businesses such as drug and weight loss companies. There is of course no control over the quality, reliability or impartiality of the information received in this way.

The research findings about indirect health impacts of network access were also revealing. One of the most interesting findings related to reported improvements in feelings of trust and safety. Caution must be exercised here, of course, given that the electronic network was not the only intervention occurring on the estate during the period of study. *Neighbourhood Renewal,* the State Government's program targeting particular disadvantaged communities, was also being rolled out at this time, along with an *Office of Housing* security upgrade and increases in security staff such as entry foyer concierges. Nonetheless, one of the originally anticipated spin-off benefits of the network was to increase people's circles of friends and acquaintances through shared experiences in undertaking computer training and using the public access computer training rooms. This is precisely what did happen. Twenty nine percent of survey respondents reported meeting new friends through their attendance at e-ACE training sessions. Furthermore, 30% felt that attending the training had improved their English language skills and a quarter said that it had increased their chances of undertaking further training or study.

There was also felt to be a broader educational benefit for those who had gained access to new technology through e-ACE. The initiative offers important resources and opportunities to a population with high education and training needs, as *Atherton Gardens* residents tend to have low levels of education. Many also face barriers to further study including caring for family members, poor literacy or English skills and lack of money. However, they are strongly interested in gaining training and qualifications, in acquiring new skills and in promoting their children's educational opportunities.

A high proportion of residents, especially those with children, said they wanted a computer for educational purposes. Over half of the families with school aged children who had received an e-ACE computer said that they used it to help children with their homework Almost one third had used their computer to either investigate a course, contact an educational provider (school, college or university), find information about scholarships or other benefits or to communicate with other students. Thus the network is clearly meeting one of its original aims, which was to improve the educational outcomes for students and their families, thus perhaps helping some families to break out of the intergenerational poverty trap.

Employment and labour market participation is another area in which technology can have a positive impact on residents' self-esteem and social inclusion.The e-ACE initiative has already helped *Atherton Gardens* residents, who have high rates of unemployment and underemployment, to seek work. The unemployment rate for *Atherton Gardens* residents is seven times the Melbourne average. Barriers to seeking work include family commitments, ill health or disability and the inability to speak English well. Eighty percent of unemployed respondents to our survey had used their computer to either look for a job, look for work information, contact an employment service or potential employer or to register with a job finding service.

If e-ACE achieves its long term aim of becoming resident-run and self-sustaining, those residents who are directly involved may improve their employment opportunities significantly. e-ACE may indeed become an enterprise that is able to generate employment itself. More indirectly, involvement in training, in refurbishing and maintaining computers and in managing the network may enable residents to build information technology skills, or become creators of content.

The *Atherton Gardens Community Network* (the intranet) is also consistently used, though it is not as yet central to life on the estate. Some elements of the network are widely used. Almost half the 2004 survey respondents had visited the news page, with more than a quarter using the network library, accessing housing information or contacting the helpdesk.

Internet use is consistent and diverse. In the month of June 2004, some 8 months after network connections were first made available in residents' homes, server statistics show that nearly half a million hits were made to websites from computers linked up to the *Atherton Gardens* network. This includes public access computers in the training room on the estate, as well as computers in people's homes. Over 9000 different domains were accessed during this month. A substantial amount of online material being accessed was in languages other than English.

Internet access is being incorporated into residents' everyday activities: instant personal messaging, audio/video sharing, online banking, job search, shopping, and finding out about local businesses, airline deals, local films and entertainment options. Residents are using their computers to make contact with other people online, often in languages other than English. The internet is also being used by residents to enhance their leisure options and provide entertainment. Games sites, music, film and television sites are popular, both in English and in other languages. Online gambling sites and sites providing adult content were also extremely popular.

The data on residents' patterns of network use indicate that a high proportion of sites being accessed in June 2004 were government web sites. Residents were accessing information from local, state and commonwealth government sites, as well as from some overseas government web sites. Over a quarter of respondents had used their computer to type a letter to a government service, nearly one in five had contacted a government office by email and nearly a third had used the internet to find information about a government service.

Over half of 2004 respondents with e-ACE computers and internet connections had used them communicate with the Office of Housing or to find housing information. Nearly half had used their computer to type a letter to the Office of Housing, more than a fifth had contacted the Office of Housing by email and a third had used the internet to find information about public housing.

The e-ACE initiative has also substantially improved news and information resources for residents on the *Atherton Gardens* estate. Residents, especially those who have recently arrived in Australia, are eager for news from their country of origin and are dependent on finding newspapers and broadcasts in languages other than English. Many of these residents are dependent on long distance and international telephone calls to stay in touch with friends and relatives.

By 2004, 90% of those overseas born residents who used the internet to find out about news and current affairs in their home country were satisfied with the news available to them. This contrasts with strong levels of dissatisfaction which were expressed in 2002, before the computers were online. In particular, access to email was of significant benefit to the *Atherton Gardens* residents. In 2002, a high proportion of those who wanted e-ACE computers intended to use them to stay in touch with family and friends overseas. By 2004, respondents reported having high levels of email use, especially for staying in touch with family and friends interstate and overseas. This appears to be a supplement and alternative to high-cost international and interstate calls. Comparatively fewer respondents used the computer to email neighbours or other residents on the estate.

We expect the computer network to be used to supplement tenants' existing ways of staying in touch with friends and relatives locally, nationally and especially internationally. Email and other forms of internet messaging offer cheaper alternatives to the telephone, but are more commonly used to reinforce existing relationships than to initiate new ones. However, while the pattern of phone use may change, it is unlikely to be replaced. Instead, the volume and frequency of communication are likely to increase.

Social connectedness

The e-ACE initiative has encouraged contact between residents, especially through the training activities and the processes of decision-making and community consultation associated with its establishment. The rationales for e-ACE from the very beginning have emphasised its potential to build community and increase social capital on the *Atherton Gardens* estate. One possibility was that the network could build greater contact between residents, both offline and online, and thus engender trust, reduce isolation and build a greater sense of security on the estate.

While there is no single community on the *Atherton Gardens* estate, there are very active community-based groups and a complex pattern of associational life which pre-existed the establishment of the e-ACE network. However, e-ACE should be seen as one of a number of neighbourhood renewal initiatives taking place over the last three to four years. The cumulative effects of these appear to have been very positive.

Survey results suggest general satisfaction with decision-making on the *Atherton Gardens* estate and with current information and consultation practice. This does not appear to have changed significantly over the two years between our surveys of residents. In both 2002 and 2004, an overwhelming majority of respondents felt that there was enough information about the estate and that the estate was well run and fair. Respondents also indicated high levels of confidence in their own ability to deal with government agencies or to speak their mind at estate meetings.

Security and safety was a concern for a majority of residents in 2002. By the second round of our survey, however, this appeared to have improved. By 2004, residents were more likely to feel positive about their community. Their reported level of trust in other residents had increased; residents were more likely to say that they felt part of the local community. Perceptions of personal safety and security had also improved significantly.

The most tangible aspect of the e-ACE program to have fostered group activities on the estate is the training program. A large proportion of respondents attended training sessions and of these almost a third had met new friends through these sessions. Informational sessions on basic computer usage are still being run after hours by volunteers on the estate.

Conclusion

The e-ACE initiative has enabled low-income people who previously had low rates of computer access and connectivity to make use of information and communications technology, to pursue educational and employment opportunities, seek information on social services and obtain news, information and entertainment from across the globe. The network will have subtle, long term and unforseen consequences for a range of social issues including health and other indirect determinants of health including education, employment and social isolation. How these intertwined and interrelated aspects of health and well being will ultimately affect both individuals and the wider community is difficult to predict, and there can be little doubt that ongoing factors of disadvantage will continue to have negative impacts on residents of high rise public housing that will not be overcome merely by the introduction of new forms of technology into their lives. Nonetheless there is good evidence from the wired high rise study that people can and do take advantage of new technology to improve their own, and especially their children's access to the technological underpinnings of the contemporary knowledge society.

Endnotes

[1] For more details about the e-ACE project visit the website at http://www.atherton.org.au

[2] For more information on the Wired High Rise project see our website at http://www.sisr.net/mac/projects/wiredhighrise/welcome.htm The full findings of the project may be accessed in the project final report at http://www.sisr.net/publications/0603wiredfinal.pdf

[3] The full questionnaire used in the survey may be found at http://www.sisr.net/publications/03wired2_append.pdf

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The impact of household type on adolescent women's well-being in Kenya

ABSTRACT

KEY WORDS

sociology, HIV/AIDS, health status, Kenya, adolescent women, household type

Because the HIV/AIDS crisis in Kenya is causing the death and disablement of so many prime- aged adults, households are increasingly being headed by adolescents and the elderly. The purpose of this paper is to examine the health status of one of the most vulnerable groups in Kenyan society – adolescent women – and to explore how the type of household head impacts on their health status. Using data from the 2003 Kenya Demographic and Health Survey (KDHS), an indicator of illness signs was used as the dependent variable for health status. Significant differences were found in the health status of adolescent women in households headed by adolescents, prime-aged adults, and the elderly. Even when controlling for demographic factors, residing in an adolescent headed household increased the odds that an adolescent woman would have recently experienced some signs of illness. Other factors which also increased the odds of illness were being married and being in the older age group (20–24). Wealth barely had any impact on illness. Service providers need to pay special attention to the needs of adolescents in non-adult headed households.

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Introduction

Children typically depend on others to ensure an adequate quality of life; adult family and community members are usually responsible for taking care of children. What happens to the youth, however, when the adults in the community are sickened with AIDS and dying in unprecedented numbers? In Kenya, about 1.2 million people were infected with HIV in 2004 and an estimated 150,000 died due to AIDS (UNAIDS/WHO 2004a; UNAIDS/WHO 2004b). Those who die often leave behind children (Akukwe 1999; UNAIDS *et al* 2004). One of the most disturbing consequences of this trend has been the emergence of households headed by individuals who are not prime-aged adults (Cree *et al* 2004; Foster 2000; Lalor 2004).

