

Measuring Ethiopia's health system performance: More efforts are needed to achieve SDG 2030

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Abstract

Background: Health systems are essential platforms for accessible, quality health services, and population health improvements. Monitoring the coverage of interventions in maternal and child health continues to be central to assessing progress towards sustainable development goals. This study aimed to estimate the health system performance through composite coverage index, universal coverage and health system strengthen index.

Methods: To assess the health system performance, three indexes such as composite coverage index (CCI), universal health coverage index, and health system strengthen index were estimated. The composite coverage index was constructed from 11 tracer indicators of the continuum of care. The UHC service coverage index mainly focused on treatment and prevention was constructed from the geometric means from 14 tracer indicators. The health system strengthen index computed from two broad categories: health input and output scores. The data sources for all the analysis were from five Demographics and Health Surveys, health facility surveys, routine and administration reports. We estimated the national and subnational performance of the health system.

Results: The CCI showed over a twofold increase in 2019 (17.6 in 2000 to 55.0 in 2019) compared to 2000. The national UHC-service coverage index by 2020 was 34.0%. The coverage of RMNCH, infectious diseases, NCD and service capacity & access were 45.0%, 69.0%, 71.0% and 6.0%, respectively. The Health system strengthen index was 36.0% in 2020. There were variations on the composite coverage, universal health coverage and health system strengthen indexes by regions, wealth quintile place of residence, education level and regions.

Conclusion: In Ethiopia, there were improvements in health interventions coverage. Inevitable disparities in health service coverage existed by wealth quintile, mothers education level, residence, and regions. It is recommended that the policymakers at the national and subnational levels should take initiatives to narrow the disparities among subpopulations. The health system needs more intensified effort particularly to strengthen the service capacity and access, the health infrastructure and input to achieve the SDG -2030 goals.

Keyword: composite coverage index, universal health coverage index, health system strengthen index Ethiopia, subnational

Introduction

Health system is crucial platforms for expanding access to high-quality healthcare and enhancing population health. The Sustainable Development Goals (SDGs) 3.1 and 3.2, which must be attained by 2030, continue to emphasize reproductive, maternal, newborn, and child health, which was a key component of the Millennium Development Goals (MDGs). SDG 3.7 on sexual and reproductive health and SDG 3.8 on universal health coverage are both pertinent to the health of mothers and children. In order to gauge the nation's progress toward the SDGs, monitoring the coverage of interventions in maternal and child health is crucial (Bryce et al. 2013). Reviews of the health sector should include assessments of the performance discrepancies and intervention coverage across subnational using metrics like universal health coverage, composite coverage index and Health system strengthen index (Boerma et al. 2014; Kumaliya et al. 2015; Sherr et al. 2017). The Sustainable Development Goals (SDGs) health-

related objectives are fundamentally based on universal health coverage (UHC), which emphasizes that all people obtain the essential healthcare services they require without facing financial hardship (WHO and World Bank 2021).

Based on sixteen tracer interventions divided into four categories—reproductive, maternal, neonatal, and child health; infectious diseases; non-communicable diseases; and service capacity and access—SDG indicator 3.8.1 examines the availability of basic health services. The focus was on a variety of services for palliative care, rehabilitation, and other health promotion, prevention, treatment, and care activities. These tracer indicators can be condensed into an index that tracks the availability of basic healthcare and healthcare-related services using a single numerical value (Boerma et al. 2014). Early in the 1990s, Ethiopia in place a national health policy, and in 1997 it unveiled a twenty-year health sector development plan (HSDP), divided into almost five-year strategic plans, with the goal of accelerating access to

healthcare and enhancing the population's health and living conditions. This was followed by a five-year health sector transformation plan. Ethiopia has recorded a number of successes in terms of the health-related MDGs (Ruducha et al. 2017). Ethiopia is one of the low-income countries that have made significant strides in lowering maternal and newborn mortality, which necessitates proof to continue assisting Ethiopia's health sector in meeting SDGs and establishing the case for results-driven investment. Only a limited number of studies have been done on evaluating the performance of the health system, measuring the composite & universal health coverage and health system strength index. The aim of this study was to determine the health system performance through measuring the composite coverage index, universal health coverage, and health system strengthen index at national and subnational level based on synthesis of health interventions collected from several data sources, such as administrative reports, household survey, and health facility data.

