RESEARCH ARTICLE

Millennium development goals (MDGs-2000-2015) to sustainable development goals (SDGs-2030): A chronological landscape of public sector health care segment of Pakistan

Fehmi Aziz,[1] Faheem Tahir,[2] Naveeda Akhtar Qureshi[3]

Abstract

Objective: To evaluate Pakistan's progress in the context of health-related Millennium Development Goals.

Method: The cross-sectional study was conducted from March 2016 to March 2017 at Quaid-i-Azam University Islamabad and National Institution of Health, assessed the chronological landscape of health conditions with temporal limit of 2000 to 2015 while measuring progress in 5, 10 and 15 years of Millennium Development Goals in the Public Sector Health Care Segment. Data was analysed using SPSS 21.

Results: No significant difference in infrastructure was observed during the 2000-2015 era of Millennium Development Goals ($p>0.05$) except in the number of dispensaries ($p=0.001$). There was a significant increase in workforce ($p<0.05$), but no significant difference was observed in health expenditure ($p>0.05$). Family planning sector was also without any significant change ($p>0.05$).

Conclusion: There was no significant difference in most healthcare segments during 2000-2015 and Millennium Development Goals remained underachieved.

Keywords: SDGs, MDGs, Public health, Morbidity, Mortality. (JPMA 71: 596; 2021)

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Introduction

Health is a basic human requirement that determines human capital and serves as an ultimate assurance for humankind's welfare. It resonates positive impact on society through contribution in economic growth. Globally, better health is an accepted reality,[1] as depicted in global endeavours.[2] Since 1990s, global intellect took a decade to develop international consensus for human development[3] in the shape of United Nations Millennium Declaration (UNMD), which magnified seven areas. However, development, poverty reduction and health received gazed focus with well-defined identity as Millennium Development Goals (MDGs). The global initiative was signed by 189 countries, including Pakistan. Three MDGs were health-related with keen focus on non-communicable diseases (NCDs), communicable diseases (CDs), maternal mortality (MM) and child mortality (CM) reduction.[1] Fifteen-year span (2000-2015) of MDGs has been over and details have surfaced based on progress made, obstacles faced and goals that remained underachieved in the first 15 years of the 21st century.[2] Lessons learnt in persuasion of MDGs paved way for Sustainable Development Goals (SDGs) for the next 15 years until 2030. In SDGs, health-related objectives received about 50% share with the approval of 193 countries. Thus, the global intellectual journey which started in 1990s is in continuation as SDGs where a broadened canvas of goals[1] not only represent what is to be achieved but also the global confession where MDGs failed to meet the desired destination, in particular in the health domain.[2] Pakistan as a signatory to both sets of goals owns regional and global share of responsibility, including overwhelming commitment to natives, by provision of health as a constitutional right.[2] Pakistan, despite being part of global metrics of MDGs and SDGs since 1990, remained far behind in achieving most of the health-related goals. The current study was planned to assess improvements made during the MDG era and enlisting failures to identify bottlenecks hampering progress towards attaining health related SDGs.

Materials and Methods

The cross-sectional study was conducted from March 2016 to March 2017 at Quaid-i-Azam University Islamabad and National Institution of Health. Chronological landscape of Public Sector Health Care Segment (PSHCS) was assessed through annual differential analytical comparison of demographics, workforce, infrastructure, expenditures, and population preferences in healthcare (HC) consultancy, including political intelligibility and policy initiatives. Secondary data was extracted from

[1]Department of Zoology, [3]Department of Animal Sciences, Quaid-i-Azam University, Islamabad, [2]Department of Chemical Pathology and Endocrinology, Public Health Laboratories Division, National Institute of Health, Pakistan.

Correspondence: Fehmi Aziz. Email: fehmi.qau1@gmail.com

published reports and surveys, like the Economic Surveys of Pakistan, Pakistan Demographic and Health Surveys,[4,5] and data was tabulated with the MDG timeline for developing trends in graphical representations. An overview of PSHCS, pro-health policies and programmes in the context of MDGs and SDGs was done critically in the light of data.