The purpose of this paper is to help us better understand how households headed by adolescents, prime-aged adults, and the elderly impact on the health status of Kenyan adolescent women. Programs working with orphans and vulnerable children often do not adequately address the needs of adolescents (Ruland *et al* 2005). Adolescent women are of special concern because they are a very vulnerable group in Kenya (Aptekar 1997; Clark 2004; Glynn *et al* 2001; Human Rights Watch 2001; Lalor 2004; UNAIDS *et al* 2004; UNICEF 2005). As programs are developed to serve this vulnerable population, it is important to assess the current well-being of adolescents in variously headed households and to identify factors that impact that well-being. First the impact of household type on adolescent well-being will be described to give an overview of the environment in which youth function. Then, the impact of gender on well-being will be discussed. Finally, models will be developed using data from the 2003 Kenya Demographic and Health Survey (KDHS) to compare the well-being of adolescents in households headed by adolescents, prime-aged adults, and the elderly. Identifying the relationship between key demographic and household attribute variables and well-being will help us design interventions to meet the unique needs of adolescent women growing up in Kenyan households without prime-aged adults.

Household type and adolescent well-being

This research uses an ecological perspective (Bogenschneider 1996; Bronfenbrenner 1977) positing that an individual's development is affected by the surrounding environment. Individuals develop within an environmental context. The resources available within the immediate environment, as well as in social structures at the micro, meso and macro levels, impact on the developmental outcomes of the individual. For adolescent women the most relevant aspect of the environment is the household in which they live (Cross 2001; Earls and Carlson 2001; Seeley *et al* 1993; Woods 1992). This focus is further supported by research which indicates that HIV/AIDS has the greatest impact at the household level, as the health status of an individual with HIV/AIDS affects everyone in the home (Mutangadura 2000). The household composition will determine resource availability and capacity to manage those resources.

This research also recognises that the needs of adolescents differ from those of other vulnerable children. Adolescents need livelihood training, secondary education, reproductive health, HIV education and services, and social support for the transition to adulthood and the psychological stresses common during this phase of life (Tahir *et al* 2005) One of the greatest protective factors for healthy outcomes in adolescence is connections to parents and other adults. Parental support allows youth the time to properly adjust to adulthood (Cree *et al* 2004; Govender and Moodley 2004). Being raised in a household with prime-aged adults is more likely to allow youth to have adequate resources to attend school, to have their health and nutrition needs met, and to receive the nurturance and guidance to move successfully into adulthood. Thus, when adolescents make the transition into adulthood in a household headed by their parents, there is a higher probability that they will have healthy outcomes than if parents are absent. This relationship holds true in Kenya as elsewhere in the world.

Children in most parts of Africa grow up with additional support systems consisting of the extended family (Daniel *et al* 2000, 2003; Foster 2000). In many parts of Africa the extended family has traditionally played an important role in caring for children in distress, even if the parents were still alive (Foster 2000; Preble 1990). With HIV/AIDS affecting so many communities throughout Africa, the potential for extended families to provide care for orphans has been reduced. The impact of HIV/AIDS has a differential impact compared to other disasters, such as drought and famine, because of the incremental nature of the epidemic. The individual becomes infected with the virus and over an extended period may develop various illnesses and infections that require care and reduce that individual's capacity to contribute to the household income. HIV/AIDS wears down the household and later the extended families' resources. The African extended family does not have an infinite capacity to care for orphans, especially when the number of adult family members are decreasing rapidly in heavily infected communities (Ankrah 1993). The role of the extended family as a safety net and the ability of relatives to readily assist members can no longer be viewed as the alternative for child care (Seeley *et al* 1993; Wax 2003). Two alternative household types have emerged, that of households headed by children and adolescents, and that of households headed by the elderly, often grandparents of the orphaned children.

In Africa, AIDS is often viewed as the grandmothers' disease because with no alternative care giving system, it is often elderly females who assume the burden of care (Moller 1997). The elderly often have few assets and even fewer work opportunities because of their age, frail health, and limited capacities (Chatterjee *et al* 2001; Nyambedha *et al* 2003). As a result, their households often become entrenched in poverty (Mutangadura 2000). Youth raised in these households have limited resources. They may not have adequate funds to attend school, they may have to take on the household tasks normally performed by prime-aged adults, and they may be inadequately parented if the elderly grandparent has ailments that constrain her ability to monitor and control their behaviour.

When parents die and the extended family and grandparents are unavailable, children as young as eight or ten may become head of their household, charged with caring for younger siblings and being the breadwinner. What are their options for earning an income? Providing sexual services in exchange for money or goods is one of the most common ways to support the household (Gregson *et al* 2005; Lalor 2004). Another common strategy is for girls to be hired out as domestic workers, a situation that makes them very vulnerable to sexual exploitation (Lalor 2004). It is also common in Kenya for children to work on tea and coffee plantations (UNICEF 1999). Youth living in adolescent headed households may struggle to get births registered, and to get health care treatment, social security and other state mechanisms which can help them. Rules of inheritance in customary law make children vulnerable to being dispossessed of their houses and land. 'Property grabbing' by families and communities, who seize the land, cattle, and other assets when a head of the household dies, is common in the era of HIV/AIDS (Foster 2000; Sarigiani *et al* 1999; UNAIDS *et al* 2004). With limited household resources and social supports, youth in such households are likely to experience a low level of well-being.

Simply trying to survive and raise younger siblings creates very real practical problems for primary care-givers who are themselves still undergoing the transition to adulthood. But focusing only on the practical issues can sometimes hide the less obvious deprivations and needs of youth growing up in child-headed households. With few adults in their lives, adolescents are more vulnerable to engaging in risky behaviours that can affect their current and future quality of life. Without adults to guide them, studies have shown that orphaned youth engage in earlier sexual behavior (Chatterji *et al* 2004) , have greater risk for anxiety, depression, and anger (Atwinea *et al* 2005), and lower economic earning potential because of lower educational achievement. When one or both parents dies or suffers from a chronic disease like AIDS, youth are left to develop on their own and must survive without having all necessary survival skills (Earls and Carlson 2001). In addition, if a youth is caring for an ailing parent or other relative, the individual may take on adult roles and the ailing adult may take on a role similar to a dependent child (Mutangadura 2000).

The impact of gender on household and adolescent well-being

Across ethnic groups in Kenya, women have a lower status than men. Most communities are organised around a patrilineal system with its attendant resource differentials based on gender. Research on determinants of poverty in has Kenya found that female-headed households were more likely to be poor than households with men as the head (Geda *et al* 2001; Onyango *et al* 1994). However, that lower social status does not necessarily lead to poor outcomes for household members. The household type as defined by the gender and age of the head seems to impact on the well-being of household members. Having an adult female in a household with a male prime-aged adult usually leads to a higher level of well-being for the children. Women play an extremely important role in the food security of the household. Often, they are responsible for growing the food crops that the family eats while the men produce the cash crops to generate income (Dannerbeck 1982). Women prepare the food and make sure the children are adequately nourished (Neema 1998). In addition women's income is used to buy clothing and to pay school fees for the children. When the woman is the prime-aged head of the household the children's welfare is more likely to be negatively affected. Women tend to have access to fewer income earning opportunities and those that are available often pay less. Land tenure laws may preclude them from owning or inheriting property when the male head of household dies. The research suggests that female headed households are usually disadvantaged in terms of access to land, livestock, other assets, credit, education, health care and extension services (Geda *et al* 2001; Onyango *et al* 1994). Thus, even though women tend to nurture household members, as the head of a household they may not have the resources to adequately provide for youth.

Gender status can also impact on the well-being of individual adolescents. One in five Kenyan girls report that their first sexual experience was coerced (NASCOP and Ministry of Health 2001). Women tend to have diminished life chances because they are taken out of school before their male siblings when money is tight and no one else is available to perform household chores (Kimalat 2001). In general, they face diminished life chances and a lower health status because their lower economic and social status constrains their ability to choose safe and healthy life strategies (UNICEF 2002).

Health status

Health status is an important indicator of well-being (Guillemin *et al* 1993). This fact is particularly true in a country like Kenya where health care is not widely available and where one's income earning capacity is tied to one's physical stamina and strength. For adolescent women in Kenya, their health status determines not only their current level of well-being but also may influence their future well-being. In households with limited resources, few opportunities may exist to improve one's health status.

If an adolescent is the head of the household, their health care decisions will affect other members in the house (Keirle and Thomas 2000; Malherbe 2002). Young age, limited experience or knowledge about signs and symptoms of some illnesses, uncertainty about where to seek help, and fear of stigma or embarrassment, and the influence of gender considerations, could affect the whole household (Coughlan *et al* 1996; Malaka 2003; Pratt *et al* 2000). The impact of a young household head on well-being underscores how resource availability can impact on health. Those with more resources, whether in the form of income, property, knowledge, status or social networks, can use those resources to improve their health status. In a country like Kenya, where the general access to health care is not great, a small difference in resources may offset advantages or disadvantages associated with who heads a household.

To understand more about the dynamics in the household and how household attributes are related to the health status of female adolescents, the next part of the paper will test several hypotheses relating to household type, gender of household head, and demographic factors to female adolescent health status in Kenya.

Recognising that household composition affects resource availability and management capabilities, one would expect that the optimal household composition would be that headed by a prime-aged adult. The first hypothesis is: the well-being of adolescent women will be higher in prime-aged adult households than in adolescent and elderly headed households. Another important factor to consider in examining the relationship between household head and well-being is gender. In households headed by men who have societal advantages in Kenya, young women should enjoy a higher health status than in households headed by women. A second hypothesis is that the well-being of young women will be higher in male-headed households than in those headed by women. Finally, recognising that education and wealth can offset some of the disadvantages associated with living in a household headed by a non-optimal aged or gendered individual, a third hypothesis is that the higher the education level and greater the level of household wealth, the higher the level of adolescent women's well-being. The method for testing the hypotheses is described next.

