

Hypertension in the South-East Asia Region: an overview

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Abstract

Raised blood pressure or hypertension is the single most important risk factor for mortality worldwide as well as in the South-East Asia (SEA) Region. In the globally agreed list of indicators and targets for noncommunicable diseases, three are directly relevant to hypertension. These include age-adjusted prevalence of hypertension among adults, salt intake levels, and availability of diagnosis and medicines for hypertension at public and private health facilities. We reviewed the burden of hypertension, status of response to this burden in countries of the Region, and the barriers to effective blood pressure prevention and control. In the South-East Asia Region, approximately 35% of the adult population has hypertension, which accounts for nearly 1.5 million deaths annually; 9.4% of the total deaths are attributable to hypertension. National data from some countries indicate an increasing trend in the prevalence of hypertension. In four of the eight countries where information was available, less than 50% of the subjects were aware that they had hypertension and in four other countries, awareness ranged from 56% to 70%. Among those who were aware that they had hypertension, about half were on treatment, except in the Maldives and Thailand, where higher rates of treatment were reported. However, less than half of those who were on treatment had their blood pressure levels controlled to below 140/90 mmHg. Ten countries in the Region have strengthened their surveillance systems to measure risk factors including hypertension, though more needs to be done to establish a regular, sustainable national-level surveillance system for risk factors. Equipment and drugs for the diagnosis and management of hypertension were widely available in all Member States of the Region. However, in 2010, only eight countries had standard national guidelines for the management of hypertension. Only three countries in the Region have initiated efforts at population-level reduction of salt intake. Lack of an enabling environment for healthier lifestyles, cultural norms that promote unhealthy behaviours, lack of access to health services for early detection and treatment, including counselling, are among the major barriers to prevention and control of hypertension in the Region. Despite these barriers, the potential for health benefits makes continued efforts to prevent hypertension an important public health goal for these countries.

Introduction

Noncommunicable diseases (NCDs) accounted for 63% of global deaths in 2008 (36 million of 57 million), principally from cardiovascular diseases, diabetes, cancer and chronic respiratory diseases. Nearly 80% (28 million) of these deaths occurred in low- and middle-income countries.¹ Addressing this burden is one of the major public health challenges facing all countries, regardless of their economic status. The general strategy to address NCDs using a public health approach is to focus on the risk factors of NCDs.

In terms of attributable deaths, the leading NCD risk factor globally is raised blood pressure (to which 13% of global deaths are attributed), followed by tobacco use (9%), raised blood glucose

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(6%), physical inactivity (6%), and overweight and obesity (5%).¹ Raised blood pressure or hypertension is a major risk factor for coronary heart disease and ischaemic as well as haemorrhagic stroke. Blood pressure levels have been shown to be positively and progressively related to the risk of stroke and coronary heart disease.² In some age groups, the risk of cardiovascular disease doubles with each incremental increase in blood pressure of 20/10 mmHg, starting from as low as 115/75 mmHg.³ In addition to coronary heart disease and stroke, the complications of raised blood pressure include heart failure, peripheral vascular disease, renal impairment, retinal haemorrhage and visual impairment. Bringing the systolic and diastolic blood pressure to below 140/90 mmHg with treatment is associated with a reduction in cardiovascular complications.⁴

As a follow up to the UN High-level meeting in September 2011, the World Health Organization (WHO) initiated a process of consultation to decide on a list of global indicators and voluntary targets for noncommunicable diseases. Based on extensive consultations, 25 indicators and nine targets have been agreed upon, which will be submitted to the Sixty-sixth World Health Assembly for approval in May 2013. Three of these indicators and targets are directly relevant to hypertension (Table 1). These are the age-adjusted prevalence of hypertension among adults, salt intake levels, and availability of diagnosis and medicines for hypertension at public and private health facilities.

Table 1. Proposed global indicators and targets for 2025 related to hypertension

Indicator	Target
Age-standardized prevalence of raised blood pressure among persons aged 18+ years (defined as systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg)	25% relative reduction in the prevalence of raised blood pressure or containment of the prevalence of raised blood pressure according to national circumstances
Availability and affordability of quality, safe and efficacious essential NCD medicines, including generics, and basic technologies in both public and private facilities	80% availability of affordable basic technologies and essential medicines, including generics, required to treat major NCDs in both public and private facilities
Age-standardized mean population intake of salt (sodium chloride) per day in grams in persons aged 18+ years	30% relative reduction in mean population intake of salt/sodium intake (WHO recommendation is less than 5 g of salt or 2 g of sodium per person per day)

In this paper, we review the burden of hypertension, status of response to this burden and the barriers to effective prevention and control of hypertension in countries of the South-East Asia (SEA) Region.