Materials and Methods

Composite coverage index/CCI: The present analyses were based on nationally representative surveys from 2000 -2019. The CCI included the following eleven tracer interventions in four stages of the continuum of care (Wehrmeister et al. 2020): reproductive health (demand for family planning satisfied with modern methods (DFPmo)); maternal health (antenatal care visit with a skilled provider (ANC4) and skilled birth attendant (SBA)); child immunizations (one dose of bacille Calmette-Guerin (BCG), three doses of diphtheria-pertussis-tetanus (DPT3), and one dose of measles (MSL) vaccines; and management of childhood illnesses (oral rehydration salts (ORS) for diarrhoea, and care-seeking for suspected childhood pneumonia (CAREP)); early initiation of breastfeeding (EIBF), tetanus toxoid given during pregnancy (TET) and post-natal care visit by the baby within 48 hours after delivery (PNCALL). The four stages had equal weights (Barros and Victora 2013; Boerma et al. 2008; Rutstein and Rojas 2006; Wehrmeister et al. 2016, 2020). The coverage gap index was also calculated in each of the stratifier by using an analysis by countdown (Boerma et al. 2008) 100% - CCI. The trends of CCI from 2000 - 2019 computed against region, residence, education and wealth quintile. The CCI was calculated:

$$CCI = \frac{1}{5} \left(DFPsmo + \frac{ANC4 + SBA}{2} + \frac{EIBF + TET + PNCALL}{3} + \frac{BCG + 2 \times DPT3 + MSL}{4} + \frac{ORS + CAREP}{2} \right)$$

DFPSmo = demand for Family planning satisfied with modern methods; ANC4 = at least four antenatal care visits, regardless the provider; SBA = skilled birth attendance, EBF = early breastfeeding initiation (within 2 hours after delivery), TET tetanus toxoid for mother during pregnancy, PNCALL = postnatal care for babies within 48 hours after delivery, BCG = Bacillus Calmette-Guerin immunization;; DPT3 = 3 doses of diphtheria-tetanus-pertussis immunization;; MSL = measles immunization; ORS = oral rehydration salts for diarrhea; CAREP = care seeking for suspected acute respiratory infection

Universal Health Coverage index /UHCI: In this study, we applied the approaches described by Hogan et al and the WHO/WB report on tracking progress towards UHC, with some modifications (Hogan et al. 2018; WHO and World Bank 2021). The data extracted from local data sources and checked that the indicators were also relevant and available for all nine regions of Ethiopia and the two city administrations. The indicators consisted of four major categories: Reproductive, Maternal, Neonatal, and Child Health (RMNCH), infectious diseases, Non Communicable Diseases (NCD), and service capacity & access. Tracer indicators for RMNCH were demand satisfied with a modern method; antenatal visits 4+ or more and delivery care; immunization for infants with three doses of pentavalent vaccine; care-seeking for children with suspected pneumonia. Tracers indicators for infectious diseases were tuberculosis treatment coverage (TB cases detected and cured); HIV treatment coverage; and adequate water & sanitation, for NCDs prevalence of non-raised blood pressure (BP); mean fasting plasma glucose; cervical cancer screening; and prevalence of tobacco non-smoking, and for service capacity & access we used hospital bed density; health worker density; and access to essential medicines.

Indicator data source: Demographic and health survey data sources (EDHS 2016, 2019) (data sets are available based on request at <https://dhsprogram.com/data>) were used to estimate the UHC service coverage index for RMNCH indicators. The 2018 SARA survey was used to estimate the coverage of essential medicine. NCD STEEPS survey 2016 was used for the estimation of raised blood pressure, fasting blood glucose level, and tobacco non-smoking above 15 years adult. The data source used for HIV antiretroviral treatment coverage and health workforce (HWF) density were from health management information system and the Annual performance Review report of the Ministry of Health.

Estimation of the UHC service coverage index: The UHC service coverage index was constructed from

geometric means of the four major component indicators (Eregata et al. 2019; Hogan et al. 2018; WHO and Worldbank 2017). For the RMNCH category, the geometric mean of FP-demand satisfied with a modern method; PC-antenatal and delivery care; CI-three doses of pentavalent vaccine (DPT3); CHC-child health care-seeking for children with suspected pneumonia were used as follows: $RMNCH = (FP * PC * DPT3 * CHC)^{1/4}$

Infectious disease treatment coverage was calculated by a geometric mean of tuberculosis effective treatment (TB) using the TB case detection rate and cure rate; antiretroviral treatment (ART) coverage using people living with HIV who are currently on ART; water and sanitation (WASH) using the average coverage of households with access to improved water and sanitation; $Infectious = (TB * ART * WASH)^{1/3}$

