Public Health Challenges in Kerala and Sri Lanka

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Despite their relatively modest economies, some of the basic population health indicators of Kerala and Sri Lanka are similar to that of the developed nations. Following a review of recent evidence on infectious diseases, non-communicable diseases, mental health and suicides, and maternal mortality, this paper argues that there are challenges arising from declining investments in the public health sector (and increasing privatisation) and inadequate attention to the social determinants of health. It also lists suggestions for policy and a research agenda to further health equity.

Kerala and Sri Lanka have captivated the global public health community since the late 1970s. Despite relatively modest economies since independence, their health achievements have been dramatic – some of the basic population health indicators are similar to the world’s wealthiest nations and certainly superior to their south Asian counterparts. Furthermore, women in Kerala and Sri Lanka are recognised for their relatively high status compared to the rest of south Asia.

Despite these achievements, there are challenges driven by declining investments in the public health sector (and increasing privatisation) and inadequate attention to the social determinants of health (SDH). The SDH are the conditions in which people live and work, influencing their opportunities to be in good health (Banerji 1982; CSDH 2008; Qadeer 1985). The importance of the SDH has been crystallised by the work undertaken by the Commission on the Social Determinants of Health, who demonstrated the links between impoverished environments and poor health, calling for greater research and policy attention to SDH as a key strategy for improving health equity (CSDH 2008).

This paper aims to review health outcomes in Kerala and Sri Lanka, paying particular attention to the influence of an increasing private sector in the health sector and the SDH. We draw on the available evidence in published literature and vital statistics and reports published by national and international organisations. The paper is organised as follows. First, we give a brief historical account of the health achievements in Kerala and Sri Lanka. Second, we outline the persistent and growing health challenges. Finally, we conclude with suggestions for a research agenda to further health equity.

A Historical Overview

The health of populations in Kerala and Sri Lanka was superior to other south Asian nations prior to independence (1947 in India and 1948 in Sri Lanka). During the post-independence period, the magnitude of the health achievements increased, with visible declines in mortality and fertility and increasing life expectancy. A few key data trends illustrate the comparable situation for Kerala and Sri Lanka: since the 1920s, mortality has declined, reaching a crude death rate of 5.9 and 6.8 (per 1,000 population) in 2009 in Sri Lanka and Kerala respectively; the total fertility rates dropped sharply during the 1960s and 1970s, continued to drop during the 1980s and have now fallen below replacement levels; infant mortality has steadily declined, in 2007, estimates for Kerala and Sri Lanka were 13 and 8.5 per 1,000 respectively; life expectancy has steadily increased to over 70 years with a female advantage (female life expectancy is 76 years and 75 years for Kerala and Sri Lanka respectively, male life expectancy is 71 years in both

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Early health achievements in Kerala and Sri Lanka have been linked to progressive policies, within and outside of the health sector, implemented by princely rulers and influenced by the efforts of the missionaries in education, indigenous healthcare provisions (notably ayurvedic medicine), social reform and radical political movements and public action in Kerala and Sri Lanka (Casiander 2000; Dreze and Sen 2006; Perera 1985; Ramachandran 1996). One of the key explanations of the health achievements has been attributed to education, especially women’s education (Panikkar and Soman 1984). Kerala has a history of traditional schools where girls and boys studied, as early as 18th century (Saradamony 1999). In Sri Lanka, there were temple schools or *privenas* among the Buddhist Sinhalese, even before colonial rule (Caldwell 1996). During the 19th century, the efforts of the missionaries led to the adoption of western education in both regions which was expanded and strengthened by successive governments (Caldwell 1996; Tharakan 1984).

Following the formation of independent states, governments in Kerala and Sri Lanka pursued policies for the provision of free healthcare services, free education, widespread public distribution systems (PDS), and land reforms, which aimed to redistribute land to the poor. The governments’ commitments to people’s health needs were especially apparent in their welfare investments. This public sector support was instrumental for the development and growth of healthcare infrastructure until the mid-1980s and also for the high literacy rates in Kerala and Sri Lanka (over 90% in 2001), which is around double rates in Bangladesh (47%), Pakistan (50%), and Nepal (49%) (Kutty 2000; Perera 1985; World Bank 2001).