Multiple analytical comparisons were carried out through division of 15-year period in three groups. Thus, average annual differences in initial 5, 10 and 15 years were compared and computed. Data was analysed using SPSS 21. Analysis of variance (ANOVA) was used at $p<0.05$ level of significance to evaluate the hypotheses, while post-hoc analysis was carried out to evaluate pairwise differences among group means with Tukey's honestly significant difference (HSD) test.

Results

There was non-significant difference in population growth factors (p=0.108), including crude birth rate (p=0.705), crude death rate (p=0.460) and life expectancy (p=0.319) (Figure-1). In health establishments, the annual difference (2000-2005, 2006-2010 and 2010-2015) remained non-significant for hospitals (p=0.262), basic health units (BHUs) (p=0.910), mother and child health centres (MCHCs) (p=0.345), rural health centres (RHCs) (p=0.226), tuberculosis centres (TBCs) (p=0.660), total no. of beds (ToBs) (p=0.220] and population per bed (PPB) (p=0.772). Dispensaries, however, showed statistically significant annual difference (p=0.001). The mean score for 2011-15 period was 147.00±78.69) which was significantly better than 2000-05 mean of -10.600±16.661 and 2006-10 mean of 6.200±22.12 ($p<0.05$). The difference was also significant between 2000-05 and 2006-10 ($p<0.05$).

Table: Statistics of Health workforce of Pakistan during MDGs-era (2000-2015).

Health Workforce	One Way ANONA and Post Hoc Tukey HSD test Statistics	
Doctors	[F(2,12)=5.157; p=0.024]	2000-2005(M=4094.200, SD±2327.584) 2006-2010(M=5235.800, SD±466.093) 2011-2015(M=7147.000, SD±1134.096)
Dentists	[F(2,12)=13.408; p=0.001]	2000-2005(M=392.6000, SD±228.139) 2006-2010(M=738.800, SD±84.799) 2011-2015(M=1056.800, SD±253.412)
Nurses	[F(2,12)=3.981; p=0.047]	2000-2005(M=2183.600, SD±1610.627) 2006-2010(M=4173.400, SD±1540.390) 2011-2015(M=4192.600, SD±231.759)
Midwives	[F(2,12)=4.664; p=0.032]	2000-2005(M=206.800, SD±134.843) 2006-2010(M=533.200, SD±223.902) 2011-2015(M=1492.400, SD±1169.508)
Lady-Health-Workers	[F(2,12)=7.770; p=0.007]	2000-2005(M=259.600, SD±276.1644) 2006-2010(M=798.000, SD±362.794) 2011-2015(M=918.800, SD±172.853).

MDGs: Millennium Development Goals.

