

The Unhealthy Status of Health Sector – Some Evidences from South Asia

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ABSTRACT

South Asia is home to 1709.723 million people and is the most densely populated region of the globe. The GDP of South Asia in terms of PPP is \$9876.6bn and in the recent past it came to limelight mainly because of high growth rate of GDP (3.3%) over the last fifteen years. This high growth rate was mainly fuelled by India. Despite the improvements it has made in the past 25 years it is still categorised as medium human development region with its HDI score of .599. Low human development in south Asia is attributed to its low standard of life, low quality of education and health. The health outcomes of South Asia are relatively poor compared with other regions of the world. The IMR of South Asia is 34.1, MMR is 176 and the DALY's are 712,139.8. South Asia has not only relatively poor health outcomes compared with the other regions of the globe level but there are significant variations in the health outcomes of the constituting countries. In this region the health outcomes of Sri Lanka are better and can be compared to any developed country of the world. The better health outcomes of Sri Lanka are explained by its strong social determinants of health and its efficiency to use the health inputs. To improve the health outcomes mainly by India, Pakistan and Bangladesh which constitute 95% population of South Asia it is imperative to improve the social determinants and efficient use of health inputs.

Key Words: Health Status, Health Outcome, Human Development, South Asia, Efficiency

JEL Classification: I11, I15 and J13

I.INTRODUCTION

South Asia comprises of eight countries Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. These countries are also known as SAARC (South Asian Association for Regional Cooperation) countries. South Asia is the most populous region of the globe supporting almost one fourth of the global population (1.749 billion). In terms of land surface area it constitutes only 3.4% of the global land surface only. Comparatively low land surface area supporting huge population makes it a highly densely populated region of the world. The population density of this region is 350.6. About 24.6 % of the South Asian population is living below \$1.25 a day. The gross domestic product (GDP) per capita PPP international \$ is highest in Maldives (12636.5) and Sri Lanka (11738.8). It is lowest in Afghanistan (1934.1) and Nepal (2458.1) (World Bank,

2015). Population living Below Poverty Line (BPL) ranges from 8.9% in Sri Lanka to 31.5% in Bangladesh (World fact book, 2015). About 70% of the South Asian population and about 75% of South Asia's poor live in rural areas and mostly depend on agriculture for their livelihood.

In terms of Human Development Index (HDI); a comprehensive indicator of development South Asia still falls in the category of medium human development group with its HDI value of .599. There has been a marginal increase in HDI score of South Asia from 0.503 in 2000 to 0.599 in 2014. Three countries i.e Nepal, Pakistan and Afghanistan fall in the group of low human development countries with HDI scores of 0.548, 0.538 and 0.465 respectively. India, Bhutan and Bangladesh fall in the category of medium human development countries with their HDI score of 0.602, .605 and .599 respectively. Only Sri Lanka and Maldives have high human development indicators. The HDI scores of these two countries are 0.757 and 0.706 respectively (UNDP, 2015).

South Asia along with the Sub Sahara Africa are the dark spots on the globe when it comes to health outcomes. The mortality and morbidity indicators of South Asia determine the magnitude of these indicators at the global level. The life expectancy at birth in South Asia is 69 compared to 71.4 at world level. The Infant Mortality Rate (IMR) of South Asia (34.1) is equal to global level (34.1). The Maternal Mortality Rate (MMR) of South Asia is (176) lower than global level (216).

By looking at the progress made by South Asian countries from 2000 to 2015 it is evident that there has been an uneven improvement in the health outcomes of these countries. The IMR of South Asia was 60.25 in 2000 it has been reduced to 34.1 in 2015. Similarly MMR has been reduced from 421.2 to 178.5 in the past fifteen years. The average life expectancy has been improved from 62.9 in 2000 to 69 in 2015. The Disability Adjusted Life Years (DALY's) have been reduced from 785508.2 in 2000 to 712139.8 in 2012.

The status and variation in mortality and morbidity indicators of South Asian countries is given in Table 1

Table 1: Mortality and Morbidity Indicators of South Asian Countries, 2000-15.

	2000			2015		2012
	MMR	IMR	DALY's	MMR	IMR	DALY's
Afghanistan	1100	95.4	20598.5	396	66.3	19675.4
Bangladesh	399	64.4	65824.4	176	30.7	51230.8
Bhutan	423	59	343.7	148	27.2	285.4
India	374	66.4	591359.4	174	37.9	539230.9
Maldives	163	35.6	93.4	68	7.4	69.1
Nepal	548	59.6	13408.5	258	29.4	10284.6

Pakistan	306	87.7	86929.9	178	65.8	85231.3
Sri Lanka	57	14	6950.4	30	8.4	6132.3

Source: WHO.