Historically, a nearly universal PDS in Kerala and Sri Lanka, helped to meet nutritional needs of the populations. During the mid-1960s and 1970s, the PDS in Kerala contributed in a typical year about 15% and 20% of the total caloric and protein intake respectively, while in Sri Lanka between 30-35% of the calories and 25-30% of protein requirements were met through the PDS (Gwatkin 1979). However, for the past three decades, there has been a shift in policies resulting in cut backs in public sector investments in welfare sectors including, health, education, and PDS, which was associated with child malnutrition, barriers to healthcare for the poor, and medical induced impoverishment (Baru et al 2010; Garg and Karan 2009; Houweling 2007; Sahn 1987) — an issue we will return to later.

**Emerging and Re-emerging Infections**

Since the 1990s, there were widespread outbreaks of emerging (e.g., chikungunya, leptospirosis) and re-emerging infections (e.g., malaria) (Annual Health Statistics 2006; DHS Kerala 2005, 2009), which have raised alarms but which the public health sectors are often ill prepared to address. In Kerala, data from the DHS (2005, 2009) indicates that since the mid-1990s there has been an important burden of malaria and an increase in dengue fever at least till the mid-2000s (the incidence of dengue fever increased from 0.23 (per 1,00,000) in 2001 to 12.0 in 2003).

There is also a heavy burden of tuberculosis (TB), (275/1,00,000 population in 2005-06) (IIPS and ORC Macro 2008). In addition to increasing incidence of infectious disease, there has been evidence of rising mortality attributed to infectious disease, for example, the case fatality rate of leptospirosis rose from 7.4% in 2000 to 16.8% in 2007 (DHS Kerala 2005; State Surveillance Unit 2011). Finally, there has been inadequate attention paid to addressing the snm of infectious disease. Frequent outbreaks of hepatitis A have been reported due to insanitary conditions and contaminated water in areas where apex medical care institutions, such as medical colleges are located (John et al 2004; The Hindu Business Line 2005). In 2006, there were over 70,000 reported cases of chikungunya (DHS Kerala 2009), attributed to inadequate vector control and waste disposal measures. In Sri Lanka the incidence of dengue haemorrhagic fever (DHF) rose from 7.9 per 1,00,000 in 1990 to 28.4 in 2006 and the incidence in TB increased from 39.2 (per 1,00,000) in 1990 to 48.4 in 2006 (Annual Health Statistics 2006).

The public health capacity to address the emergence and re-emergence of some communicable diseases is inadequate, for example in 2006 the chikungunya outbreak in Kerala led to the deployment of the army (medical wing) to combat the situation. The rise in communicable diseases is partly attributed to deteriorating environmental conditions – environmental degradation driven by urbanisation and interference with biodiversity, as well as harmful agricultural practices, and the mismanagement of solid, liquid, and medical waste (Amerasinghe and Indrajith 1994; Oommen 2008). The lack of attention to environmental factors in malaria control has been reported in Sri Lanka by various scholars who have observed an increased incidence of malaria alongside changes in the ecosystem from dry zone forest to irrigated land cultivation (Amerasinghe and Indrajith 1994; Ramasamy et al 1992). The war torn areas of Sri Lanka are the source of widespread outbreaks of waterborne diseases; malnutrition is also more prominent in these areas, exacerbating the effects of infectious diseases (Alertnet 2009; Loyn 2009).

**Rising Chronic Diseases**

Just as in the other south Asian regions, non-communicable diseases (NCDs) are rising rapidly in Kerala and Sri Lanka, including cardiovascular disease, diabetes, and cancer (Kunhikannan and Aravindan 2000; Kutty 2000; who 2005). Between the mid-1970s and 2006, there was an over threefold increase in the rate (per 1,00,000 population) of diabetes and hypertensive disorders, and over fivefold increase in ischaemic heart disease in Sri Lanka (DHS Sri Lanka 2000, 2007). In 2002, chronic disease accounted for 77% of all deaths in Sri Lanka, 34% of which were attributed to cardiovascular disease (who 2005). Since 1985, there has been an increase in cancer rates, especially in oral, lung and breast cancers; the incidence of cancer (per 1,00,000 population) more than doubled between 1985 and 2005 (from 31.6 to 67.9) (National Cancer Control Programme 2009).