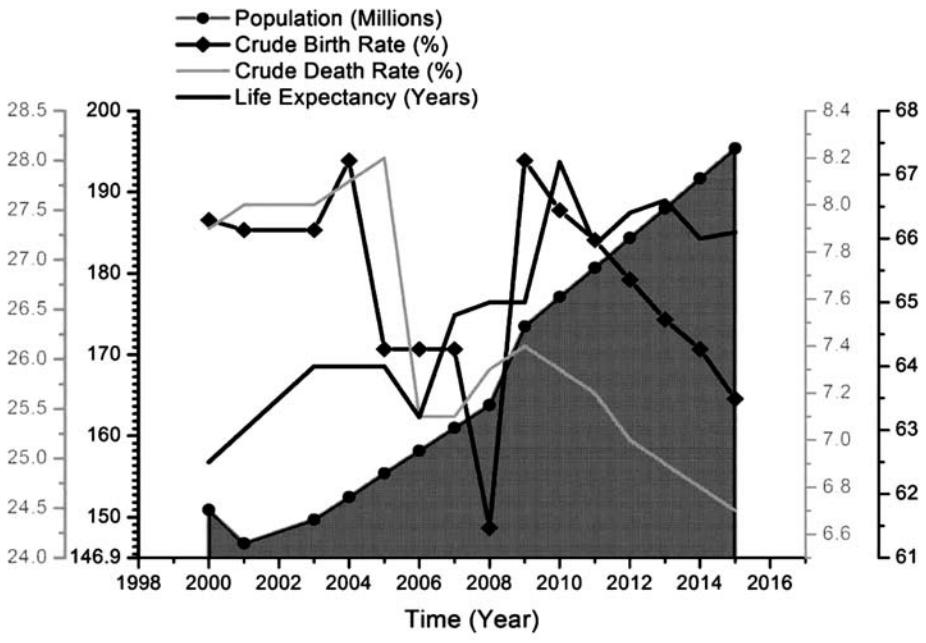

Figure-1: Demographic landscape of Pakistan during MDGs-era (2000-2015) represents population is on rise while decline in crude death rate but fluctuation in crude birth rate with increased trend but improvement in life expectancy. Source: Economic survey of Pakistan (2000-2015).
MDGs: Millennium Development Goals.

Improvements in workforce was statistically significant on the basis of annual differences in registered human resources, including doctors, dentists, nurses, midwives and lady health workers (LHWs) ($p<0.05$) (Table)

Health expenditures (HEs) revealed statistically non-significant differences (p=0.515), and the same was the case with development expenditures (p=0.678), current expenditures (p=0.481), percentage changes in expenditures (p=0.998) and expenditure as per gross domestic product (GDP) (p=0.908). Urban and rural sick population was found to be consulting eight available categories of HC providers, but majority was approaching private facilities compared to public-sector facilities (Figure-2).

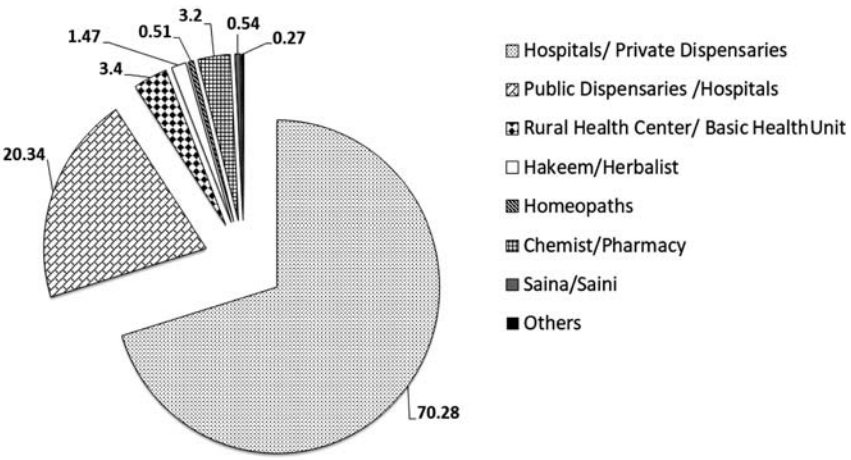

Figure-2: Health consultancy preferences of sick population of Pakistan, hospitals/private dispensaries are preferred as first choice while public dispensaries/hospitals are second choice for consultancy over rest of the consultant's categories. Source: PRSP Annual report (2014-2015).

Discussion

Health challenges are not new for Pakistan. In the pre-MDGs era, remittances, economic growth and foreign aid improved poverty reduction in the 1980s. In the 1990s, political instability and economic sanctions because of nuclear tests in 1998 created a different picture.[3,4]

In the present study, health-related attributes, like family planning (FP), which is a reflection of reproductive wellbeing and primary HC coverage, alongside communicable and non-communicable diseases, were brought under the term of 'Health Insurgencies' to simplify the dynamic complexity of the health domain.