Methods

Kenya Demographic and Health Survey (KDHS)

The data for this paper come from the 2003 Kenya Demographic and Health Survey (KDHS) (Central Bureau of Statistics (CBS) *et al* 2004b). The dataset includes face-to-face structured interview results of 8195 women and 3578 men. The 2003 KDHS was designed to provide data to monitor the population and health situation in Kenya and to be a follow-up to the 1989, 1993, and 1998 KDHS surveys. The survey obtained detailed self-reported information on maternal and child health as well as demographic data from a sample of women in the reproductive ages (15–49) and from men age 15–54 in selected households in the country. The KDHS survey data were weighted to reflect variations in probabilities of selection as well as differential nonresponse rates and other factors which could cause the sample and population distributions to differ (Hofler *et al* 2005). The data set was obtained from MEASURE DHS/ORC Macro, a project funded by the U.S. Agency for International Development's (USAID) Bureau for Global Health (BGH) in response to a request to them describing the need for the data and how it would be used.

Survey design

KDHS 2003 used 9,865 households to represent Kenya as a whole including urban and rural areas, and the eight provinces. A total of 400 clusters were selected from enumeration areas developed from the 1999 population census; 129 urban and 271 rural, were selected from the master frame. All women who were either usual residents of the households in the sample or visitors present in the household on the night before the survey were eligible to be interviewed in the survey. In addition, in every second household selected for the survey, all men were eligible to be interviewed if they were either permanent residents or visitors present in the household on the night before the survey (Central Bureau of Statistics (CBS) *et al* 2004a). Trained enumerators contacted the women at their residence, explained the purpose of the study, obtained their oral consent and then proceeded to ask them the questions. This particular analysis focuses on female respondents, aged 15–24 years (n=3530).

Participants

The World Health Organisation (WHO) defines an adolescent to be a child between 10–19 years of age. Arnett (2004) has extended the idea of adolescence to include 'emerging adulthood'. He defines 'emerging adults' as those between 18–25 years (Arnett 2004). This paper combines the two views and assumes a Kenyan adolescent's age range to be between 10–24 years. However, because the Kenya Demographic and Health Surveys (KDHS) sampled women aged from 15–49 years, this study is limited to those adolescents aged 15–24 years. This group of young women is considered adolescent in the sense that they are still going through developmental process leading to adulthood and the ability to head a household. This definition reduced the observations from 8,195 to 3,530 respondents.

Data analysis

Dependent variable

Numerous measures of health status as an indicator of well-being exist (Guillemin *et al* 1993). Using the data available from the KDHS, we have developed a composite indicator of illness symptoms based on the adolescent women's reporting on a variety of signs of illness they had experienced in the two weeks prior to the survey. The 14 signs of illness used in this study included the complete set available from the survey. For the multivariate analysis, the 14 items related to self-reported sickness were collapsed into a categorical variable for presence or absence of any reported indicators of sickness. Because this is self-reported information and not associated with any medically diagnosed illness or disease, its value is limited to being a reflection of an individual's perceptions of status. Consequently, by collapsing the indicators into one variable, the most important aspect of the measures is retained, an individual's perception of sub-optimal well-being.

Independent variables

Household type was captured with three sets of variables: household head characteristics, demographic variables, and the wealth index of the household. The age of the head of the household included three categories: adolescent (15–24 years), prime-aged adult (25–54 years) and elderly (55 years and older). Model 1, the unadjusted results for the impact of household head type, will include two categorical variables for household type with prime-aged adult as the reference category and one for gender of household head with male as the reference category.

To control for any natural effects on health outcome by other independent variables, demographic information for the respondent (age, education level, and marital status) was then added to our model. Age was divided into two categories, 15–19 and 20–24 years. Education level includes four categories: no education; completing no more than primary schooling; secondary school which is equivalent to high school in the United States; and higher which includes both university and technical training. The original marital status variable included five categories. The variable categories were reduced to two: those who were married (Married, Living together) and those who were not married (Never married, Widowed, Divorced/Not living together).

Finally, wealth was introduced in the model. Household assets collected from KDHS surveys – i.e., type of flooring, source of water, availability of electricity, possession of durable consumer goods – were combined into a single wealth index. They were then divided into five groups of equal size, or quintiles, based on individuals' relative standing on the household index (poorest, poor, middle, rich, and richest). This technique allows comparison across wealth levels in situations where actual income and expenditures are not recorded and has been shown to be comparable to income for predicting wealth effects (Filmer and Pritchett 1999).

Analysis

First, bivariate analysis (chi-square) indicated whether significant differences exist between the three primary household age types for the signs of illness and the household and individual attributes. The hypotheses were tested using logistic regression analysis. A three level model was created, with household variables used in the first level, then demographic variables and lastly the wealth index.

To test the relationship between health status of young females and various household attributes, a regression model was fit to the data. The regression model is of the form:

$$\text{Logit}(y) = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + U$$

where

y = Self Reported Incidence of Sickness (0=Not sick, 1=Sick)
X_1 = Adolescent headed household dummy (0=No, 1=Yes)
X_2 = Elderly headed household (0=No,1=Yes)
X_3 = Female headed household (0=male, 1=female)
X_4 = Current age (0=15-19 yrs, 1=20-24 yrs)
X_5 = Current marital status (0=Not Married, 1=Married/Cohabiting)
X_6 = Highest year of education (0=none, 1=primary, 2=secondary, 4=higher)
X_7 = Wealth (1=poorest, 2=poor, 3=middle, 4=rich, 5=richest)
U = error

Results

The results are presented in three parts. First, details of the distribution of illness signs across household types are described. Then the household attributes are described by household head type. Finally logistic regression analyses are reported. The models were tested to estimate the role of household attributes (head age and gender type, demographics, and wealth) on the presence of signs of illness among a group of adolescent females in Kenya.

Signs of illness

As shown in Table 1, 'fever, shivering' was the most commonly cited sign of illness over the two weeks prior to the interview across all three age/head household types. 'Not able to drink' and 'weakness' were the next most commonly cited signs across all household types. In all categories of illness signs, adolescent headed households had the highest proportion of respondents reporting they had experienced any illness sign. The elderly headed households reported the smallest proportion of illness across

Table 1: Signs of illness and household age type (N=3530)

	Adolescent headed household	Adult headed household	Elderly headed household	Chi-Square χ^2
Signs of illness: not able to drink				44.0444***
1 = Yes	121 (27%)	377 (16%)	89 (12%)	
Signs of illness: fever shivering				92.7603***
1 = Yes	221 (49%)	669 (29%)	171 (23%)	
Signs of illness: repeated vomiting				24.1551***
1 = Yes	58 (13%)	176 (8%)	37 (5%)	
Signs of illness: diarrhea				31.5990***
1 = Yes	72 (16%)	199 (8%)	49 (7%)	
Signs of illness: blood in stools				3.7423
1 = Yes	5 (1%)	20 (1%)	2 (<1%)	
Signs of illness: fast breathing				7.0019
1 = Yes	31 (7%)	105 (4%)	27 (4%)	
Signs of illness: convulsions				2.6345
1 = Yes	10 (2%)	47 (2%)	9 (1%)	
Signs of illness: weakness				46.2477***
1 = Yes	117 (26%)	331 (14%)	90 (12%)	
Signs of illness: getting sicker				17.2749**
1 = Yes	35 (8%)	82 (3%)	35 (5%)	
Signs of illness: crying				6.1970
1 = Yes	38 (8%)	129 (6%)	43 (6%)	
Signs of illness: coughing				12.3710*
1 = Yes	17 (4%)	39 (2%)	8 (1%)	
Signs of illness: change of color of eyes				0.7299
1 = Yes	7 (2%)	33 (1%)	12 (2%)	
Signs of illness: sleepy				5.3338
1 = Yes	9 (2%)	23 (1%)	5 (1%)	
Signs of illness: other				0.7345
1 = Yes	2 (<1%)	8 (<1%)	2 (<1%)	
Respondent Reported Illness				
Reported Illness Signs	272(60%)	832(35%)	215(29%)	102.7873***

*$p<.05$; **$p<.01$; ***$p<.001$

categories. Although not reported in a table, illness sign distributions were also calculated for male and female headed households. Across all illness signs, higher proportions of female respondents in the male headed households reported experiencing those signs in the last two weeks. Education level was also compared to illness signs and a clear inverse relationship existed between level of education and signs of illness. At higher education levels a smaller proportion of respondents reported any sign of illness across categories. The five wealth

Table 2: Indicators of household and female respondent (age 15–24 years) status

N=3530	Adolescent headed HH^	Adult headed HH	Elderly HH
Age range of Household Head	15-24	25-55	< 55
# Female Adolescent Respondents	455	2344	731
Gender of Household Head by # Adolescent Respondents			
Female HH***			
15-19	57 (23%)	435 (65%)	143 (63%)
20-24	187 (77%)	234 (35%)	84 (37%)
Male HH***			
15-19	120 (57%)	766 (46%)	299 (59%)
20-24	91 (43%)	909 (54%)	205 (41%)
Respondent Martial Status			
Female HH***			
Not Married	126 (52%)	587 (88%)	182 (80%)
Married	118 (48%)	82 (12%)	45 (20%)
Male HH***			
Not Married	27 (13%)	914 (55%)	399 (79%)
Married	184 (87%)	761 (45%)	105 (21%)
Respondent highest level of education			
Female HH*			
No Education /Incomplete	35 (15%)	46 (6%)	27 (12%)
Primary	138 (56%)	400 (60%)	148 (65%)
Secondary	63 (26%)	192 (29%)	44 (19%)
Higher	8 (1%)	31 (5%)	8 (4%)
Male HH***			
No Education /Incomplete	33 (16%)	167 (10%)	55 (11%)
Primary	146 (69%)	1004 (60%)	285 (56%)
Secondary	30 (14%)	423 (25%)	141 (28%)
Higher	2 (0.1%)	81 (5%)	23 (5%)
Wealth Index in the Respondent's HH			
Female HH***			
Poorest	40 (16%)	89 (13%)	50 (22%)
Poorer	26 (11%)	113 (17%)	54 (24%)
Middle	42 (17%)	133 (20%)	56 (25%)
Richer	42 (17%)	143 (21%)	40 (18%)
Richest	92 (39%)	194 (29%)	27 (11%)
Male HH***			
Poorest	49 (23%)	232 (14%)	89 (18%)
Poorer	31 (15%)	235 (14%)	102 (20%)
Middle	41 (19%)	226 (13%)	118 (23%)
Richer	31 (15%)	306 (18%)	126 (25%)
Richest	59 (28%)	679 (41%)	71 (14%)
Respondent Reported Sickness			
Female HH***			
No Reported Sickness on 14 indicators	111 (45%)	535 (80%)	161 (71%)
Reported Sickness on at least 1 indicator	133 (55%)	134 (20%)	66 (29%)
Male HH***			
No Reported Sickness	72 (34%)	977 (58%)	355 (70%)
Reported Sickness	139 (66%)	698 (42%)	149 (30%)

**p*<.05; ***p*<.01; ****p*<.001 for chi square test of significant differences between categories
^HH refers to Household Head throughout this table.

categories were also compared for signs of illness frequency. An inverse relationship existed for all but 'weakness'. For this illness sign, fewer (15%) of the poorest household respondents reported this sign than for poor (21%) and middle (17%).