From Table 1 it is clear that all the South Asian countries have reduced the MMR and IMR in past fifteen years. From 2000 to 2015 the highest reduction in MMR was achieved by Bhutan 65% and lowest reduction by Pakistan 41.1%. From 2000 to 2015 highest reduction in IMR was achieved by Maldives 79.1% and lowest was achieved by Pakistan 25%. Despite this reduction in MMR, South Asia still contributes (66,000) maternal deaths which is 21% of the global maternal deaths. In South Asia, India is the major contributor of the maternal deaths (45000), it contributes 69% maternal deaths in South Asia and 15% of global maternal deaths. This huge number of maternal deaths could be brought down only if there is an improvement in the determinants of MMR so as to bring them to the level of neighbouring country Sri Lanka. Given the strong correlation between IMR and MMR (0.76) it is imperative to bring improvements in the determinants of these two variables. The main determinants of these two variables are: standard of living measured in GDP per capita, nutrition of expecting mothers, immunization rates, female literacy, access to safe drinking water and proper sanitation, availability and use of effective primary health care etc. In South Asia there is a considerable difference in these determinants across different countries. Percentage of population using improved sanitation facilities ranges from 95.1% in Sri Lanka to 30% in Afghanistan. The corresponding figure for India is 39%. Female literacy an important determinant of MMR because of its linkages with other determinants ranges from 91% in Sri Lanka to 24% in Afghanistan. For India female literacy is 62%. Similarly births attended by skill birth attendants ranges from 98% in Sri Lanka to 41% in Bangladesh. For India skill birth attendants rate is 74%. If we look at the DALY's share of South Asia in total global DALY's is 25%. There has been a decline of 9% in DALY's of South Asia from 2000 to 2012. The highest decline in DALY's was achieved by Maldives (26%) and lowest decline was achieved by Pakistan (1.95%). India's share in DALY's of South Asia is 75% and its share in global level is 19%. There has been 8% reduction in DALY's in India from 2000 to 2012.

II.HEALTH EXPENDITURE

Health care expenditure is associated with increase in life expectancy at birth and reduction in death and infant mortality rates. While both private and public sources of health care expenditure are significantly associated with improved health outcomes, public health care expenditure has relatively larger impact. Government spending contributed to positive outcomes in under-five and maternal mortality (Bokhari, et al 2007)). The GDP of a country and health care expenditures were associated with higher life expectancy for females and "inversely associated with potential years of life lost to females" in Western Europe. Health care expenditure explained infant mortality better than GDP (Elola et al, 1995). The health care spending in the south Asian countries is given in Table 2.

Table 2: Health Expenditure in South Asian Countries 2000-15.

	2000						2015					
	THE as% GDP	GHE as% THE	PHE as% THE	OOP as% THE	PCTEH Int \$	PCGHE Int \$	THE as% GDP	GHE as% THE	PHE as% THE	OOP as% THE	PCTEH Int \$	PCGHE Int \$
Afghanistan	7.76	7.09	92.91	92.47	75.98	5.39	8.18	35.84	64.16	63.88	166.52	59.69
Bangladesh	2.33	40.69	59.31	57.78	30.35	12.35	2.82	27.9	72.1	66.98	88.08	24.57
Bhutan	6.91	77.04	22.96	22.96	197.06	151.81	3.57	73.19	26.81	25.33	281.1	205.73
India	4.26	26.09	73.91	67.86	85.21	22.23	4.69	30.04	69.96	62.42	267.41	80.32
Maldives	8.0	64.02	35.98	18.96	334.04	211.71	13.73	78.33	21.67	18.26	1995.84	1563.23
Nepal	5.43	24.91	75.09	68.49	66.25	16.5	5.8	40.33	59.67	47.65	137.4	55.41
Pakistan	2.79	21.83	78.17	63.7	83.39	18.21	2.61	35.15	64.85	56.28	128.99	45.34
Sri Lanka	3.77	48.91	51.09	41.3	150.5	73.61	3.5	56.06	43.94	42.09	369.17	206.95

THE: Total Health Expenditure

GHE: Govt Health Expenditure

PHE: Private Health Expenditure

OOP: Out of Pocket Expenditure

PCTEH; Per Capita Total Health Expenditure

PCGHE: Per Capita Govt. Health Expenditure

Compared with the global level of 9.9%, the expenditure on health as a percentage of GDP is very low in South Asia. This region spends only 4.3% of GDP on health which is lower than the African region which spends 5.5% of GDP on health. In South Asia only Maldives spends more than 10% of its GDP on health. Countries like India, Bangladesh and Pakistan which share 95% of the population of the region spend below 5% of their GDP on health. From 2000 to 2015 there has been a 5.73% increase in total health expenditure in Maldives. During this period Bhutan witnessed 3.34% decline in total health expenditure. Share of government health expenditure has increased in Afghanistan by 28.75% and it has declined significantly in Bangladesh by 12.79%. In South Asia, public health expenditure on health is highest in Maldives (78.3%) and it is lowest in Bangladesh (28%) and India (30%). About 30% population in India, Bangladesh and Pakistan lives on less than \$ 1.25 a day. Low total expenditure along with high out of pocket expenditure on health is reflected in the poor health outcomes of these countries.