Regional burden

Of the estimated 14.5 million total deaths in 2008 in the SEA Region, 7.9 million (55%) were due to NCDs. Of these 7.9 million deaths, 34% occurred before the age of 60 years, compared to 23% in the rest of the world. Cardiovascular diseases alone accounted for 25% of all deaths (3.6 million), while chronic respiratory diseases, cancers and diabetes accounted for 9.6%, 7.8% and 2.1% of all deaths, respectively. Of the deaths due to cardiovascular disease, ischaemic heart disease and stroke accounted for the majority. One of the risk factors for developing cardiovascular disease is hypertension, which is present in approximately 35% of the adult population in the Region

and accounts for nearly 1.5 million deaths (9.4%) annually.⁵ What is even more worrying than tackling this huge disease burden is that deaths due to NCDs are expected to increase by 21% over the next decade.

Table 2 shows the WHO age-standardized estimates of the prevalence of hypertension (systolic blood pressure ≥ 140 mmHg OR diastolic blood pressure ≥ 90 mmHg OR on medication) in countries of the SEA Region in 2008. All countries uniformly show a high prevalence of hypertension in their populations and males have, in general, higher blood pressure levels in these countries. The figures shown in Table 2 are estimates and, for countries such as Bangladesh, Democratic People's Republic of Korea, Maldives, Nepal and Timor-Leste where no national information was available, data from other sources have been used. Myanmar and Indonesia seem to have the highest prevalence of hypertension in the Region.⁵

Table 2. Estimates of age-standardized prevalence (%) of raised blood pressure^a in adults aged 25+ years in countries of the SEA Region, 2008

Country	Men	Women	Both
Bangladesh	39 (28.1–49.8) ^b	38.1 (26.6–49.7)	38.6 (30.8–46.5)
Bhutan	40.4 (31.1–49.3)	37.4 (28.7–46.7)	39.1 (32.7–45.5)
Democratic People's Republic of Korea	38.5 (27.0–49.8)	34.3 (22.3–46.2)	36.5 (27.9–44.8)
India	36 (29.7–41.8)	34.2 (28.6–39.9)	35.2 (30.9–35.2)
Indonesia	42.7 (35.3–49.9)	39.2 (32.5–46.0)	41.0 (35.9–45.8)
Maldives	41.5 (30.3–52.7)	35.1 (23.0–47.1)	38.4 (30.1–46.6)
Myanmar	44.3 (37.7–50.5)	39.8 (33.1–46.5)	42.0 (37.2–46.8)
Nepal	38.4 (27.0–49.2)	38.7 (26.9–50.4)	38.6 (30.2–46.7)
Sri Lanka	41.9 (34.0–38.2)	37.0 (29.4–44.6)	39.4 (33.8–44.6)
Thailand	37.0 (31.3–42.5)	31.6 (26.0–37.1)	34.2 (30.0–38.1)
Timor-Leste	39.7 (28.9–50.0)	35.2 (23.8–46.9)	37.5 (29.5–45.4)
SEAR	37.6 (32.6–42.4)	35.4 (30.9–39.8)	36.6 (33.1–39.8)
Global	40.8 (37.7–43.7)	36.0 (33.3–38.6)	38.4 (36.3–40.5)

^a Raised blood pressure defined as SBP ≥ 140 mmHg OR DBP ≥ 90 mmHg OR on medication

^b Figures in parentheses are 95% confidence intervals of the estimates

However, since 2008, better information on blood pressure is available from all countries in the Region except Timor-Leste (Table 3).⁶⁻¹⁷ However, these data are for different years, for different age groups and at different levels (national/subnational, rural/urban), precluding any direct comparison between them, though they more closely reflect the status in these countries for the studied populations. These figures confirm the higher mean levels of blood pressure in countries of the SEA Region and support efforts to shift the population distribution of hypertension rather than focus on high-risk individuals. Table 3 also shows that many countries have strengthened their surveillance systems to measure risk factors including hypertension, though more needs to be done to establish regular, sustainable, national-level surveillance systems for risk factors.