Finally, the presence of any sign of illness was tabulated across the household head age types. Results showed that 1319 (37%) of the respondents in the sample reported some form of illness in the last two weeks before being interviewed. Respondents living in adolescent headed households had the highest reported sickness rate of 60%. Among the respondents living in adult headed households, 35% reported at least one sign of illness and among the elderly headed, 29% reported some sign. These results suggest a significant relationship may exist between attributes of the household and reported signs of illness for the adolescent.

Household and respondent demographic status

Referring to Table 2, across the first row, the majority (66%) of the respondents lived in adult headed households and the fewest, 13%, lived in adolescent households. Looking next at the gender of the household head as well as age-type head, in adolescent female headed households respondents tended to be in the older adolescent group (77%), in adult female headed households, more (65%) of the respondents were younger, and in the elderly headed households, they tended to be younger (63%) also. Patterns differed somewhat in the male headed households. Slightly more of the respondents were in the older age group (54%) in adult headed households and they tended to be in the younger age groups in the adolescent (57%) and elderly households (59%).

Next, examining the marital status of the respondents by household type in Table 2, we see that in female headed households the majority of the young women are not married. In male headed households the pattern is a little different, the majority (87%) living in an adolescent headed households are married but the majority are not married in adult (55%) and elderly-headed (79%) households. In looking at education levels, the majority of respondents in all types of female headed households are in the primary education category and the same pattern holds in male headed households.

Examining the wealth index distribution in Table 2 for the households of the female respondents indicates some interesting differences. In female headed households, the general pattern in adult and adolescent headed homes is for an increase in the number in each category going from poorest to richest (with the exception of more being in the poor than poorest for adolescent-headed). A different pattern emerges for the female elderly headed households. The fewest (11%) are in the richest category, followed by rich and the other three categories have fairly similar numbers of respondents. In male adolescent headed households the highest proportion of households are in the poorest (23%) and richest (28%) wealth categories. Adult male-headed households predominantly fall in the rich (18%) or richest (41%) categories. For the elderly, slightly more are in the middle (23%) and rich (25%) categories than in the others.

Role of household types and demographic attributes in predicting signs of illness

Household type, demographic information and wealth variables were entered in three steps in a logistic regression model to estimate their odds of predicting any signs of illness. Variables were entered into steps of the regression based on the order hypothesised by the model. Table 3 shows the logistic regression coefficient and odds ratio for each of the predictors. Employing a .05 criterion of statistical significance, adolescent-headed household, elderly-headed household, female-headed household, age, education, marital status, and wealth index variables had significant partial effects. Household factors were entered in the first model step and were all highly significant with self-reported illness. These household factors were able to explain only 7.6% of variance. Adolescent-headed household was positively associated with reporting illness. The odds ratio for adolescent-headed household indicates that when holding all other variables constant, a

Table 3: Logistic regression results predicting self reported illness in adolescent women (at least one of 14 illness signs) (N=3530)

Model	*1*		*2*		*3*	
Parameter	*B*	*Odds ratio*	*B*	*Odds ratio*	*B*	*Odds ratio*
Adolescent-headed household	1.2096***	3.352	0.3431*	1.409	0.3659**	1.442
Elderly-headed household	–0.2666**	0.766	0.3211**	1.379	0.1777	1.194
Female-headed household	–0.7344***	0.480	0.0172	1.055	–0.00484	0.995
Age (1=20-25)			1.6909***	5.424	1.7674***	5.856
Marital status			2.5518***	12.830	2.5269***	12.515
Highest educational level			–0.6019***	0.548	–0.4186**	0.658
Wealth index					–0.2355***	0.790
Intercept	–0.4057***		–1.9266***		–1.3406***	
Model statistic						
–2 log likelihood	4464.250		2893.042		2851.663	
R^2	0.0757		0.5384		0.5480	

*$p < .05$; **$p < .01$; ***$p < .001$

respondent in an adolescent headed household was 3.3 times more likely to report an illness then other age type households. Elderly-headed household and female-headed household were negatively associated with reported illness. Elderly-headed households were 24% (OD=0.766) less likely to report illness and female-headed household were 52% less likely to report illness.

Adding the demographic variables in the next step of the model, took away the significance of the female-headed household factor. Adolescent-headed household was positively associated with reporting illness but had a reduced odds ratio (OD=1.475). Elderly headed household was now positively associated with reporting illness, a change from the first step in the model. With the inclusion of demographic variables, elderly headed households were 38% (OD=1.379) more likely to report illness.

The odds ratio for age indicates that when holding all other variables constant, the older group (ages 20–24) was 5.8 times more likely to report an illness then the younger group (ages 15–19). Being married also increased the odds by 12.682 times that the respondent would be more likely to report an illness if married than if not married. As expected, an increase in educational level had a negative association with reported illness; respondents with higher education levels were more then 40% (OD=0.595) less likely to report any signs of illness. With household and respondent demographic variables added, the model improved to 53.8% of the variance explained.

In the last step, the wealth index was added to the model. This improved the variance explained by just 0.96%. An increase in wealth was significant in a negative direction; respondents in wealthier households were 21% less likely to report illness. Adolescent-headed household continued to be positively associated with reporting illness and had an odds ratio of 1.471. The demographic variables continued to be significant and nearly at the same level as the previous model.

Discussion

HIV/AIDS is changing the nature of households and how they function in Kenya. In particular, new household types headed by adolescents and the elderly are emerging. The purpose of this study was to examine the relationship between adolescent women's well being as reflected in their health status and their household type. The results yielded several surprises.

The first hypothesis tested was: the well-being of adolescent women will be higher in prime-aged adult households than in adolescent and elderly headed households. Partial support was found for this hypothesis. Indeed, well-being as measured by a set of 14 self-reported signs of illness collapsed into a composite measure for the multivariate analysis, consistently indicated that a greater proportion of respondents in adolescent headed households had experienced at least one sign of illness over the last two weeks. In a surprising result, respondents in elderly headed households appeared to be faring better than not only those in adolescent headed households but also those in adult headed households. They had the lowest proportion of respondents reporting any signs of illness and in the multivariate analysis, residing with an elderly head actually reduced the odds of illness signs. This finding may reflect the association with elderly people having wisdom and experience to help them in making wise decisions.

The second hypothesis, the well-being of young females will be higher in male-headed households than in those headed by females was not supported by this analysis. In fact, the opposite held true; the female respondents fared better in the female headed households. Being in such a household reduced the odds of reporting any sign of illness. This result was also a surprise.

Some of the surprising findings can be better understood from the inclusion of household and respondent attribute variables in the model. When demographic variables were added to the model, the effects of female headed households diminished to insignificance. The association between more signs of illness and residing in an adolescent headed household remained. Residing in an elderly headed household also remained significant but with the model controlling for demographic variables the direction of influence changed and odds of reporting an illness sign increased. This finding is in the expected direction and reflects the reality that wisdom may be offset by other more influential factors in a household such as education levels of members and wealth.

Being in the older age group (20–24 years) increased the odds of reporting signs of illness. Age is apparently not equated with experience and gains in knowledge associated with managing one's health for this set of respondents. Given the situation in Kenya, older female adolescents may be engaged in types of employment that expose them to risks (on the job injury, sexual assault, etc). The greatest proportion of females in adolescent headed households was in this older group and they may be an especially vulnerable group given these associations.

Being married increased the odds of reporting signs of illness. This finding was a surprise and warrants further research. It is unclear how marriage in Kenya would affect the health status of young women. Other research (Mutangadura 2000) has demonstrated the negative association between being a woman in Kenya and well-being. Considering marital status may provide us with some clue as to why in the first model, a predicted gender advantage (male) would not be associated with well-being as measured by illness. Respondents had lower rates of marriage in prime-aged female headed households. In addition, being married was associated with having more signs of illness. Given the lower rates of marriage in prime-aged women-headed households, as well as the association between being married and having more signs of illness, the lower rates of illness may be explained by the fact that in women-headed households, young women are not pushed into marriage before they complete their education and are ready. Even with fewer resources, the women-headed households are less likely to marry off their young daughters.

The final hypothesis also revealed some surprising findings. The higher the education level and greater the level of household wealth, the higher will be the level of adolescent women's well-being. The impact of education was in the expected direction; more education reduced the odds of reporting illness. The relationship could work both ways: better educated young women may have a better idea of how to care for themselves or healthier females may have more opportunities for academic achievement because they are not impaired by poor health. A surprising finding tied gender of household head to education level. Larger proportions of young women in female headed households, even in the disadvantaged adolescent headed group, had a higher level of education. Education and wealth are often closely related, more wealth can allow for more education of household members (and more education can allow the household to acquire more wealth and better manage it). Greater proportions of female than male adolescent headed households were in the wealthier categories. The source of their wealth is not known from the data. It may be that they inherited property from deceased parents and were not subject to property grabs from other relatives.