Despite a scarcity of state level data on NCDs in India, we can draw up a portrait of NCDs based on a number of community studies and special surveys undertaken in Kerala. An increase in...
the prevalence of diabetes, hypertension, coronary heart disease and cancer was observed across the state during the periods of 1987-96 (Kunhikannan and Aravindan 2000). More recent community studies have found a higher prevalence of hypertension and diabetes among women compared to men (Soman et al 2009; Thankappan et al 2010). Tobacco-related (oral and lung) cancers are on the rise, the hospital-based cancer registry information (in 2007) reported the following rates: 15.6% oral cancer, 13.5% lung cancer, and 29.3% breast cancer which was higher than that in 2004 (26.4%) (Regional Cancer Centre 2009). One survey of three districts of Kerala found increasing rates of reported morbidity from NCDs across the population, including among the poor, the scheduled castes (SCs), and the scheduled tribes (STs) (Navaneetham et al 2009).

An analysis of the behavioural risk factors for NCD indicates that unhealthy diet (high fat, sugar and salt), physical inactivity, and tobacco use are high in Kerala and Sri Lanka (Ministry of Health Care and Nutrition Sri Lanka 2009; Sugathan et al 2008; Thankappan 2010). Obesity levels are higher among women than men: in Sri Lanka 20% of men and 37% of women (aged 30-65 years) were categorised as obese, while in Kerala abdominal obesity was found to be 52% for women and 26% for men (Katulanda et al 2010; Thankappan et al 2010). In Kerala, 36% of men (aged 15-49) smoke, rising from just over a quarter in the late 1990s (IPS and ORC Macro 2008), while in Sri Lanka, 21% of adult males smoke (World Bank 2008).

As the population ages in Kerala and Sri Lanka, it is not surprising that a heavy burden of NCDs falls particularly on older groups (Zachariah et al 2003). NSS data (1995-96) found a higher prevalence of chronic disease among older populations in Kerala (162/1,000) compared to the general population (35) (Dilip 2002). Hospitalisation rates for the elderly have been rising, based on NSS data, the number of elderly persons hospitalised increased from 276 (per 1,00,000) in 1995-96 to 1,315 in 2004. In Sri Lanka the physical disability rates among the elderly is high and the prevalence of diabetes among the elderly (16%) is nearly double of that among the general population (10%) (Wijewardene et al 2005).

While there is a paucity of studies investigating SDH of NCDs in Kerala and Sri Lanka, in other contexts, authors have suggested that economic deprivation, suboptimal use of health services, and psychological stress can contribute to a social gradient in NCDs (Greenhalg 1997; Marmot et al 2008; Middlekoop et al 1999). Data from India indicate that smoking and complications of NCD such as diabetes were especially high among the poor while the data from Sri Lanka indicate the NCD burden is now shifting to the poor (Kinra et al 2010; Ramachandran 2001; Ministry of Health Care and Nutrition Sri Lanka 2009), although high income groups are also exposed to NCD risk factors such as obesity (Katulanda et al 2010; Sugathan et al 2008). In Kerala and Sri Lanka, a lack of economic and social opportunities, resultant stress and inadequate access to healthcare may contribute to the incidence and severity of NCDs – especially for women who tend to have limited decision-making powers, higher levels of stress, and less access to healthcare compared to men of similar social and economic status.

**Hidden Burden of Mental Illness and Suicides**

Despite lacking a solid evidence base on the epidemiology of mental health in Kerala and Sri Lanka, there are some pieces of evidence that suggest that these societies carry a heavy burden of mental ill health. In Kerala, severe psychiatric disorders have been reported – as high as 20 per 1,000 population by the Kerala State Mental Health Authority and a community-based study found 14.57 (per 1,000) for priority psychiatric disorders including mental retardation, schizophrenia and convulsive and affective disorders (Shaji et al 1995). There is a particular concern about mental ill health among women in Kerala, where authors have pointed out their high levels of stress, depression, anxiety disorders and low levels of psychological well-being (Eapen 2002; Mukhopadyay 2007). In Sri Lanka, almost 4,00,000 individuals experience a serious mental disorder each year; and the rate of depression is particularly high (in some areas, depression has been reported to affect a quarter of the population) (WHO 2006). A lengthy history of ethnic conflict, war and the recent tsunami has heightened mental health problems and post-traumatic depressive disorders in Sri Lanka (D’Souza and Singh 2005; Wickrama and Wickrama 2008).