Health insurgencies coverage also has well-defined history. At a glance, malaria control programme is active since 1950, polio eradication since 1988, family HC initiatives since 1994, including global partnership with the United Nations (UN) and the World Health Organisation (WHO) to combat infections,[3] but the country's liquefied political and strategic circumstances influenced cumulative progress in development and health in the pre-MDGs era. However, MDGs drew attention and brought health into focus, thus a number of parallel pro-health planning, policies and interventions were observed[4] to align with the global vision. Vision 2025 and Multidimensional Poverty Indicators (MPI) were developed with the help of Oxford Poverty and Human development Initiative (OPHI) and United Nations Development Programme (UNDP), keeping health as a dimension[6] beyond the MDGs era[1] and developing strategy for translation of SDGs in the national context.[2] Dynamics of reproductive health, like MM, CM, infant mortality and infections,[1] are among key indicators of country's overall health and development. In the present study, due to un-availability of data on annual basis, differential analysis was not applicable. Therefore, it also emphasises the need for data and records to be maintained at the national level. The deficiency has even been highlighted at the end of MDGs and is felt mandatory for SDGs outcomes.[2] Studies reported Pakistan's worse depiction in MM, CM and reproductive wellbeing. Infectious diseases contribute 40% and reproductive health problems 12% of total burden of diseases. Provision of mother and child HC services in 275 hospitals, emergency obstetric and neonatal care in 550 HC facilities and FP services, but MM rate (MMR) is alarming.[2]

Every 14th and 11th child expires at the age of one and five years respectively, and one infant in every three minutes. This would remain prevalent beyond the SDGs era with current rate of progress. Neonatal mortality reduction improved 14%[7] against the global 47%, enlisting Pakistan among five nations which carry burden of 50% global child deaths and among top 10 countries where 58% of global MM happens, while globally the rate has declined by 45%.[8,9] Despite taking dynamic initiatives, the country rarely succeeded in dealing with chronic health problems. Therefore, it was desirable to identify operating factors for trivial progress. The present study encompassed the MDGs era in the context of chronological landscape of PSHCS to quantify achievements, its inherent impediments, health insurgencies, chronic health dilemmas in particular and cross-cutting factors in general, for perseverance of SDGs with better understanding. Pakistan has well-established metrics of public, private and other health systems[2] to serve the population. However, population growth itself seems a chronic dilemma since ages depicting distorted unregulated demographic canvas (Figure-1) and continued ($p=0.108$) irrespective of 5, 10 and 15 years of MDGs. The country was ranked 14th most populous at its birth[9]. Crude death rates showed improvements and thus improved life expectancy trends (Figure-1), but crude birth rate ($p=0.705$) also remained consistent with statistically non-significant change. With recent estimates[2] and 2% population growth harbouring 64% rural population,[3] Pakistan is ranked sixth, and by 2050[9] it will be fifth. If demographics are further neglected, this could be devastating. Disguised contributing factor seems negligence in regular population census, which is globally[3] and constitutionally recommended. In 2015, the UN adopted resolution to conduct at least one population and housing census under 2020 World Population and Housing Census Programme[10]. Pakistan took a good step[2]

and carried out population census in 2017. Health conditions face anticipation of crossroad issues as well. Therefore, such resistive factors were named as 'Cross-Cutting Hindrance' in the present study to keep them in parallel watch.

Malnutrition seemed a cross-cutting hindrance which during the reproductive age leaves adverse pregnancy outcomes and anticipates foetal growth restrictions, infections and mortality, including long-term detrimental health impairments.[11] According to the National Nutrition Survey, 58% households are food-insecure at the national level. Almost half of the population is suffering from high rates of malnutrition, particularly children and mothers.[11]

Hindrances need to be addressed in parallel with PSHCS as a huge canvas of service delivery infrastructure. HS works through service delivery infrastructure. PSHCS serves through three-level HC delivery and structured as primary, including BHUs, RHCs and MCHCs; secondary, comprising Tehsil Headquarter Hospitals (THQs); and Tertiary is the shape of District Headquarter Hospitals (DHQs). The federal government controls a few hospitals in major cities. Only dispensaries showed a significant increase in number in the current study (p=0.001) and this increase was more pronounced during 2011-15. However, in 2016-17; 34 hospitals, 54 BHUs, 8 RHCs, 8 TBCs, 107 dispensaries, and 4,698 ToBs were established.[3] In order to fulfill commitment towards universal health coverage,[5] Pakistan needs improvement. The Medium Term Development Framework (MTDF) emphasised on the provision of primary health services to rural areas and urban slums.[3] For this purpose, appropriate health workforce seems essential. The registered workforce during 2000-15 was statistically significant. Similar persistent improvement happened in 2016-17.[3] Despite the improvements, more than 6/10 women face problem in seeking HC with total fertility rate of 3.8. On average, rural women have one child more than urban, and, nationally, one child above the desired with 20% unmet FP needs. Miscarriages rate was 12%,[5] pre-natal consultations 73%, safe childbirth 55% and post-natal consultations remained 29%. Immunisation coverage was 60%,[12] 34% children <5 years were registered and 32% had birth certificate. Only one-third of children age 12-23 months possessed vaccination card, while percentage of fully immunised remained low.[5] Regardless of LHW programme expansion, the prevalent scenario revealed incompetence in service delivery that demands dramatic improvement in quality and coverage. Therefore, professional training for health workforce is mandatory. In this regard, 'Health Workers for Change' and 'Healthy Women Counselling Guide' by UNDP, WHO and the World Bank[13] would be helpful.