A surprise came in the findings regarding wealth. Wealth had very little impact on the explanatory power of the model although it was significant in the expected direction. A higher wealth index decreased the odds of reporting illness signs. In examining the relation between wealth and health in Kenya more deeply, the reasons for its small impact may be understood. The relationship between wealth and health status is supported by other studies (Wojcicki 2005) although the relationship is complex with wealth being both a cause and effect of health status. In some parts of the world, a household with more wealth will be able to access more and better health care resources. In Kenya, a female in a high wealth household is less likely to engage in certain risky health behaviors (sex work, jobs with high injury rates) associated with poverty. On the other hand, research has shown a positive relationship between wealth and HIV in Kenya, especially for women (Shelton *et al* 2005). Both men and women may use their wealth status to acquire additional sex partners (Rivers and Aggleton 1999). Women, who are more vulnerable to contracting HIV through heterosexual contact, may become infected with HIV even if their spouse is not. The relationship between wealth and health needs to be examined further in the context of African societies.

The implication of these results to policy makers should be that leaving adolescents on their own may end up increasing the cost of health care in those communities with large numbers of adolescent headed households. Providing adolescent women in non-adult headed households with options other than early marriage may help their chances of living a healthy life. Education, especially, reduces the likelihood of illness. The older adolescents, who some would call 'emerging adults', seem to be more vulnerable to illness. They are a group who are often ignored by policy makers under the assumption that they are capable of achieving independence. These findings suggest that more programs should be directed toward helping them continue their education and find income earning opportunities that do not compromise their health. Wealth is somewhat tied to health status; policy-makers should examine ways to protect the assets of youth when their parents die. For the adolescent, poor physical health could have an impact on their education, ability to earn a living, and physical growth. Their whole quality of life would be affected and they may not be very productive members of their community just at the time when they are developing into able-bodied adults, the bedrock of any society.

This study has its limitations, especially the lack of a more rigorous indicator of health status and the unavailability of any subjective indicators of well-being. The findings suggest one very important conclusion: households are very complex and one must look beyond the most obvious characteristics, namely household head attributes, in order to understand and respond to the needs of the individuals.

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book reviews

MEASURING HEALTH EQUITY IN SMALL AREAS: FINDINGS FROM DEMOGRAPHIC SURVEILLANCE SYSTEMS

INDEPTH Network

Hampshire, England: Ashgate, HB 201 pp, AUD 132.52 (inc GST) ISBN 0-7546-4494-4

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Measuring Health Equity in Small Areas: Findings From Demographic Surveillance Systems concerns the measurement of socio-economic health inequalities in ten, severely resource-constrained areas in countries of Asia and Africa. The book presents studies from the INDEPTH network of sentinel surveillance sites (33 across 18 countries), which have the goal to provide quantitative health information to help policy makers set health priorities and policies. Although a description of the network is not included in the book, it can be found on their website (www.indepth-network.org).

The book begins with a discussion of the difficulties of measuring wealth/poverty and the social relations associated with it (the 'socio-' of 'socio-economic' status). It argues that measures of income are particularly inadequate in these settings because of income irregularity, the difficulty in calculating income separate from business costs among the self employed, and problems establishing the number of people dependant on single incomes. The ten sites in the book instead try to conceptualise socio-economic status through varying composite indices of wealth that include aspects of material, human and social capital. All ten sites indices include measures of material assets, four include measures of human capital (education level), and two of social capital (social relationships). The different methods for creating the indices are discussed.

The book then provides a scientific paper from each of the ten sites reporting on what analysis using their index reveals about socio-economic inequalities in child mortality in small areas. The Bandim health surveillance system in West Africa, for example, describes how they developed an index of socio-economic status using principal components analysis of variables such as type of roof, electricity, television, type of toilet, number of rooms and mean number of people per bed. This surveillance system also has created measures level of mother's education and a range of social capital and health beliefs factors such as favouritism and care taker vulnerability (husband's interference, very young care takers and inability to get help from family when needed). The paper then examines the effect of these material, human and social capital factors on child mortality.

The studies as a whole demonstrate the persistent presence of geographically concentrated health inequalities in health status and health service use across the settings. They are a sobering reminder that in many places child death is still common – so common that some studies found it difficult to identify statistical risk factors because everyone had experienced child death and researchers had to construct outcome measures of multiple deaths per family. The studies importantly highlight the complex association between poverty, gender and ethnicity in those health inequalities. They show that socio-economic inequalities are not just related to wealth but to the complex social arrangements that go hand-in-hand with economic inequality. This information will undoubtedly help policy makers design better health interventions in local areas.

The real importance of this book, however, is not the findings, but the demonstration that small-area information and socio-economic factors can be successfully included in health surveillance systems. Indicators created by surveillance systems throw spotlights on issues. They frame the way the policy makers define problems and therefore conceive of solutions. In this case, the attempts to include a range of new measures in these surveillance systems will ensure that policy makers consider how social organisation affects the vectors of disease and the types of resources people draw on to deal with the consequences. They will also ensure authorities are reminded of the importance of the social relations within particular economic conditions, above and beyond simple understandings of having or not having wealth.

This book should be read by anyone involved in the management and design of surveillance systems, including the custodians of surveillance systems in developed country settings who could learn much from the INDEPTH endeavours. There are probably two audiences. One is people reviewing the technical aspects of measurement of socio-economic status, particularly in resource-poor settings. The second is more generally those interested in developing social theory frameworks that can underpin measurement in the real world.

This book is a reminder of the importance of exploring new ways to monitor health issues and health service use that bring the role of social conditions to the fore. If surveillance systems do not engage in the challenge to find appropriate measures of socio-economic status, significant social conditions will be obscured in our reporting of disease problems, and therefore potentially in our thinking about solutions. The value of the book lies in the INDEPTH network's attempt to try something different, and in the enormous amount of methodological effort undertaken. Hopefully it will inspire others to continue to develop this work within their own surveillance systems, both in Australia and elsewhere.

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HOUSING, FUEL POVERTY AND HEALTH: A PAN-EUROPEAN ANALYSIS

Jonathan Healy

Ashgate Publishing 2004, 249 pp, US$99.95 ISBN 0 7546 4218 6

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This is a very important book. Housing is a basic human right, embedded in the Universal Declaration of Human Rights (UN 1948), and in major international human rights treaties such as the International Covenant on Economic, Social and Cultural Rights (UN 1966). More recently, the Ottawa Charter blueprint for health promotion identified the prerequisites for health as being peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice and equity (WHO 1986). It is against this backdrop of international law and governance that the author tells the story of inequity in a basic necessity for health: adequate housing.

The book embraces primarily housing-related, structural, and material determinants of health, but contextualises the observations within cultural and social policy considerations; describing how these upstream conditions shape (beneficially or otherwise), housing related matters and subsequently, health. Specifically, using a comparative framework, it sets out to examine, for Europe, the relationship between domestic energy efficiency, fuel poverty and related health impacts. The Republic of Ireland is used as a specific country context case study on the premise that it has high rates of fuel poverty, excess winter mortality, energy inefficient housing, high domestic energy consumption, and greater environmental emissions. While the introductory chapter rationalises the approach taken throughout the book, no explicit working definition is given for fuel poverty. Just as food poverty encompasses a number of domains including nutritional, social and health connotations, it would have been useful to make clear, upfront, the constituents of fuel poverty. Following from this, the book would benefit from a conceptual framework at the beginning, providing a heuristic device from which to consider the various ways fuel poverty and related socio-environmental factors affect health.

The book makes excellent use of existing datasets from a diversity of sources to illustrate systematic inequalities in key components of housing related socio-environmental determinants of health, both between countries and within countries. Chapters two to nine explore the empirical data, demonstrating marked gradients across Europe in housing conditions, levels of deprivation, affordability and general satisfaction with housing. The book highlights data limitations within the European countries, but is not unduly constrained by them. A key message from the book is the usefulness and necessity for harmonisation of public health related data and development of multilevel surveillance systems. In Chapter three, a new approach to measuring fuel poverty (and hence its definition) provides the mechanism by which to quantify and demonstrate the severity of fuel poverty within Europe. In an economically rich country such as Ireland, a remarkable 17% of households were found to be fuel poor.

The final results chapter combines the various risk factors, explored until now in singular fashion, and assesses their impact on seasonal mortality, specifically excess winter mortality. It is hard to imagine that the inhabitants of Portugal – a country which provokes images of hot summers and unexceptional winters – experience the highest seasonal variation in mortality across the EU, with a winter increase of 28%. However, using a collection of datasets from 1988-97, Healy demonstrates that relative excess winter mortality is highest in southern Europe, Ireland and the UK. The ecological investigation reports a relationship between country winter environmental temperature and levels of excess winter mortality. The author suggests there is a differential in vulnerability to cold exposure between populations, with some populations better resourced and equipped to protect themselves from cold spells. Building upon earlier demonstrations of between country variation in economic and housing conditions, the book makes a plausible argument that excess winter mortality could be alleviated through macroeconomic policy and the enhancement of socio-economic circumstances through a focus on reducing fuel poverty.

Many problems highlighted in this book are amenable to policy intervention. The social distribution of fuel poverty and related socio-environmental factors highlights particular groups (such as single parents, low income households and low income tenants), which would benefit from targeted intervention. However, the underlying economic, structural and social factors must be addressed using a universal policy approach. The illustration of cumulative stressors, particularly in Southern Europe, should warrant multi-sectoral, whole-of-government action. A concerted health promotion approach which encompasses the various possible determining factors is one which aims to reduce macro-social inequality through adequate policy initiatives, infrastructures that facilitate affordable housing options, combined with informed, targeted education in various settings.

This book will be of interest to readers who care about the health of individuals and societies, and who want to broaden their understanding of the socio-environmental determinants of health.