Psychiatric morbidity remains largely unrecognised and untreated due to the lack of mental health resources and cultural reasons of limited focus on psychological problems and is exacerbated by social stigma (D’Souza and Singh 2005). Mental diseases can become metaphors for unnatural or moral wrongs. The popular perceptions of mental illness can victimise the sufferer, with relatives often abandoning them even when disease symptoms have abated or have been fully cured. The stigmatising and victim blaming has been observed in Kerala, and Sri Lanka – even from physicians and medical students (Fernando et al 2009). The older populations are especially vulnerable to mental ill health due to both physiological changes (e.g., neurosis) that accompanies ageing as well as social reasons (e.g., the older population is more like to face poverty and isolation, especially if they are widowed and do not live with their children) (Agarwal 1998; Rajan 2006; Sudha et al 2006; World Bank 2008).

Some of the highest rates of suicide worldwide are reported in Kerala (26.8 per 1,00,000) and Sri Lanka (23.9 per 1,00,000) (NCRB 2006; WHO 2008). A community-based study in Kerala found suicide rates in rural areas were even higher than what was officially reported; suicides contributed the highest share of total deaths among women aged 15-24 years (Soman et al 2009). In Sri Lanka, about 6,000 deaths per year are reported due to suicide; additionally, nearly 1,00,000 people attempt suicide every year (Siva 2010).

The reasons for suicide are not well understood in Kerala and Sri Lanka; according to the WHO (2008), some of the main reasons are depression, family stress, alcohol dependence, and impoverishment and gender discrimination. In Kerala, family and marital problems have been cited as key reasons for suicides among both men and women (Eapen 2002). It is possible that specific social problems such as unemployment, especially unemployment of the educated contribute to high rates of suicides in Kerala (Halliburton 1998; Dreze and Sen 2006). There have also been reports of farmer suicides related to indebtedness (Mohanan Kumar and Sharma 2006).
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In Sri Lanka, a psychological autopsy study of suicides found that over one-third had been suffering from severe or moderate depression at the time of their suicide (Abeyasinghe and Gunnell 2008). Rigid hierarchical strictures, conflicts between individualism and collectivism, influences of foreign culture through media especially cinema and TV were cited as some of the possible reasons of high levels of suicide (Bolz 2002).

**Maternal Mortality and Unmet Reproductive Health Needs**

Kerala and Sri Lanka perform relatively better in maternal health compared to other regions in south Asia; however, there is still room for improvement. Although maternal mortality in Kerala (110 per 1,00,000) is below the Indian average, it is significantly higher than in Sri Lanka (47) (RGIS 2006; WHO 2006). This is particularly striking given the low infant mortality and fertility rates in the state, with over 99% of women having institutional deliveries (IIPS and ORC Macro 2008; Kuhnkananan and Aravindan 2000). In Sri Lanka, there is a well-developed maternal health system with institutional and field-based programmes; 92% of live births occur in government hospitals, which has contributed to reducing maternal mortality (Fernando 2005), however, progress appears to have stagnated since 1992, with maternal mortality higher in the plantation sector and regions particularly affected by conflict in Sri Lanka (Fernando et al 2003; WHO 2006).