Table 3. Details of the NCD risk factor surveys in Member States that have data on blood pressure levels

Country	Year of study	Age group	Sampling frame	Sample size	Mean (95% CI) Systolic blood pressure (mmHg)		Mean (95% CI) Diastolic blood pressure (mmHg)	
					Men	Women	Men	Women
Bangladesh	2009–2010	25+	National	M 4312 F 4963	121 (120.7–121.5)	119 (118–119)	78 (77.2–77.8)	75 (75.0–75.7)
Bhutan	2007	25–74	Thimphu	M 1138 F 1346	127.0 (125.9–128.1)	121.7 (120.7–122.7)	80.1 (79.3–80.9)	78.8 (78.1–79.4)
Democratic People's Republic of Korea	2008	25–64	7 provinces	M 2818 F 2924	126.1 (125.5–126.8)	122.3 (121.7–123.0)	80.2 (80.0–80.5)	78.3 (77.8–78.7)
India	2007–2008	15–64	7 states ^a	M variable F variable	(124.4–129.2)	(120.0–124.1)	(78.0–81.8)	(76.1–79.4)
Indonesia	2007	18+	National	M NR F NR	NR	NR	NR	NR
Maldives	2004	25–64	Malé city	M 934 F 1092	128.1 (126.8–129.4)	125.4 (124.2–126.6)	78.2 (77.5–79.0)	77.9 (77.3–78.7)
Myanmar	2009	15–64	National	M 2862 F 4567	130.9 (129.5–132.3)	126.0 (124.5–127.6)	80.8 (79.9–81.7)	79.9 (79.0–80.8)
Nepal	2007	15–64	National	M 1907 F 2421	128.3 (124.6–132.0)	122.8 (118.6–127.0)	77.6 (74.5–80.6)	76.8 (74.6–79.0)
Sri Lanka	2007–2008	15–64	National	M 6140 F 6261	125.4	120.2	72.3	71.7
Thailand	2009	15+	National	M 8803 F 9826	123.9	119.9	76.7	73.8
Timor-Leste	No information is available. A survey of NCD risk factors is planned for 2013.							

^a Sampling was done to be representative at state level but report did not provide combined estimate. This report therefore, presents the range of results between states.

Note: Except Bhutan and Sri Lanka, which excluded those on treatment for estimation of mean blood pressure, these values are for all respondents.

NR not reported

National data from some countries indicate an increasing trend in the prevalence of hypertension. In India, the prevalence of hypertension increased from 5% in the 1960s to nearly 12% in the 1990s, to more than 30% in 2008.¹⁸ In Indonesia, the percentage of the adult population with hypertension increased from 8% in 1995 to 32% in 2008. In Myanmar, the NCD risk factor surveys by the Ministry of Health reported an increase in hypertension prevalence, from 18% to 31% in men, and from 16% to 29% in women during 2004–2009.⁵ This increase in the prevalence of hypertension among adults is being driven by an ageing population and adverse changes in risk factors such as tobacco use, decreased physical activity, and inappropriate diet, especially an increase in salt consumption.

The surveys mentioned above, which were done using the WHO STEPs approach, also had questions on awareness, treatment and control of blood pressure. In four of the eight countries that reported this information, less than 50% of subjects were aware that they had hypertension, and in four other countries, this figure ranged from 56% to 70% (Table 4). Among those who were aware that they had hypertension, about half were on treatment, except in the Maldives and Thailand, where higher rates of treatment were reported. However, less than half of those who were on treatment had blood pressure levels below 140/90 mmHg. These data indicate that the proportion of people with hypertension whose blood pressure is under control is very small, highlighting the need for major efforts at control by health systems of Member States. At present, coverage with drug treatment is poor, and advice on healthy lifestyles is not being given adequately to patients with hypertension. All subjects with hypertension should be mandatorily advised on the need to reduce salt in the diet and increase their physical activity. Yet, only about two third of cases were advised to reduce salt intake and about half were advised to exercise. Thailand performed relatively better on these indicators (Table 5).