NCD service coverage was calculated by a geometric mean of non-raised BP, fasting blood plasma glucose level (FPG), and prevalence of non-tobacco users. The non-raised BP rate was measured by a prevalence of systolic blood pressure (BP) methods. For measurement of no tobacco use, the proportion of adults 15 years and older who have not smoked tobacco in the last 30 days of survey time was used: $NCD = (BP * FPG * Tobacco-non\ user)^{1/3}$. The non-raised BP and non-raised blood glucose were not measured in a proportion, we used the rescaling formulas recommended by WHO/WB(WHO/World Bank, 2021): non-raised BP = $(x - 50) / (100 - 50) * 100$, where x is the non-raised BP; and non-FPG was adjusted = $(7.1 - y) / (7.1 - 5.1) * 100$, where y is the mean fasting plasma glucose.

Health service capacity & access coverage was calculated by hospital access, health work force density, and availability of essential medicines. For hospital access, we used annual in-patient admission per capita. For Health work force density (HWF), the availability of health professional's density (MD specialist + MD + Midwife + Health officer) was used. Since due to lack of data, Health security did not included in this analysis. For the measurement of essential medicines, the availability of the 14 WHO-recommended core lists of essential medicines at health facilities from SARA 2018 was used. $Health\ service\ capacity\ \&\ access = (Hospital\ access * HWF * Essential\ medicines)^{1/3}$

Overall UHC service coverage index was calculated by $UHC = (RMNCH * Infectious * non\ communicable * health\ services)^{1/4}$

Health System Strengthen Index –HSSI: For the health system strengthen index analysis, the WHO health system strengthen score template was used. The health system strengthen index computed from the health inputs and output scores. The health input index was calculated from the average of health facility density, inpatient beds density, and health work force density. The health facility density computed from the average of hospitals, health centers and health posts. The health workforce density was computed from general practitioner specialists, nurse, midwife, and health officer. The health output index was calculated from the average of outpatient service utilization and inpatient service utilization. The health infrastructure index contain facility density per 10,000 population per year and Inpatient bed density per 10 000 population per year. The Health workforce index contains skilled health workers density per 10,000 populations. The health output index score contain inpatient service utilization per 100 populations per year and outpatient visits per capita per year.

Data source for HSSI: The data were collected from District health information system /DHIS2/ Health management information system/ HMIS /, service availability and readiness assessment survey /SARA-2018/. In addition, the annual performance reports of the ministry of health on health workforce and health infrastructure were used for the measurement of current health system strengthens index score. The denominator, which was number of population for the coverage estimates from the health facility reports were obtained from the estimation done by CSA (CSA 2013).

Result

Health intervention coverage: Between EDHS 2000 and EDHS 2019, there has been an impressive increase in the coverage of key health interventions. Antenatal first visit (from 28% to 74%), antenatal visits four or more (from 10% to 43%), institutional delivery (from 5% to 45%), C-section rates (from 1% to 5%), as well as the demand for family planning satisfied with modern methods (from 14% in 2000 to 61% in 2016) and the start of breastfeeding initiated within an hour of birth (from 47% to 72%) (Figure 1).

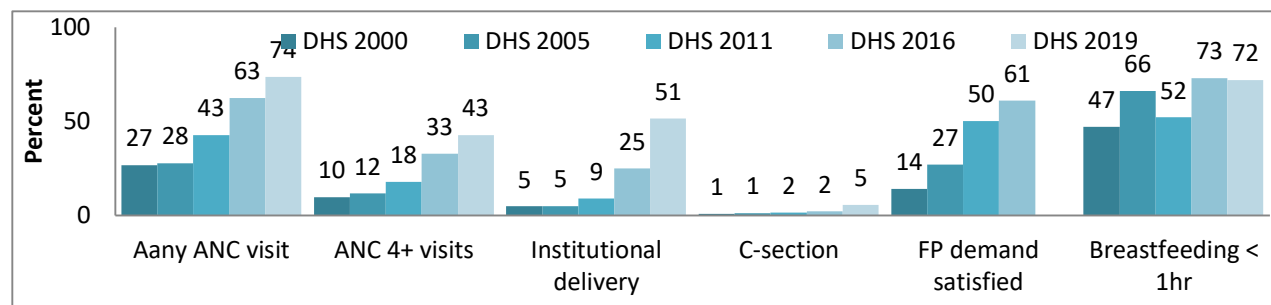


Figure 1: Trends in key indicators of antenatal and delivery care, family planning and early initiation of breastfeeding in Ethiopia, EDHS 2000 to 2019