Government health spending and affordability are knotted factors as a product of tax and non-tax revenues.[14] The HE as a share of GDP seemed insufficient. Non-significant difference was found in total HE (p=0.515), development expenditure (p=0.678), current expenditure (p=0.481), percentage change (p=0.998) and expenditure as per GDP (p=0.908). Health expenses can easily become burdensome.[15] According to initial estimates to achieve MDGs, Pakistan needed health package with a cost of around $34 per capita per year, while spending was about $17 with only $6 government contribution. Despite preconceived projections, no significant breakthrough happened. In the 1st year of SDGs, the Ministry of National Health Services Regulation and Coordination (MoNHSRC) launched HC cards provision, but trends seem depressing, with persistent rise in health spending getting extremely slow at about 0.8% spending which is disappointing against the benchmark 6%. Similarly, per capita health spending is $36.2 which is far behind the benchmark of $86 defined by WHO[3]. Along with cross-cutting hindrances, it is important to have a glance on indirect supportive developments to health domain in the country. Therefore, the term 'Cross-Cutting Enhancers' was used to articulate indirect positive contribution of such developments.

China Pakistan Economic Corridor (CPEC) seems a promising cross-cutting boosting factor where, being a component of nexus of education and infrastructure, fruitful result of CPEC are perceived as 4.74% improvement in health.[16] Despite CPEC, there is a need to focus PSHCS as independent segment to remove bottlenecks. In the present study, identification of impediments compelled exploring the preferences of the sick population. Nationwide, about 70.28% population segment consulted private and 20.34% PSHCS. Pakistan owns 64% rural population[5] but only 3.40% approached RHCs and BHUs. At the national level the urban population consulted 76.45%, 19.15%, and 0.36% private, public and rural HC facilities respectively, and similar trends were observed in the rural segment with 66.04%, 21.15% and 4.48% respectively. Similar stratification was prevalent in the provinces (Figure-3). Out-of-pocket spending (OOPS) is higher and inequitable.[17] Deviated trends further support the present findings that PSHCS has diverse impediments contributing to immaterialised MDGs. As HC systems are broad, weak policies hamper outcomes[5] and cause devastating economic consequences.[18] Pakistan seemed no exception as the population control programme remained an important policy issue since 1960 due to consistent policy shift. In 2010 it was again devolved to the provinces,[3] resulting in population growth, and, likewise, PSHCS is an example of devolution.[5] Government potentials are mandatory to work in primary HC delivery[19] targeting population groups facing health disasters for the