Table 4. Awareness, treatment and control of hypertension in Member States of the SEA Region (both sexes)

Country	Aware of their hypertensive status (%)	On treatment for hypertension among those aware (%)	Blood pressure controlled ^a among those on treatment (%)
Bangladesh	69.8	48.4	42.2
Bhutan	65.8	56.2	NR
India ^b	11.4–51.8	46.2–76.8	NR
Indonesia	24.0	NR	NR
Maldives	33.3	69	41.4
Myanmar	67.3	25.6	6.4
Nepal	29.7	41.2	22.3
Thailand	56.6	85.8	43.1

^a Defined as blood pressure below 140/90 mmHg

^b Range reported from the seven states of India which were surveyed

NR not reported

Table 5. Frequency of advice on various lifestyle-related behaviours given to subjects with pre-diagnosed hypertension

Country	Salt reduction/ dietary intake (%)	Exercise (%)
Bangladesh	67.5	56.6
Bhutan	73.5	37.7
India	39.7–71.2	28.2–51.5
Myanmar	90.3	48.0
Nepal	77.9	51.6
Thailand	81.6	74.2

Assessment of the systemic response to hypertension

Population or public health strategies to control hypertension broadly fall into three categories: improving access to diagnosis and treatment of hypertension; conducting activities to encourage and assist individuals in taking health-promoting actions; and implementing strategies for social and environmental change. A small decrease in the population distribution of systolic blood pressure is likely to result in a substantial reduction in the burden of blood pressure-related illness.

Countries need to respond to the problem of hypertension by adopting prevention strategies and strengthening health systems to improve access to good-quality treatment. Equipment and drugs for the diagnosis and management of hypertension were generally available in the primary health-care facilities of all Member States (Box 1). However, in 2010, a WHO survey that assessed the capacity of Member States to prevent and control NCDs found that only eight countries had standard national guidelines for the management of hypertension. As many countries have embarked on NCD-related initiatives in the recent past, the status could have changed since 2010. A similar survey to be done later in 2013 will update these findings. A more recent review showed that only three countries in the Region have initiated efforts at population-level reduction of salt intake (Indonesia, Sri Lanka and Thailand).¹⁹

Box 1. Results of capacity assessment for prevention and control of hypertension in Member States of the SEA Region (2010)

Health system

- National guidelines for management of hypertension were available in eight countries.
- Equipment at primary health-care (PHC) level for diagnosis of hypertension were available in 11 countries.
- Availability of drugs in general at PHC level:
 - thiazide diuretics – 10 countries
 - angiotensin-converting enzyme inhibitors – 11 countries
 - calcium-channel blockers – 10 countries
 - beta-blockers – 11 countries.

Policies and programmes

- Population-level salt reduction strategies – three countries (Indonesia, Sri Lanka and Thailand).

Hypertension, along with other NCDs, requires an integrated multisectoral response by governments to create an enabling environment for people to make healthier choices. The measures include encouraging physical activity, and implementing fiscal and regulatory measures to promote healthy eating, and discourage tobacco and alcohol use. A healthy settings approach can also foster healthy lifestyles, in which industries, schools, workplaces and communities implement guidelines for healthy living within their environments. These initiatives have been launched in many countries of the Region, some of which have been shared in this issue of the journal.

Barriers and the way forward

Some of the major barriers to prevention and control of hypertension in the Region include the lack of an enabling environment for healthy lifestyles due to the absence of healthy public policies and cultural norms that promote unhealthy lifestyles. Other barriers are weak health services

characterized by an unregulated private sector, and lack of access to health services for early detection and treatment including counselling. To overcome these barriers, professional associations and policy-makers should work with the private sector, foster partnerships and collaboration with other relevant sectors such as agriculture, urban planning and education, among others. Increased allocation of resources for NCD prevention and control activities is a must.

Despite these barriers, the potential for health benefits makes continued efforts to prevent hypertension an important public health goal. Public health leadership that emphasizes population-based integrated approaches, particularly those that target the risk factors of hypertension, would ultimately lead to significant improvement in public health – a reduction in the prevalence of hypertension, improvement in the quality of care provided to individuals with hypertension, a reduction in health disparities and, ultimately, reduced mortality and morbidity due to heart disease and stroke.

In conclusion, raised blood pressure or hypertension affects one in three adults in the SEA Region. Although countries are strengthening their health systems to address hypertension, much more needs to be done, as reflected by the high diagnostic gap, poor coverage with treatment and resultant poor control. Existing surveillance systems in the Region need to be strengthened to collect information on globally agreed upon indicators of hypertension, which would enable monitoring of progress in future. Population-level strategies, including that of salt reduction, are at a very early stage of introduction and need to be considerably scaled up.

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