Composite coverage index (CCI): Nationally, the CCI is increased by 165.0 % (21.0 in 2000 to 54.0 in 2019). In urban residence it increased by 29.0% (48.0 in 2000 to 68 in 2019) while in rural residence increased by 157.0% (17 in 2000 to 43 in 2019), this indicates the driver for the increased in CCI was the increased in service coverage in the rural residence. Mothers from the lowest wealth quintile and non-education households, the CCI increased 148.0% (15.0 in 2000 to 37.0 in 2019) and 134.0% (17 in 2000 to 40.0 in

2019), respectively, while the highest wealth quintile and secondary education increased by 91.0% and 40.0%, respectively. The sub national analysis also showed that the CCI is increased from 2000 to 2019 except Somali region, which showed reduction in 2019, by -11.0% (27.0 in 2000 to 24.0 in 2019). The higher percentages of CCI increment from 2000 to 2019 were recorded in Amhara, B-gumuz, Tigray, Oromia, and SNNPR region by 239.0, 182.0, 136.0, 126.0, and 123.0%, respectively (Figure 2).

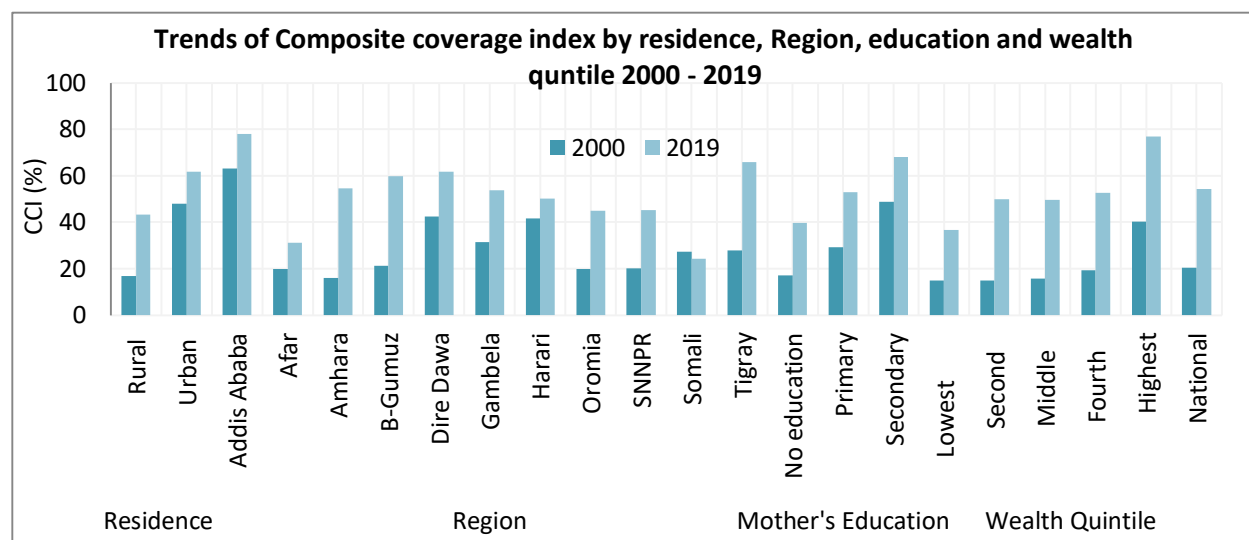


Figure 2: Trends of CCI by residence, region, education and wealth quintile, EDHS 2000 to 2019

Nationally, the coverage gap was reduced by 43.0 percentage points. More gap reduction observed in rural residence (32.0%), in households with secondary and above education (38.0%), and in the highest wealth quintile (61.0%) than their counter parts. Among regions, in 2019, the overall size of the coverage gap varied from 22.0% in Addis Ababa to 76.0% in Somali region. Considering the gap reduction, the higher gap reduction or greater than the national reduction were noted in Tigray (53.0%), B-gumuz (49.0%), and Amhara (46.0%) regions, respectively. However the coverage gap index in Somali region increased by 4.0% from 2000 to 2019.

Universal health service coverage (UHC) index: The Ethiopian overall UHC service coverage index for the year 2019 was about 34.0%, the lowest in Somali 22.0% and the highest in Addis Ababa, 59.0%. The most populous regions such as Oromia and SNNP were below the average national performance. We also explored UHC service coverage variation across areas of service indicators (Table 1).