III.EFFICIENCY OF HEALTH SECTORS IN SOUTH ASIA

To compare the performance of the South Asian countries in health sector and to calculate their relative efficiency scores the concept of SFA (Stochastic Frontier Analysis) is used. The model to be used in this analysis is

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + v_i + u_i \quad i = 1, \dots, n$$

Where Y is the output, X 's are independent variables, β 's are the respective coefficients, u_i is the difference between the health function frontier of a country and the best practice technique and it is either 0 or negative; v_i is the statistical error and other random factors and it is either positive, negative or zero. The above model means that the health function frontier of any country is given by

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

provided it uses best technique ($u = 0$) and there are no statistical errors ($v = 0$). If a country uses best technique but there are statistical errors then the frontier function of that country is given by

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + v_i$$

The presence of v means that the frontier functions vary randomly across different countries. On the other hand with no statistical errors the given country's realised output will be equal to or less than the potential frontier output depending on whether u is 0 or negative respectively. With the assumption of u being non positive the approach used by Aigner, Lovell and Schmidt is used in this analysis. This approach assumes a truncated normal (half normal) distribution for u , along with normal distribution for v . Given the density function for u and v , the frontier function mentioned above is estimated by maximum likelihood technique. The advantage of estimating the frontier function with the assumption of density functions for u and v is that it ensures whether the deviation of economic unit's actual output from its potential output is mainly because it did not use the best practice technique or is due to external random factors. The stochastic frontier model framed above gives the average technical efficiency measures for the sample observations.

In the current analysis the technical efficiency scores of the South Asian countries is calculated using the data of World Health Organisation (WHO, 2000 & 2015). The results obtained by using Frontier 4.1 are given in Table 3. In this analysis the dependent/output variable is MMR. The main independent variables influencing MMR are health expenditure measured as percentage of GDP spent on health, institutional deliveries captured by percentage of births attended by skilled birth attendants, percentage of population using improved sanitation, percentage of population using safe drinking water and health infrastructure captured by physician density. The results obtained are given in Table 3.

Table 3 Technical efficiency scores of South Asian countries in 2000 and 2015.

Country	Tech. efficiency 2000	Rank	Tech. Efficiency 2015	Rank	Change in ranking

Afghanistan	0.25647802	6	0.22944566	6	0
Bangladesh	0.82230322	4	0.30479785	4	0
Bhutan	0.51717144	5	0.37933414	3	+2
India	0.13916154	8	0.29456425	5	+3
Maldives	0.97061060	1	0.98645031	2	-1
Nepal	0.20131650	7	0.21376433	8	-1
Pakistan	0.85417050	3	0.21908854	7	-4
Srilanka	0.93552389	2	0.99041797	1	+1
Mean efficiency	0.39848867		0.45223288		

IV.CONCLUSION

The technical efficiency score of Sri Lanka (.990) is close to 1 and hence is the most efficient country in South Asia in using health inputs. The efficiency scores of India (0.294), Bangladesh (.304) and Pakistan (.219) are almost 3 times less than that of Sri Lanka. Very low efficiency scores of these countries supporting 95% population of the region is a big challenge. There are ample reasons for the relatively poor performance of these countries. The major reasons explaining these differences are explained below:

Immunization plays a predominant role in avoiding the onslaught of the diseases. In South Asia Srilanka has low under five (U5) mortality (10). This low U5 mortality in major part is explained by 99% coverage of DPT3, HEPB3 and HIB3 immunization. In Bangladesh U5 mortality reduced from 144 in 1990 to 38 in 2015. Bangladesh has achieved an average annual reduction of 5.9% from 1990 to 2015 only because it emphasised the immunization and achieved more than 90% coverage in DPT3, HEPB3 and HIB3 immunization. In Pakistan U5 mortality declined from 139 in 1990 to 81 in 2015. Pakistan has the lowest average annual reduction of U5 mortality of 2.1% from 2000 to 2015 because it has achieved only 70% coverage in DPT3, HEPB3 and HIB3 immunization. India launched mass campaigning against the eradication of polio and attained the desired results in 2015. But polio has not been eradicated completely from Pakistan and Afghanistan. In these two countries 30% children do not get vaccination of Pol 3. In rest countries of South Asia this percentage is less than 8.