In Kerala and Sri Lanka the major medical causes of maternal mortality include haemorrhages, sepsis, severe preeclampsia, and complications of labour and delivery (Annual Health Statistics 2006; Fernando et al 2003; Paily 2009). Therefore, inadequate access to emergency obstetric care is a key barrier to maternal health, which encompasses poor quality services due to lack of trained health personnel, poor referral and transportation to health facilities, and a shortage of medical supplies (Fernando et al 2003; Paily 2009). In Asia, rising rates of caesarean sections for non-medical reasons have been observed, which is associated with increased risk of maternal mortality and morbidity (Lumbiganon et al 2010; Pai 2000). The proportion of births delivered through caesarean sections has been rising in Kerala since the 1980s, with current estimates as high as 30%, which is three times the national average (IIPS and ORC Macro 2008). While there are a number of reasons that may explain these elevated rates, one leading one that authors have pointed to was the higher rates and costs of caesarean sections in private facilities where the economic profit motives may be driving up rates (Ghosh and James 2010; Padmadass et al 2000). There is an increasing shift towards the private sector in Kerala for maternal care and deliveries, which lacks quality control or regulation including cost standardisation (Baru et al 2000). One study found that women in Kerala (and Goa) predominantly used the private sector for antenatal care (68%) and delivery (69%), which increased catastrophic maternal healthcare expenditures (more than 40% of the annual capacity to pay), and which can lead to financial distress among poor households (Bonu et al 2009). There have also been recent examples of caesarean sections for nonmedical reasons (21 operations in a span of two days in a taluk hospital) due to the unethical practices of medical professionals in the public sector (The Hindu 2011). In Sri Lanka, the rate of caesarian sections is also high (30%), although the majority of women deliver in government hospitals (Lumbiganon et al 2010). Inadequate access to maternal care tends to be concentrated among the poor and less educated, and in areas affected by conflict, where services are often disrupted and personnel are unavailable, as well as the plantation regions, where mothers need to travel long distances on difficult terrain to seek care (Fernando 2005; Fernando et al 2003).

The unmet need for family planning was 9% in Kerala in 2005, while in Sri Lanka the rate is 18% (IIPS and ORC Macro 2008; UN 2009). The proportion of female sterilisation is 17% in Sri Lanka (17%) and in Kerala it was reported to be as high as 49% in 2006 (Annual Health Statistics 2006; IIPS and ORC Macro 2008). It has been argued that there is inadequate access to contraception – other than sterilisation – thereby limiting the full reproductive choices for women in Kerala while the decline in sterilisation services in Sri Lanka limits access for a sizeable proportion of women who completed the family size and need sterilisation (Thresia 2006; UNFPA 2009).

Unsafe abortions are another contributing factor to maternal mortality. In Sri Lanka, where abortion is illegal, except to save a woman’s life, and in India, despite liberalised abortion legislation, the majority of women lack access to safe abortion care and control of their reproduction (Abeyesekeera 1997; Hirve 2004). This has opened up a market for unregulated private providers and unqualified personnel thereby leading to unsafe abortions and economic burdens for households (Duggal 2004; Hettiarachchya and Schensul 2001).

While health system failures appear to be the main contributing factor to maternal mortality, poor nutrition and health of women of reproductive age may also play a role. Although maternal death due to anaemia is relatively low, the persistence of high levels of anaemia in Sri Lanka (35%) and increasing anaemia in Kerala (23% in 1998-99 to 32% in 2005-06) (IIPS and ORC Macro 2008; WHO 2007) is of concern since anaemia is a contributing factor for haemorrhages, preeclampsia and sepsis. Poverty and marginalisation are also likely to contribute to maternal mortality and reproductive morbidity, through poor nutrition, impoverished living conditions, and inadequate access to maternal care among the women of low socioeconomic background and the st in Kerala and women working in the plantation sectors or economic processing zones (EPZs) in Sri Lanka (Hettiarachchya and Schensul 2001; Prema and Thomas 1992).

**What Is Driving Health Challenges in Kerala and Sri Lanka?**

In Kerala and Sri Lanka, health challenges can be partly attributed to the retrenchment of the State from the health sector, driven by private markets. Kerala and Sri Lanka both have a public healthcare system with a widespread network of institutions where care is free (with the exception of a minimal payment for high income groups in Kerala). However, despite the growth of the public healthcare system following independence, this pace of growth has been surpassed by the private sector by a wide margin since the mid-1980s (Kutty 2000; WHO 2006a). The public healthcare expenditure (as a proportion of the gross state domestic product) decreased by 35% between 1990 and 2002, making Kerala one of the states with the highest reductions in public sector
contributions and the highest increase in private funding for healthcare (Bhat and Saha 2004). In Sri Lanka the growth of the private sector gained considerable momentum during the 1990s; the proportion of the private sector health expenditure rose from 38% in 1953 to 43% in 1980 to 55% in 2003 (Rannan-Eliya and Sikurajapathy 2009; WHO 2006a).