Table 1: Universal Health Coverage health service coverage index

Variables	Tigray	Afar	Amhara	Oromia	Somali	B-Gumuz	SNNPR	Gambela	Harari	AA	DD	National
<i>Reproductive, maternal, newborn and child health</i>												
• Family planning	36.3	12.7	49.5	38.9	3.4	36.7	44.6	33.2	30.3	47.6	30.3	40.5
• Antenatal and delivery care	68.6	30.9	53.3	42.2	18.6	60.5	42.1	50.9	51.8	88.8	66.2	46.4
• Full child immunization	84.4	27.0	77.8	52.9	26.2	77.3	56.3	60.4	53.6	93.1	73.6	61.1
• Health-seeking behavior for pneumonia.	34.1	41.3	31.4	35.0	26.8	41.6	36.7	45.0	53.8	62.5	51.2	35.3
	51.7	25.7	50.4	41.7	14.5	51.7	44.4	46.3	46.1	70.4	52.4	44.9
<i>Infectious diseases</i>												
• Tuberculosis treatment	87.5	80.0	91.0	91.0	64.0	88.0	89.0	81.5	91.0	91.5	89.5	89.5
• HIV antiretroviral treatment	97.0	56.0	80.0	88.0	18.0	81.0	88.0	61.0	100.0	100.0	100.0	84.0
• Adequate sanitation	55.5	36.5	43.1	39.2	37.7	49.2	41.0	44.8	67.4	89.3	80.8	44.0
	77.5	67.6	67.7	68.2	84.6	93.1	89.3	54.4	35.0	70.2	60.4	68.9
<i>Non-communicable diseases</i>												
• Prevention and treatment of raised blood pressure	80.6	81.2	63.8	62.6	69.0	73.8	54.4	65.0	61.6	71.8	42.6	63.4
• Prevention and treatment of raised blood glucose	70.8	58.5	55.6	61.6	69.0	62.0	48.4	66.3	62.6	40.7	75.2	58.2
• Tobacco (non-)smoking.	99.4	97.8	99.6	99.2	99.6	99.6	99.0	97.8	99.6	97.8	97.8	99.2
	82.4	77.1	70.4	72.3	77.6	76.6	63.6	74.7	72.4	65.6	67.6	71.2
<i>Service capacity and access</i>												
• Basic hospital access	13.2	4.1	7.1	6.3	6.0	8.0	6.1	100.0	100.0	100.0	100.0	7.6
• Health worker density	1.4	0.3	1.2	0.7	0.6	0.8	0.9	0.9	3.0	7.1	1.9	1.1
• Access to essential medicines	39.0	45.0	26.0	30.0	46.0	33.0	23.0	15.0	24.0	20.0	53.0	28.0
	8.9	6.0	5.1	5.0	19.2	24.1	21.6	3.7	5.4	6.0	10.8	6.2

The national RMNCH service coverage was about 45.0%; the lowest is in Somali region, 14.5% and the highest was in Addis Ababa, 70.4%. The lowest performed area in RMNCH category was health-seeking behavior for pneumonia (35.3%) followed by family planning (40.5%), while the highest coverage was immunization (61.1%). The national coverage for the infectious disease treatment and prevention was 69.0%, it ranged from 35.0% in Somali region to 93.0% in Addis Ababa. The lowest performing area in this section was adequate sanitation 44.0%. The national NCD prevention coverage was 71.2%, the lowest in Dire Dawa, 58.4% and the highest was in Tigray 82.4%. In this category, the lowest performing area was prevention and treatment of raised blood glucose 58.2%. The national service capacity & access was 6.2%, the lowest in Afar 3.7% while the highest was in Addis Ababa, 24.1%.

Health system strengthen index /HSSI/: The national health system strength index was 36.0%. It increased by 50.0% (24.0 % in 2016 to 36.0% in 2021). There

were larger differences among regions; the lowest was 28.0 % in Afar region to the highest, 64.0% in Harari region. HSS index for Afar, Somali, Oromia and Tigray were less than national average, 28.0%, 30.0%, 32.0%, and 35.0%, respectively. Higher health system strengthen index than the national were predominantly in urban regions, such as Addis Ababa, Dire Dawa and Harari, 48.0%, 49.0%, and 64.0%, respectively (Figure 3).