There are marked differences across the South Asian countries when it comes to nutrition. The prevalence of anaemic women in the age group 15-49 ranges from 25% in Srilanka to 51% in Pakistan. The percentage of anaemic women in the same age group in India is 48 and in Bangladesh it is 43%. India, Pakistan and Bangladesh are home to 203.48 million under nourished people. In India the number of undernourished people

is 194 million making it the country with highest number of hungry people in world. Similarly Pakistan's tragedy is that the undernourished population has increased from 28.7 million in 1990 to 41.3 million in 2015.

Access to healthcare services determines the health outcomes of any country. The percentage of women who receive 4 antenatal checkups in Srilanka is 94. Almost 72% expecting mothers in India, 25% in Bangladesh and 37% in Pakistan receive 4 antenatal checkups. In Srilanka the skilled birth attendant rate is 99%. The corresponding figures for India, Bangladesh and Pakistan are 67%, 44% and 52% respectively. This near about 50% of births not attended by the skilled birth attendants is responsible for high maternal and neonatal mortality in these countries. Proper sanitation is an important determinant of maternal and child health outcomes. In Srilanka population having access to improved sanitation is 94%. In Pakistan it is 48%, Bangladesh it is 57% and in India it is 36%. Open defecation which generates many health hazards is common in India.

The public health expenditure on health in India, Pakistan and Bangladesh is below 30% which is very low compared to other countries of the region. This low public health expenditure is another important factor in explaining the differences across these countries given the fact that these three constitute 432.68 million people living below poverty line. For these 432 million people spending 60% of the expenditure from their pockets is not going to make health their priority.

Education which has huge influence on the health outcomes of any country is also very poor in these three countries. Female literacy which influences particularly maternal and child health outcomes is very low in these countries. Female literacy in India is 62.8%, Bangladesh is 58.5%, and in Pakistan it is 42.7%.

To sum up it is concluded that in order to improve the health outcomes in South Asia the multi pronged strategy is needed. Focus should be on improving the investment in health sector so as to make it a priority sector. Since the mean technical efficiency score in South Asia is .45 it needs to be improved by increasing the resource use efficiency.

REFERENCES

- [1.] Aigner, D., Lovell, K. and Schmidt, P. (1977) Formulation and estimation of stochastic
a. frontier function models, *Journal of Econometrics*, 6, 21–37.
- [2.] Battese, G. and Coelli, T. (1995) A model for technical inefficiency effects in a stochastic
a. frontier production function for panel data, *Empirical Economics*, 20, 325–32.
- [3.] Bokhari, F.A.S., Gai, Y. & Gottret, P. (2007). Government health expenditures and health outcomes,
a. *Health Economics*, 16, 257-273
- [4.] Central Intelligence Agency USA (2015): <https://www.cia.gov/library/publications/the-world-factbook/>
a. factbook/
- [5.] Elola, J., Daponte, A. & Navarro, V.(1995). Health indicators and the organization of health
a. care systems in Western Europe, *American Journal of Public Health*, 85(10), 1397
b. 1401.
- [6.] Indian Institute of Population Studies (2005-06): National Family Health Survey III,

- a. http://rchiips.org/nfhs/nfhs3_national_report.shtml
- [7.] Kumbhakar, S. and Lovell, K. (2000) *Stochastic Frontier Analysis*, Cambridge University Press,
a. Cambridge.
- [8.] McIntyre D, Thiede M, Dahlgren G, Whitehead M (2006). What are the economic
a. consequences for households of illness and of paying for health care in low- and
b. middle-income country contexts? *Social Science and Medicine*, **62**(4), 858–65.
- [9.] Pathirana J, Nkambule J, Black S. Determinants of maternal immunization in developing
a. countries. *Vaccine* 2015;33:2971–7.
- [10.] Subal C. Kumbhakar (2010) Efficiency and productivity of world health systems: where does
a. your country stand?, *Applied Economics*, 42:13, 1641-1659,
- [11.] UNDP (2014). *Human Development Report 2014*. New York: UNDP.
a. http://hdr.undp.org/en/media/HDR_2014_EN_complete.pdf.
- [12.] UNDP (2015). *Human Development Report 2015*. New York: UNDP.
a. http://hdr.undp.org/en/media/HDR_2015_EN_complete.pdf.
- [13.] World Health Organization (2000) *The World Health Report, 2000, Health Systems:*
a. *Improving Performance*, Geneva.
- [14.] World Health Organisation: <http://www.childmortality.org/index.php?>
- [15.] World Health Organisation: <http://www.maternalmortality.org/index.php?>
- [16.] World health organisation (2015): http://www.who.int/gho/countries/afg/country_profiles/en/