The collation of evidence from a wide range of sources provides a major resource for public health. The book is particularly relevant for policy makers and practitioners in Europe. This book contains many important lessons that need to be taken back to the Irish government. For the non-Irish reader however, the lack of clear distinction between pan-European analysis and discussion, and the Irish situation may be somewhat frustrating, especially given the sometimes laborious repetition of methods and results across chapters. Nevertheless, there are many key learnings in the book which are transferable internationally. The range of methodological techniques, further empirical evidence of the relationships between distal and proximate causes of ill health, and wider policy implications, will each be of considerable relevance to academic and policy audiences worldwide. This book makes a valuable contribution to an evidence base which demonstrates that investment in housing, and the factors which contribute to healthy housing, is much more than an investment in bricks and mortar. Rather, it is an investment in the health and well-being of society.

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HEALTH AND SOCIAL RESEARCH IN MULTI-ETHNIC SOCIETIES

James Y Nazroo (ed)

London and New York: Routledge Taylor and Francis Group 2006, xii + 218 pp, 22.99 stg
ISBN 10: 0-415-39366-3

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Research on ethnicity raises methodological issues which are complex and often difficult to resolve. This crafted, and informative book, explores the methodological challenges which arise in conducting research into people's health and health care in a multi-ethnic environment. It is primarily a practical guide for those wishing to carry out such research in the UK. However, its analyses and case studies are more broadly applicable to the planning, conducting, analysing and evaluation of similar research elsewhere. Its interest also reaches beyond researchers to the users and funders of research, and to development practitioners in general.

How ethnicity is understood will affect the way research is undertaken and analysed, and the policy and programmatic responses. Importantly, the book argues that ethnicity is not pre-determined, objective or absolute; nor is it grounded in genes or historical or linguistic ancestors. Rather, as is argued consistently throughout the book, it is a product of social relationships: people choose the characteristics with which to define themselves. These may or may not include ideas of colour, language, history or ancestry. The experience of being a member of a particular ethnic group will also be affected by an individual's other social identities, including gender, age, social class, etc. Further, each ethnic group contains individuals who vary according to language, cultural traditions, religion, skin colour, migration history and pre- and post-migration geographic and social location. For some people, ethnicity will be a fundamental part of how they see themselves and how they interact. For others, ethnicity will have little or no salience.

This conceptual stance has important consequences for the classification and measurement of ethnicity. As a fluid concept, dependent on context, the construction of classification systems will be mediated by considerations of conformity and comparability on the one hand, and the need for definitions of ethnicity to reflect the purpose of the study and the hypothesis under discussion on the other.

The book critically considers the UK Office of National Statistics' decision to adopt self-defined ethnicity with a harmonised question that captures a number of aspects of ethnicity (nationality, country of birth, geographic origin, skin colour), to form a single classification, and limits individuals to selecting only one category from the alternatives provided (White, Mixed, Asian or Asian British, Black or Black British, and Chinese or other ethnic group). This critique will not have direct relevance to Australia where, although self-defined ethnicity has also been adopted, different approaches to classification and different aspects of ethnicity have been used. The book offers critiques of the ONS approach and construction of ethnic groups, most importantly, for an outside reader, reminding us such classifications are simply that: they do not carry explanations and should not be relied on alone. In arguing for a fluid understanding of ethnicity, the authors are committed to measures of ethnicity that will vary across time, context and according to other socio-economic characteristics.

Any research on ethnicity needs to be clear about this concept; but as the book cogently argues, this is only the starting point for a discussion of the methodological issues such research raises. The authors examine an extensive range of concerns relevant to undertaking both qualitative and quantitative research on ethnicity and to also secondary data analysis for ethnicity research. The discussion of the latter raises important matters although the data sets discussed are UK specific. Issues covered include research governance, including the inclusion of users and the researched communities in research; research funding; ethical issues, including informed consent in multiethnic communities; culturally competent research; measuring ethnic identity; data collection issues, including ethnic and language matching; computer assisted interviewing; translating; data analysis and validation; and the reporting and dissemination of research findings. Most topics are addressed by more than one contributor, thus gaining a diversity of perspectives.

The ethical issues which arise in health and social research on multiethnic societies are discussed in a number of chapters. The UK Department of Health guidelines, *Key Elements of a Quality Research Culture*, call for 'respect for participants' dignity, rights, safety and well being and the valuing of diversity within society'. There are important questions about compliance with such guidelines in research in multiethnic societies. Issues discussed include the exclusion of 'non-English speakers' from clinical trials and social research, procedures for informed consent in the absence of a common language, the non-reflexive value judgements that researchers bring to their work, research on ethnic communities that is never published or disseminated, and the lack of relevance of questions asked by bureaucratised research ethics committees. Such exclusions, errors and omissions may ultimately impair access to effective and appropriate treatment and care.

There is a rich discussion of the cultural appropriateness of many research practices and applications. Examples include one-on-one health visits where family or community ties are strong, or a preoccupation with the effect of cultural practices such as consanguineous marriages in explaining morbidity to the neglect of larger structural factors. The literature on ethnic matching and translation in data collection and analysis is well covered.

The multifaceted understanding of ethnicity which suffuses the analysis of the book stresses the fluidity of the concept and highlights the contexts 'within which ethnicity, gender and socio-economic position intersect differently to shape individual and collective experience'. Such conceptual fluidity, however, can create boundary problems. For example, in the phrase just quoted and more generally in the book, gender is placed outside of ethnicity. Race, religion and inequality cross this border with greater facility, sometimes forming part of the understanding of ethnicity, sometimes intersecting with it. In this the framing, the book displays its historical and political origins in the struggles against racism.

An understanding of ethnicity that allows for variance across time, context and according to other socio-economic characteristics can accommodate the emergence of new perspectives and practices around ethnicity. Ethnicity as a mobilizing force and as a defamatory labelling characterises our times. Examples might be the use of 'Pakistani' or of 'Arab' in the rhetoric of the war on terror, or their use in the coverage of a recent rape trial and beach disturbances in Sydney. The emergence of ethnicity as a political symbol is flagged in the book but not explored. However, the book does provide important guidance on how to carry out research where ethnicity is salient, whatever that context might be.

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READING DOCTORS' WRITING: RACE, POLITICS AND POWER IN INDIGENOUS HEALTH RESEARCH 1870–1969

David Piers Thomas

Canberra: Aboriginal Studies Press 2004, 210 pp, AUD 29.95 ISBN 0 85575 458 3

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This book is about an important topic: how medical experts wrote about Aboriginal health in Australia. The author, who is himself a medical practitioner with experience of working in a range of Aboriginal communities, is well qualified and sympathetic to Aboriginal views. Yet the resulting book, based on the author's PhD thesis, and concentrating upon health research published in the *Medical Journal of Australia* (MJA) from 1914-69, is profoundly frustrating. The root problem is that there was remarkably little medical writing on Aboriginal health in the period covered. For example, there was a grand total of 13 letters to the editor on Indigenous health issues for the entire period 1914-49. As a consequence, even in the 143 pages of book text, there are digressions on the politics of the Rockefeller funded anti-hook worm campaign in Mexico and Foucault's views on governmentality.

The first medical writer to discuss Aboriginal health was apparently a Dr Andrew Ross from Molong in New South Wales, who wrote a quite sympathetic account of the Aboriginal use of eucalypt-leaf poultices for the treatment of spear wounds. His jottings and motivations are discussed in four separate places in the text. This is symptomatic of an overall failure to tell the story as a clear historical narrative. This serves to obscure the reality that, up until the 1960s, it could still be said that the earlier nineteenth-century medical writers were often more concerned about the well-being of the natives than many of the twentieth-century writers who followed them.

The biggest gap in this book, however, is its failure to discuss the origins of the near universal belief that the natives were a dying race. This is one, sometimes self-serving, 'medical' belief that had immense political significance, but its origins are not discussed: even though Gordon Briscoe's work on *Counting, Health and Identity: A History of Aboriginal Demography in Western Australia and Queensland 1900-1940* appears in the bibliography.

The author is faced by the problem that so much of what he has to discuss is racist, unscientific dross of a low quality even by the standards of its own day. This sad and sorry tale has few heroes and certainly no heroines and, reflecting the nature of the materials themselves, the Aborigines who figure are no more than shadowy wraiths identified only by their diseases, or their willingness or otherwise to participate in experiments designed to satisfy white curiosity rather than improve Aboriginal health. One hero is Barry Christophers, a Melbournian general practitioner who wrote half of all letters to the MJA editor on the subject of Aboriginal health published from 1955-64. Christophers campaigned as a member of the activist Federal Council for Aboriginal Advancement (which was regarded as a Communist Party front by the security agencies) on political issues, such as whether Aborigines were indeed starving in the Warburton Ranges, and the case for equal access to the tuberculosis allowance for Aboriginal patients in Queensland.

In a book centred on the MJA which, remarkably, only had three editors from 1914 to 1977 (Henry Armit 1914-30, Mervyn Archdall 1930-57 and Ronald Winton 1957-77), it is striking that there is no discussion of the views of these three gatekeepers to publication. Nor is it discussed just how the selection of materials to be published by the MJA was made. Christophers claimed that all but one of the letters he ever wrote to the MJA was published: these were indeed calmer times before the advent of publish or perish.

One recurrent but largely unexplored theme is just how *political* medicine has always been. The majority of the doctors described appear to have been more interested in political point-scoring than preventing or curing disease, but then doctors who write for medical journals presumably are not a representative sample of the profession. Few of these writers were engaged in medical practice as the core of their work, and as researchers, many were as interested in science in general as they were in medicine or Aboriginal health in particular. In the 1920s and 1930s blood-group typing was as much an interest of anthropologists as of medical researchers.

Anyone with an interest in the medical discussion of Aboriginal health should read this book, not least because it will point them to the original writings. However, they should first have read William Anderson's *The Cultivation of Whiteness: Science, Health and Racial Destiny in Australia* (2002) which provides a lucid and invaluable introduction to the historical context in which the ideas described by David Thomas were able to flourish. Researchers with an interest in particular areas of Indigenous health are well served by Thomas's comprehensive index. Still, the reader of this text should expect to be left with many more questions than answers, and a desire to meet the author to ask: 'But just why did your predecessors get it all so very wrong?'