The substantial growth in private sector institutions accompanied by a lack of regulation or quality control mechanisms including cost standardisation can lead to reductions in the quality of services and rapid increases in medical expenditures (Baru et al 2000; Kunhikannan and Aravindan 1996; Kutty 2000; Ravindran 2010; Silva nd). The average out of pocket (OOP) expenditures have been steadily rising; OOP per episode of inpatient treatment at current prices increased from Rs 528 in 1986-87 to Rs 2,547 in 1995-96 to Rs 4,950 in 2004 (Aravindan 2006). The OOP spending in Sri Lanka increased from 33% in 1953 to 48% in 2005 (Rannan-Eliya and Sikurajapathy 2009). A cost analysis for diabetes care observed that private inpatient care costs an average 624% of a household’s daily income, whereas public hospital inpatient care was considerably lower and accounted on an average for 211% of the daily income for low income households compared to 131% for middle income and 57% for high income groups (Perera et al 2007).

Increasing OOP spending for medical care results in higher levels of medical impoverishment; any health expense, even a moderate cost of medical care (2.5% to 5% of monthly income) can lead to impoverishment (Garg and Karan 2009; Perera et al 2007; Russell and Gilson 2006). In 2005, OOP spending for medical care was one of the main causes for impoverishment in India; Kerala ranked the highest in both OOP spending and impoverishment due to inpatient and outpatients services (Berman et al 2010; Garg and Karan 2009). Medical impoverishment in Kerala has been found to be especially pronounced among the poor, lower caste groups and ST (George 2005; Mukherjee et al 2011). In Sri Lanka, the incidence of poverty as a consequence of healthcare payment rose from 54% to 57% during 1998-99 (Russell and Gilson 2006). High healthcare costs can also lead to exclusion from healthcare services (Xu et al 2003). Increasing OOP and a slow public sector response to the changing disease burden adversely affected access to healthcare services among the poor in Kerala and Sri Lanka (Garg and Karan 2009; George 2005; Levesque 2007; Perera et al 2007; Russell and Gilson 2006).

Ageing populations in Kerala and Sri Lanka are particularly vulnerable to exclusion due to higher levels of healthcare needs (Dilip 2010; Rajan 2006; World Bank 2008). According to the Sri Lankan ageing survey, households with an elderly person spent a greater share of their non-food expense (10%) on healthcare than other households (7%) (Wijewardene et al 2005). Women’s access will likely be more affected since access to and control over resources is limited, and women’s health needs are often de-prioritised, especially during periods of economic hardship (Iyer 2007; Thresia and Mohindra 2011).

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national, and local levels. These structural determinants operate to generate or reinforce social stratifications in society, which in turn leads to an unequal distribution of the other social determinants of health, such as material living conditions and behavioural risks (Diderichsen et al 2001). Historically, Kerala and Sri Lanka excelled in influencing the social determinants of health through the implementation of progressive public policies outside of the health sector – although not necessarily with the intention of improving population health – yielding equitable outcomes in health. However, a decline in public sector financing in social sectors (e.g., employment, education, PDS), particularly following economic reforms during the 1990s, the influence of economic globalisation, and an inattention to the social determinants of health are threatening equity gains (Oommen 2008; Sahn 1987).

Beginning in the late 1970s in Sri Lanka and in the 1980s in Kerala, there have been cutbacks in government investments in welfare in the PDS. The shifting from a nearly universal PDS to the adoption of a targeted approach in India and food stamps in Sri Lanka (distribution of food stamps to low income groups to purchase food articles from cooperative shops or authorised distributors) raises questions of social welfare (Suryanarayana 1995), although the nutritional and health effects of a targeted PDS in Kerala has yet to be empirically investigated. In Sri Lanka, the replacement of the PDS with food stamp programmes led to negative nutritional and health effects including a decline in caloric consumption and an increase in acute malnutrition among the poor; there was a 64% increase in wasting among children in the rural areas between the periods of 1975-76 and 1980-82 (Sahn 1987).