The trends of health system strength index showed increment in all regions except Harari, Afar and Somali regions. The percentage point of change from the 2016 showed that the highest increment observed in Addis Ababa by 153.0% (19.0 % in 2016 to 48.0% in 2021) followed by Dire Dawa by 69.0% percentage points (29.0% in 2016 to 49.0% in 2021), and B-gumuz by 61.0% percentage points (28.0% in 2016 to 45.0% in 2021). The lowest increase observed in Afar, 12% percentage points (25.0% in 2016 to 28.0% in 2021) and Somali Region, 20.0 percentage points (25.0% in 2016 to 30.0% in 2021) (Figure 3).

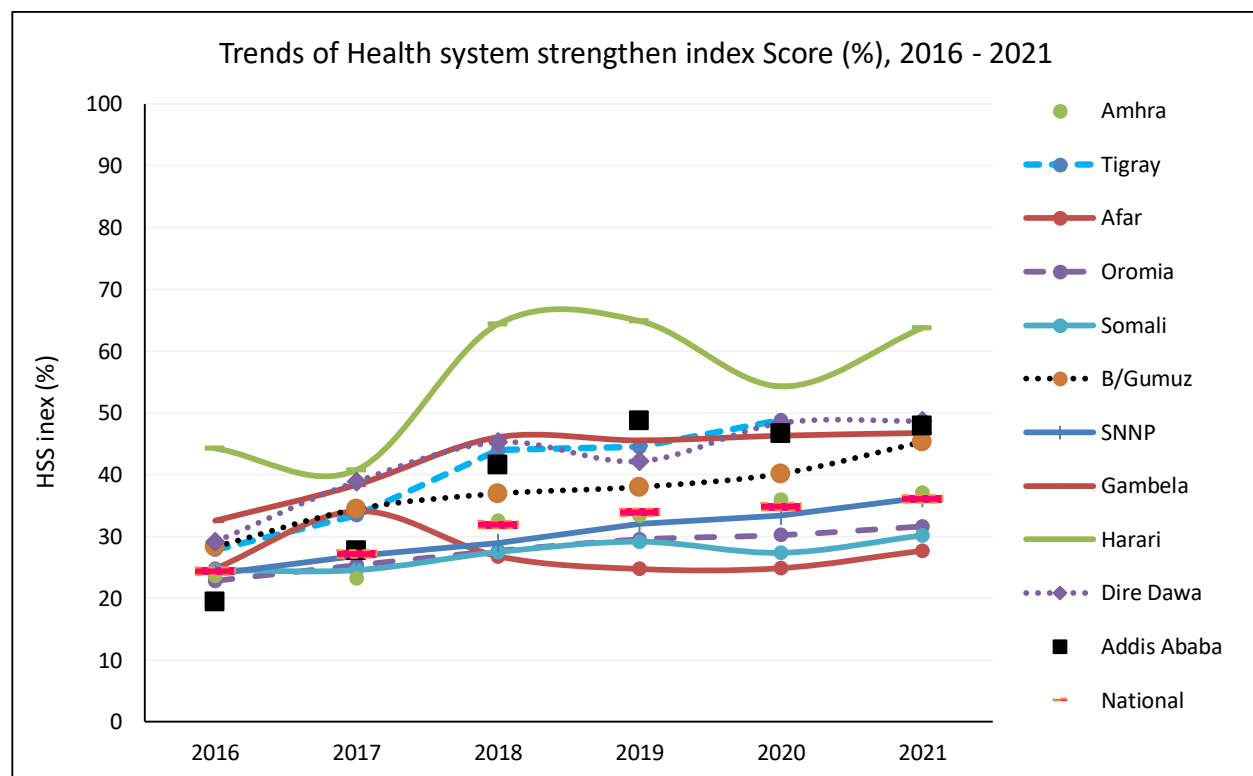


Figure 3: Trends of Health system strength index score by regions 2021.

Correlation of CCI, UHCI and HSSI with child mortality: The correlation of the CCI with neonatal and under five mortality per 1000 live births showed impacts on the reduction of neonatal and under-five

mortality. As a one unit increment of CCI will result reduction of 0.76 and 0.21 units of under-five and neonatal mortality per 1000 live births in 2019, respectively (Figure 4).