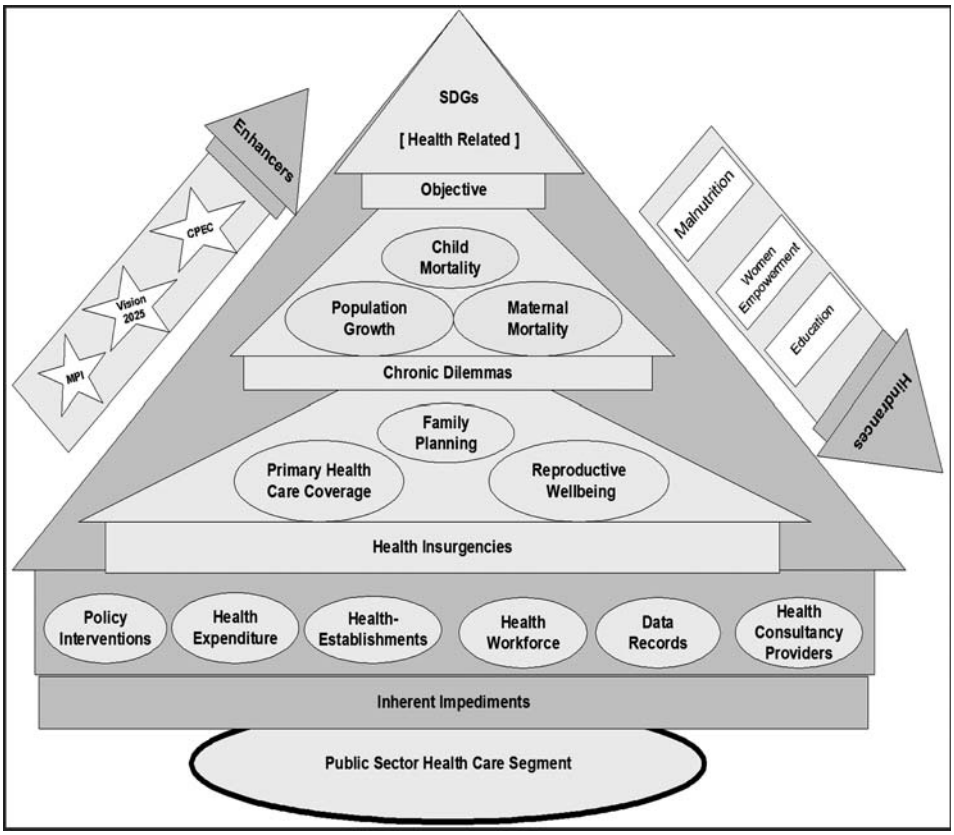

Figure-3: Way forward for Pakistan for perseverance of health-related SDGs. PSHCS inherent impediments, health insurgencies, chronic dilemmas, hindrances and enhancers are highlighted in detail.
SDGs: Sustainable Development Goals; PSHCS: Public Sector Health Care Segment.

provision of subsidy, viewing good governance that reduce CM[16] and increase immunisation coverage. For improvement, government spending must reach primary infrastructure.[17] Further regulation of population flow for health consultancy is required to follow WHO recommendations for OOPS not exceeding 15% of total HE.[20] Integrated disease surveillance, programme assessment, collection, analysis of demographic and vital registration data is essential to ascertain whether policies and programmes are positively affecting the goals[16]. SDGs were conceptualised with unanimous consensus on "leaving no one behind" vision with 17 set goals, encompassing economic, social and environmental progress. Global consensus revealed that underachieved MDGs must be achieved, therefore SDGs 1-7 are underachieved MDGs, while 8-10 are limitations of MDGs, while climate was covered in 11-15. Emerging socio-political anxieties and conflicts stress the need of peaceful and inclusive societies to be covered in SDGs 16-17[21] thus transforming global perception from reducing deprivation towards equality and dignified life. Pakistan took parallel initiatives as Multidimensional Poverty Index (MPI)[6] and Vision 2025[22] as part of the national approach. Political stability attained through election 2013 led to women's participation in policies, legal reforms, women protection bill and funding for higher education, but health appeared overlooked.[23] However, CPEC seemed the game-changer to boost GDP with clear pro-poor outcomes and health,[24,25] with increased access of HC facilities,[26] resulting improved maternal health and increased utilisation of LHWs. The priorities of sick population for HC service utilisation indicate need of improvement in HC and healthcare provider's categories. Nevertheless, the MDGs era flagged that PSHCS must not be perceived through inclusive strategy, but exclusively through reconsideration to meet the SDGs.

With the completion of 15 years of the 21st century, health is a global challenge even today. Therefore, global ownership beyond borders is mandatory. The present study proposes a focussed way forward (Figure-3), highlighting inherent impediment of PSHCS for eradication to overpower health dilemmas through focus on health insurgencies.

Conclusion

There was no significant difference in most healthcare segments during 2000-2015 and MDGs remained underachieved. A direct approach is needed with prime focus on PSHCS improvement for the attainment of SDGs.

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