During the 1990s, urban areas in Kerala reported a higher incidence of unemployment, especially among the educated youth, compared to other urban areas in India and high levels of formalisation of labour (Prakash 2002). While poverty has been progressively reduced, poverty reduction programmes and other public interventions has tended not to reach the more deprived groups, such as female agricultural and cashew processing labourers and the ST (Mohindra and Labonte 2010; Thresia 2006, 2007). In Sri Lanka, there was widespread unemployment and underemployment following the first phase (1977-82) of economic liberalisation (Colombage nd). Absolute poverty increased from 33% to 39% between 1990-91 and 1995-96; and between 1990-91 and 2006-07 poverty increased by 56% in the plantation sector (Department of Census and Statistics 2009).

Despite a relatively high gender development index (globally Sri Lanka ranks 83 among 155 countries (Human Development Report 2009), and in India, Kerala ranks third among 35 states/union territories in 2006), unequal gender power relations exist both at work and in the home, albeit generally in more subtle forms compared to other south Asian regions (Attanapola 2005; Saradamon 1999). It has been hypothesised that there is a disjunction between high levels of education and insufficient opportunities for women to be engaged in productive activities, which has led to mental distress (Thresia and Mohindra 2011). There are also high levels of physical and psychological violence, with rates elevated among educated women (scraw 2006). There are also important differences across women in Kerala and Sri Lanka, with women who are poor and with lower caste/tribe affiliations being more likely to be in poor health and to be excluded from healthcare (Houweling et al 2007; Kannan et al 1991; Mohindra et al 2006; Mohindra 2009; Thresia 2007).

Conclusions
Our review of the current health of populations in Kerala and Sri Lanka has raised some concerns that require greater research and policy attention. Since Kerala and Sri Lanka are often viewed as providing a “model” for other south Asian populations (Bhutta and Lalji 2004), it is especially important that critical research be undertaken to better understand the challenges that face these societies and how to increase health equity. Based on our review and drawing upon the recent report commissioned by WHO (Ostlin et al 2009), we propose key elements of a research agenda and policy initiatives for Kerala and Sri Lanka – and other south Asian societies seeking to further health equity.

First, attention should be drawn to the causes of the infectious disease burdens and the development of approaches that will strengthen public health responses to both vector control and its prevention and addressing outbreaks that do occur. This will require addressing the increasing role of urbanisation (also applicable for NCD) as well as agricultural practices. Second, while researchers have developed a relatively clear epidemiological profile of NCD, there is a need to understand how NCD are distributed across the population and the structural factors underpinning beyond what are often conceived as individual “lifestyle” factors (e.g., smoking, drinking), including the role that international trade and other global factors are playing in the transmission of chronic disease risk factors (Mohindra et al in press). Third, the neglect of mental health requires rectifying; there is an urgent need to understand the reasons underpinning the high rates of suicide and mental health morbidity in order to adequately address the issue. Fourth, there is a need for careful examination of how to address the decline of the public health sector and increased role of privatisation leading to a variety of problems, including the exclusion of poor and marginalised groups from seeking required care and rising caesarean sections, which has ethical, health, and financial implications. This will require describing institutions and processes that influence the allocation of resources to health and NCD and to develop strategies to reinstate the public sector, which has a crucial role in improving the population health outcomes, especially for the poor (Qadeer 2011; Schrecker 2008). Finally, while the health of women is relatively better than elsewhere in south Asia, there remain unmet reproductive and non-reproductive health needs that require addressing. There is a need to both continue to improve upon women’s health agenda (including strengthening “real” reproductive health choices) as well as integrating gender into research on infectious disease, NCDs, mental health, and health system issues. The Kerala and Sri Lanka experiences of social progress and health with equity are under threat; there is a need to return to the road previously travelled by promoting public policies that will expand social opportunities and provide equitable access to healthcare, as well as a range of health promoting resources.