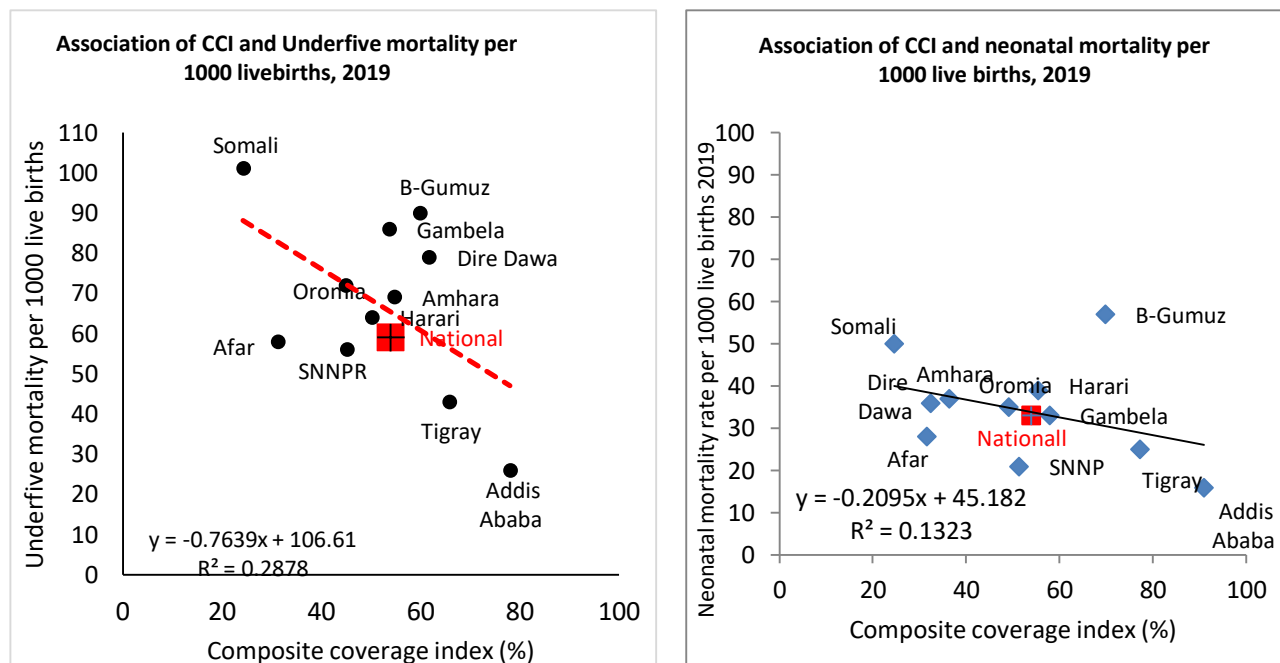


Figure 4: Correlation of cci with under-five and neonatal mortality per 1000 live births in 2019

The correlation of health system strengthen index with the neonatal mortality per 1000 live births (mini EDHS, 2019) suggested that a unit increments of the health strengthen index leads to a reduction by 0.0335 unit of neonatal mortality per 1000 live births. The highest neonatal mortality reduction observed in Dire dawa, SNNPR, and Afar region. The high neonatal mortality still exist in B-gumuz, Somali and the two most populous regions such as Amhara and Oromia regions.

More pronounced correlation were noted between HSSI and under-five mortality per 1000 live births (mini EDHS, 2019), a unit increment of HSSI leads to a 0.45 unit reduction of under-five mortality per 1000 live births. More reduction of under-five mortality noted in Addis Ababa and Tigray regions, while Somali, B-gumuz, and Gambela regions showed less reduction of under-five mortality.

Discussion

In this study, the CCI, UHC service coverage index, and Health system strengthen index were estimated at the national and subnational levels. Improvements in the coverage of health interventions, health inputs, and health outputs were found, however there were also variations and differences in achievement across program areas. There are also impressive coverage gap reductions throughout the country from 2000. These findings help in focusing on two important policy-relevant issues: based on the current conditions, can Ethiopia meet the 2030 targets for sustainable development and universal health coverage? How subnational disparities can be overcome and the significant gaps on the coverage of health interventions should be minimized?