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TRANSCULTURAL HEALTH AND SOCIAL CARE: DEVELOPMENT OF CULTURALLY COMPETENT PRACTITIONERS

Irena Papadopoulos (ed)

Edinburgh: Churchill Livingstone Elsevier 2006, 351 pp, AUD 88 ISBN 0-443-10131-0

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As suggested in the title, *Transcultural Health and Social Care: Development of Culturally Competent Practitioners* sets out to help health care workers develop cultural competence. The basis of this edited text is a staged model of cultural competence articulated by the editor (Irena Papadopoulos) and two colleagues (Mary Tilki and Gina Taylor), who are academic nurses from Middlesex University.

The content is presented across twenty chapters in four sections with clear content and learning objectives at the beginning of each chapter and reflective questions at each end. This structure is a useful guide to learning. There are plenty of concept definitions and explanations throughout to provide an adequate understanding of the terms and frameworks used in transcultural health care, which is useful for student health practitioners new to the field.

The first section is theoretically oriented (5 chapters), with chapters covering the Papadopoulus, Tilki and Taylor model of developing cultural competence; UK and European policies related to culturally competent care; and issues pertaining to refugees, ethics and research. Although the theoretical concepts covered are not new, a welcome emphasis is to stress the importance of social and organisational factors on health and health care, in addition to cultural group influences. The staged model of cultural competence presented (awareness, knowledge, sensitivity and competence), is not unique, and others have proposed similar developmental stages, such as in the USA by Campinha-Bacote (1995). The other chapters in this first section, on human rights and policies in the UK and Europe, on refugee issues, on ethics and on research, all provide thoughtful description of relevant concepts, such as on the stages of refugee resettlement and on the limits on autonomy in relation to cultural preference. The focus here is largely towards the UK and Europe, even though many of the concepts covered are universal and currently topical. While the coverage is broad, a student health practitioner would still have to go elsewhere to find tools, such as how to conduct a culturally responsive health care assessment, how to work with interpreters, and how to deal with social, organisational and political factors: such as through working with cultural intermediaries (ethnic health workers) and immigrant community organisations.

Section two is comprised of five chapters pertaining to the work of the editor and colleagues across descriptive research projects with different cultural groups in the UK. The focus of these projects appears to have explored either the meaning and experiences attached to illness of these groups (e.g. about cancer), or how the health needs of these groups might more responsively be met (e.g. for Ethiopian refugees, Welsh minorities, etc.). The content in this section is broadly labelled as cultural-specific competencies, which relate to the specific information needed to work effectively with a particular client. There is a broad range of theoretically useful material in these chapters to stimulate student thinking, such about cancer beliefs, variations in acculturation and adaptation and culturally responsive strategies for the delivery of health information. What remains unclear for the student practitioner, however, is how to move from a set of cultural-generic competencies towards the cultural specific-competencies needed to work with a particular client or group. This is because the cultural specific information mentioned in each chapter was derived from the authors' research with these groups and it could not be expected that a health care practitioner would be able to obtain this specific information in this way. The chapter on culturally competent health promotion that is needed for minorities in Wales provides some insight into the social and environmental barriers to health care faced by these groups, beyond only cultural explanations, although discussion of relevant institutional and social responses to these barriers is brief.

The final two sections present four chapters on 'European perspectives' (Finland, Germany, Greece and Spain), and four chapters on 'Global perspectives' (Muslim/Arab, Israel, Australia and Canada). These chapters provide historical, political and some religious perspectives on health care in the respective national and cultural contexts. As such, these chapters would be informative to student practitioners who might care for people from such backgrounds. At a basic level, these chapters describe how selected nations have responded at a policy level to population cultural diversity; however, there is no integrative or comparative analysis of the material across these chapters.

References are made throughout the text to seminal works in the fields relevant to transcultural health care (such as Leininger, Good, Hofstede), and in social epidemiology (Marmot, Kawachi); however this material is not readily located, because the chapters are somewhat discrete and, except for the first section, labelled according to cultural or national groupings rather than according to concept themes. Perhaps this is the inevitable limitation of an edited text, but it does make it difficult for a student practitioner to systematically see and work through a range of competencies (as the text set out to do), such as has been done in texts on welfare and health leadership (Cox 1989; Dreachslin 1996), and also in describing specific national health care contexts (Reid and Trompf 1990).

The value of the text is that it provides, in one volume, a broad coverage of the topic of transcultural health care with descriptive accounts of various cultural groups and some different national contexts. This gives it suitability as an undergraduate text for student practitioners (such as nursing). With this breadth, however, students will need to search further (as they should), for practical tools (such as culturally responsive health assessment), and for strategies to deal with organisational and institutional responses to cultural diversity.

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IN OUR OWN RIGHT: BLACK AUSTRALIAN NURSES' STORIES

Sally Goold and Kerrynne Liddle (eds)

Maleny, Queensland: eContent Management 2005, PB, AUD 29.95 ISBN 0-9750436-3-3

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This was supposed to be a simple task: a book review for a journal. I was asked, I believe, because I share a small part of these stories. I was a nurse and a contemporary of some of these authors in the 1960s and early 70s. However, reading the stories I was struck by the enormity of the task. How can a non-Aboriginal Australian, who lives in the same world as these women and men, presume to comment on this book? The other challenge I face in my own academic work is a growing reluctance to reduce other people's experience through interpretation, and an increasing enthusiasm for the power of narrative or story. For stories to yield their power, however, requires they be situated. In this case the stories are 'situated' in a preface written by Sally Goold OAM who, probably more than any other single nurse, has done the most for Aboriginal nurses and nursing within the mainstream of the profession.

The book is disturbing, as it should be. Twenty-three Indigenous Australian nurses from all over the Australian mainland, Tasmania and the Torres Strait tell their stories. Some are short, some longer, but all describe their triumph in becoming professional nurses. This is the joy of the book: hearing the voices of people who persevered and succeeded despite almost being buried in a mire of institutionalised racism and disadvantage.

Filtered through the memories of the successful people the narrators have become, I suspect many more painful and humiliating moments remain hidden. These 23 are extraordinary people, whose attainments are remarkable, and measured in the number of awards and honours they share. Other characteristics they share include their capacity for, and acceptance of, leadership. This is expressed in work for their people, services they helped develop, and their role in the education and mentoring of others. However, the stories also illuminate why the proportion of Aboriginal professionals in Australia is so low, and the magnitude of persistence and determination required to deal with political, institutional, educational and attitudinal barriers.

Key themes weave throughout the narratives. One compelling theme is the supportive family, friends and mentors who counteract the racist attitudes and hurtful comments of some of the non-Aboriginal staff and of patients with whom the narrators had to deal. The enormous pressure on the nurses to succeed, and prove themselves, and the strong discipline that was part of the culture of the profession and seen as 'character building', appears part of their success. Lowitja O'Donoghue 'had to have the shiniest shoes, the whitest uniform, and absolutely everything in its place'. Sally Goold as the first in her family to 'do something', felt she always had to 'walk the extra mile', while Carmen Parter reveals her 'need to work ten times harder than a non-Aboriginal person so as to gain the recognition and experience necessary to be successful in society'. Above all the stories are about the power of education and life-long learning to transform and make meaningful any person's life.

Sally Goold's own story is included in the collection and demonstrates the courage and resilience necessary to succeed as an Aboriginal professional. She was supported by a loving and stable family, as were some of the other nurses who have contributed to this book. Not all were as fortunate however, with other authors describing their personal horrors of the stolen generation and much family distress and disruption as a result of white Australian policy and actions. Sadie Canning, for example, tells of her traditional Aboriginal birth in Western Australia, her family's attempts to avoid authority, and their fear of the people who eventually succeeded in removing her from her parents. She was then cared for by Mission staff who, in this case, were kind and provided the opportunity to be trained as a nurse. This was the beginning of a number of certificates in nursing, eventual employment as a triple certificated nurse, and the wearing of the veil symbolising her attainments. Canning describes working as a professional in segregated hospitals where her own people were treated as second class, and how she began her professional life as a nurse also needing to be an advocate for better treatment for Aboriginal patients.

Roz Pierce writes powerfully and openly of racism and injustice, relationship problems and violence in her family, and her own heavy drinking. She describes the effort she put into getting her life 'back on track', and finding satisfaction and professional fulfilment in her ultimate career as a sexual health nurse. Other authors, such as Faye Ryan, went back to education as mature adults with the multiple responsibilities other mature age students face. Their 'hunger' for this attainment, and their great efforts to succeed as nurses and contribute through nursing, is very strong across many other stories also.

Lowitja O'Donohue is probably better known than most of the other writers in the book because of her major contribution to Australian public life. Her story presents another side of her life, that of her profession as a nurse. Her origins are similar in many ways to some of the other older contributors. She speaks of experiencing desperate unkindness as a child in a Mission that, consistent with the time, tried to rid the children of their Aboriginality through punishment and threat. As with some others in the book, Lowitjja worked with opportunities and negotiated her way around blockages put in her path.

As a professional and social history, *In Our Own Right* is bald and vivid. The book has a capacity to move, engender guilt, sorrow, and admiration at the courage and achievements of these nurses: who despite all the odds followed that dream to become a nurse. The task for its readers is to listen carefully and then change this country and the nursing profession so that it is more flexible and open to including in its ranks women and men from a range of backgrounds and with differing learning needs.

This book would benefit any professional group or educational institution trying to open its doors to increased Aboriginal representation. At a personal level I would like to have copies to give to people I meet who still exhibit racial prejudice and imagine that this country actually provides equal opportunity for all its people. The book explains why professional representation of Aboriginal leadership in nursing is so sparse. I imagine the lessons are generalisable to other Aboriginal men and women who, unlike those in this book, were unable to make the superhuman efforts required to succeed.

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POVERTY AND SOCIAL EXCLUSION IN BRITAIN: THE MILLENNIUM SURVEY

Christina Pintazis, David Gordon and Ruth Levitas (Eds)

Bristol: Policy Press 2006, 512 pp, GBP 24.99 ISBN 978 1861343734

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In 1985, Mack and Lansley published *Poor Britain,* based on the consensual deprivation method, identifying the minimum acceptable level of living in Britain by recognising the necessities of life by public opinion. Based in this tradition, the Poverty and Social Exclusion (PSE) survey in 1999 examined poverty among adults and children in various social groups. The data provides a unique and rigorous mapping of poverty with its use of both consensual and more conventional poverty measures. There is richness in this investigation, holding measures we hope to find in other future studies. This 2006 anthology, based on the PSE data, is dedicated to the inventors of the consensual poverty method.

Overall, the book provides a broad picture of how poverty can be measured and gives a better understanding of the processes of social exclusion. This critique is mainly related to documentation, power and the representativeness of the data.

The first chapter includes an all too short description of the data collection. Even though this is not supposed to be a manual for the PSE data, there are several questions left unanswered due to the fact that we lack the possibility of evaluating the quality of the data. The other drawback is that the sample consists only of about 1,500 respondents. Being also a follow-up sample to the General Household Survey, questions on the missing data, and how missing data is distributed in different groups, raises the question of whether the sample is fully representative and can be extrapolated to the whole population. The concluding chapter states that the book is the core summary of the PSE survey methodology and findings: yet we are given only a reference to a website to find information on the variables.

The book is organised in three parts, divided into *principles, processes* and *people.* In part one, *principles,* the chapters focus on the theories and concepts of poverty and social exclusion. Chapter two, written by David Gordon, is a comprehensive description of the concept and measurement of poverty, reviewing the problems and controversies in defining poverty. Three different measures, argued to hold a number of technical and theoretical advances, are used: the consensual measurement, the income poverty measurement and the subjective measurement. All three measures produce similar results, showing about 25% of the population to be living in poverty. Starting here, and all through the book, we see alarming results from Britain. Considering the fact that the book is dedicated to the founders of the consensual poverty method, it is appropriate that Chapter four, *The necessities of life,* by Pantazis, Gordon and Townsend, is one of the best chapters in this volume; worth reading for anyone interested in this method. The breakthrough of Mack and Lansley (1985) was not only the focus on public opinion, instead of poverty lines set by experts, but also the importance of necessities beyond food and shelter: necessities important for the individual to participate in society. In the PSE survey, there is an analysis of the differences in perception of necessities between men and women, younger and older persons, minority ethnic and non-minority ethic, and social class differences; providing support for the importance of using different measures. This chapter also contains a defence of the critique previously raised against the consensual approach. However, one could also have wished for some overall discussion on the shortcomings of the PSE. There must be some consideration of the fact that this is a small sample, consisting of 1,500 individuals. It is also difficult to interpret the effects of this being a sample from the General Household Survey.

The second part, *processes*, explores the roads into poverty in Britain, starting with the chapter, *Does work pay? Employment, poverty and exclusion from social relations* (by Nick Bailey). Employment is a fundamental resource for avoiding poverty, but this chapter extends the question to also explore whether more work leads to a lower risk of poverty or exclusion, by comparing those working full-time and part-time, and also analyses whether the benefits of work are the same for men and women. In contrast to previous studies, these results show that part-time employment is associated with lower levels of exclusion compared with full-time work and no work. This chapter presents interesting results and highlights the methodological problems regarding the risk of reversed causation using cross-sectional data, raising the idea that differences in social networks, sociability and social support might explain differences in employment status. In the end, the author chooses to interpret the causality as mostly important from employment status to the social outcomes. He finds that women gain more from work in financial terms when analysing subjective poverty measures. This is an interesting result since objective measures often implicitly assume an equal distribution within the household.

Further *processes* are analysed in the chapters, *Debt and financial exclusion; Social exclusion and local services; Crime, 'disorder', insecurity and social exclusion*, and finally *Mental health, poverty and social exclusion.* Mental health, here measured by the General Health Questionnaire (GHQ-12), is the only health effect of poverty discussed in this volume, which I find to be a bit scarce. In the chapter, author Sarah Payne discusses the causal relation between poverty and mental health. A range of different measures of poverty are analysed, among others a subjective measure which asks the respondent if he or she feels poor without defining what is to be regarded as 'poor'. Interestingly, a tenth of those answering that they 'never felt poor' are, if fact, defined as poor when using objective measures. One explanation here is that this group has developed lower expectations. Even though to 'feel poor' is related to mental health, the objective measure is found to be more related. Being a researcher in public health, I do of course find these questions interesting and could only have wished for some more chapters on the health consequences of poverty and social exclusion. There is today a major discussion on the relation between income/poverty and health, and since the PSE applies a range of poverty measures, such analyses could have made an interesting contribution to this area. (As far as I understand, the PSE also includes some other self-rated health measures).

The final part of the book, *People*, discusses and analyses the extent of poverty and social exclusion among children, youth, pensioners, lone mothers and between genders. An interesting contribution to the research on child poverty is the PSE survey list of 30 items and activities for measuring necessities among children. Asking the respondents whether the item was necessary and something no child should have to go without, almost all items were here considered as necessary by the population. At the end of the volume, an enlightening and important chapter on 'Gender, poverty and social exclusion' is presented. As the authors (Pantazis and Ruspini) state, both poverty and social exclusion are gendered experiences, facts that are often neglected. They show that regardless of the poverty measure used, women are more likely to be impoverished. Their findings, together with results from previous chapters – discussing priorities related to what can be regarded as necessities in life and highlighting the fact that distribution within households might be unequal – raise the need for a better understanding of the different roads to poverty and social exclusion; and as the authors argue, more 'gender-sensitive' policies. This issue becomes even more relevant in the following chapter where one of the poorest groups in society – lone mothers – is analysed. A larger part on policies could have been useful, starting with describing prevailing social policies in these areas and, based on the results found, giving suggestions on how these could better serve the poor in Britain.

The book serves the purpose of explaining the concepts of poverty and social exclusion, but has some shortcomings analytically. The PSE data surely consists of several interesting measures and at the same time the presented results show alarming and enlightening figures. However, the small sample, lack of relevant information on the data and the fact that this is a sub-sample from the General Household Survey make it difficult to see through the presented analyses and raise questions on generalisability. Dividing the book into sections on *principles, processes* and *people* makes this volume valuable for a broader academic audience, but the inclusion of sections on *public health* and *policy* would have broadened the audience further and might even have launched new ideas for greater ongoing discussion.

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RISKY TRADE: INFECTIOUS DISEASE IN THE ERA OF GLOBAL TRADE

Ann Marie Kimball

Hants, UK: Ashgate 2006, HB 212 pages, GBP 30 ISBN 0 7456 4296 8

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Risky Trade is a thorough and engaging exploration of the impacts of international trade on infectious disease epidemiology. The information is detailed and dense, and sufficiently technical to satisfy those readers already involved in the field, while the writing style is lively and clear, ensuring accessibility for students and the lay reader.

Kimball uses many examples of past and present disease outbreaks to highlight how the movement of goods and people can have dire and far-reaching consequences. Some of these are widely known to be a consequence of trade, others less so, while some are merely speculative at this stage about what the future holds. Included, for example, is an in-depth discussion of the potential for burgeoning global trade to fuel the next influenza pandemic.

Increased distance, greater complexity, and the intensified competition that come with international trade, are themes which assert themselves throughout the book. For instance, the complexity of contemporary food production and trade pathways can make locating the source of an outbreak exceedingly difficult and slow. Kimball describes how increased economic pressures can also intensify problems with food safety. For example, she describes how global market forces in the 1980s drove the British 'mad cow' epidemic by changing agricultural practices.

A somewhat slim but binding thread of the book, is social and economic disparity. In the case of a food-borne outbreak, Kimball describes the relatively limited capacity of poorer nations to recall contaminated products, and access to good health care (in the event of a global pandemic) favours those most able to pay. Kimball emphasises the need for poorer countries to be adequately involved in making trade rules, as they are often disproportionately affected when those rules are invoked.

The book contains a good summary of the role of the World Trade Organisation, with an appropriate level of background about the various rules governing international trade, and how they have already had an impact on health. The discussion includes some of the criticisms which have been aimed at the processes of negotiation and dispute settlement.

The book highlights how science and medical technologies fail to keep pace with trade-related disease outbreaks. Kimball describes the regulatory disputes and practical difficulties which arise from knowledge gaps about infectious diseases, particularly those that have emerged fairly recently; such as quantifying a risk when that risk is not yet well understood. Kimball articulates clearly that such uncertainties require a cautious approach. Establishing risk is especially difficult when infectious disease pathways are not obvious, such as with 'stealth diseases': those with a long latency between infection and clinical disease (think HIV and variant Creutzfeldt-Jakob disease).

Risky Trade takes the reader beyond the banal and more usual 'trade and health' focus on agricultural quarantine and food safety. Medical tourism (driven by increasing costs of medical care in richer countries and the inaccessibility of some procedures for the uninsured), and xeno-transplantation (the use of animal organs for transplantation) are introduced as emergent 'hotbeds' for spreading infection.

While the book serves as a timely wake-up call for regulators to take account of the broader public health consequences of trade, not all of it focuses on the negative, with some discussion of some recent public health successes.

The book is well structured with clear objectives for each chapter, while links between the chapters ensure the book works together as a whole. The study questions at the end of each chapter would facilitate useful reflection by students on the main themes. The book's perspective is fairly global, although forgivably weighted towards a US regulatory perspective, given the author's experience and expertise.

One minor criticism is that some of the figures and tables are poorly presented, and do not do justice to the excellent and professional writing. For example, the text in a few of the tables is so small as to make them difficult to read – taking only half a portrait page where a full page in landscape would be preferable to accommodate the quantity of text – while some of the reproductions of figures are fuzzy or do not translate well to black-and-white. Use of inconsistent fonts and somewhat amateurish layout make some figures less appealing than they might be otherwise.

These slight annoyances do not, however, detract substantially from what is overall a very well-written and accessible book. You may never look at an alfalfa sprout the same way again.

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