The UHC index also includes another seven tracer indicators (basic sanitation, malaria prevention, HIV treatment, TB effective treatment, no tobacco smoking, hypertension treatment and diabetes treatment). In this study, the overall UHC service coverage index for Ethiopia 33.0%. This coverage level is behind the SDG target of 80% by the year 2030 and also much lower compared with global average service coverage (42.0%) (Hogan et al. 2018), sub-Saharan Africa average (64.0%), Kenya (42.0%) (Barasa et al. 2018), East Asia (77.0%) Northern America and Europe (also 77.0%), Southern Asia (53.0%) (WHO and Worldbank 2017). This low RMNCH service coverage can be partially explained by difference in the health indicators included in the analysis, such as we omitted the financial protection, health security and cervical cancer screening from the analysis due to low quality and or unavailability of data, high multidimensional poverty among a large majority of the Ethiopian households (Jacobs et al. 2012), low literacy rate together with poor modern healthcare-seeking behavior and low investment in health system (Mebratie et al. 2014; Stenberg et al. 2017; MoH 2019; Eregata et al. 2019), and also reflect the shift of priorities in the health sector transformation one period, gives attention to the non-communicable diseases as well as globally (MoH 2021).

There are improvements in the national health system performance; this could facilitate the achievement of the universal health coverage at national level. The health system strengthen index is 36.0%, it increased by 50.0% during the health sector transformation one period (24.0 % in 2016 to 36.0% in 2020). There are huge differences among regions; the lowest is 28.0 % in Afar region to the highest, 64.0% in Harari region in 2020. Variations also exist in the components of the HSSI. The trends of the health input index, nationally it increased by 7.0 percent change points (48.0% in

2016 to 55.0% in 2021) and output process increased from 1% in 2016 to 17% in 2021. These differences indicate the health system is weak, in terms health workforce, infrastructure, inpatient beds and availabilities of services in the health facilities which may be associated with lower levels of socioeconomic development (Mebratie et al. 2014; MoH 2019; Stenberg et al. 2017).

The CCI coverage increased through time which indicates the improvements of the coverage of health interventions as a result of reduction of neonatal mortality. The correlation of the CCI with neonatal mortality per 1000 live births showed impacts on the reduction of neonatal mortality. There was a direct relation on the improvements of the workforce density and rise up UHC –service coverage index. The performance of the health system using the health system inputs for improving the coverage of services also showed that a one unit increment in the utilization of the health system inputs such as increasing health facilities, human resources and other supplies produced a one unit increment in the utilization of health services such as increase in outpatient and inpatient service utilization. The improvements of the health system inputs and outputs increase the health system strengthen index. The health systems strengthen index showed impacts on the reduction of the neonatal mortality. These suggest improving the coverage of the health inputs such as health workforce, health facilities and availabilities of basic lifesaving medications to improve the coverage health interventions which strengthen the health system to achieve the sustainable development goals by 2030.

The study has strength and limitations. The study employed indices to measure the performance of the health system in terms of the coverage of health interventions, including the composite coverage index, UHC-service coverage index, and health system strengthening index. The analysis also highlighted the differences in performance at national and subnational levels of the health system and type of interventions. This in depth analysis provides to policymakers at all levels with the opportunity to set priorities and look for performance improvement in these areas, as well as an extensive assessment of the performance of the health system that enables judgment of health system efficiency. It also identifies which systems represent the best overall performance and improvement efforts.

However, the present study has some limitations that are either connected to the choice of the tracer indicator or the data sources, which necessitate careful interpretation of the results. As a composite summary indicator, the CCI does not in and of itself reveal which interventions are behind and which one are in

better performance in terms of coverage, may mask flaws in particular areas of the healthcare system, make it difficult to pinpoint problem areas and, as a result, may make policy and planning more challenging and less effective. Aggregation of the data may also hide contentious individual measures within the composites.

Conclusion

The better performance the health system in terms of composite coverage index, universal coverage index and health system inputs index impacts the reduction of neonatal under-five mortality. However, UHC service coverage index and health system strengthen index for Ethiopia are much lower compared with other countries in the region and behind the targets set in the SDG- UHC target by 2030. There are also subnational variations in the indexes and, therefore, focus given in such regions to achieve the intended planed in Health sector transformation plan in 2025 and SDG 2030, especially in the regions lagging behind the national average. In addition, this study showed that there are significant health intervention coverage gap at national and subnational level, the gap is not closed among the different stratifiers, which urges to take strategies to narrow the gap across regions. Unless health interventions are designed to promote equity, efforts to attain UHC may lead to improvements in the national average of service coverage while inequalities worsen at the same time. Gaps in service coverage remain largest in the poorest, rural residences and pastoralist regions, which reinforces to implement the health interventions across the regions so that it assures no one is left behind.

Ethics approval

Ethical approval was obtained from the Ethiopian Public Health Institute Institutional Review Board as components of countdown to 2030 study.

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Competing interests

None declared.

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