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Demographic transition and population ageing in India: Implications on the elderly of the future

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ABSTRACT

Ageing population of India will transform into the elderly in future. The issue of health of the elderly population in India has arrested the attention of health policy makers and the researchers, in the recent past. Demographic structure, quality of life, healthcare services and government planning have serious implications on the ageing population. The objective of the research article is to systematically and critically evaluate the impact of demographic transition, projected demographic indicators and changing population characteristics on the health status of the elderly persons living in India in the coming decades. Analysis and discussions are based on secondary data published by the Ministry of Health and Family Welfare of the Government of India. The results indicate that India will be an ageing nation in the coming years and improvements in health, education and government planning are likely to enhance the life expectancy of the elderly, while the share of children will reduce, suggesting an increase in dependency of the older persons on the adult population. The article provides insights into workable solutions and suggests key recommendations to attain faster demographic dividend. India would be competing with the pressure of a dramatic demographic bulge in future.

Keywords: Ageing, Demography, Health, Education, Government

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INTRODUCTION

In light of the fact that India, a rising superpower, oscillates between the prospects of an upcoming developed economy and conditions of impoverished living standards for the majority of its population, is likely to witness a dramatic transformation in the survival and longevity of life of its dependents.

The diverse socio-cultural fabric, psychological makeup and changing value system of the country have made the situation more complex and challenging. India is a promising prospect for the world while it has to additionally struggle with the existing bottlenecks of deprived structural and functional value of infrastructural facilities, improper coordination between the government and private investors and unwillingness on part of the people to accept change in the working patterns, cutting across sectors and regional divides.

Demographic transition is the stage wise progression of the changing face of human population structure, over several years and following the coming times, reflected in terms of behavioural fluctuations in the rise, stagnation and fall in the birth rate and death rate, indicating significant, serious and critical impacts on the growth rate of a country's population. India is in the third stage of demographic transition;[1] indicating a mutual decline in the birth rate and death rate. However decline in fertility rate is reportedly

faster and steeper compared to fall in mortality rates, revealing significant and critical futuristic probabilities in the game of demography, economy and socialization patterns. Such impacts will be felt most in the areas of heavy investment by both the government and individual family units.

A closely related concept is demographic dividend, often discussed as an outcome of changes in the demographic profile of a country, with specific reference to its impact on the economic status of the dependents. Demographic Dividend has been defined as "*the accelerated economic growth that may result from a decline in a country's mortality and fertility and the subsequent change in the age structure of the population*".[2]Economic growth, demographic transition and social change occurs when mortality (death) and fertility (birth) rates are either controlled or decreased on account of better medical health infrastructure, appropriate government planning and effective implementation and educational reforms, percolating the bottom of India's deprived class and expanding its wings to the affluent and the rising middle income group. Life expectancy in India improved from 24 years in 1920 to 62 years post the year 2000, revealing an increase by .48 years every calendar year across the 80 year period.[3]

It is pertinent to note that there is involvement of social stratification, socio-economic background and women empowerment in changing the demographic profile of a country. Moreover, there is tremendous role of education and contribution of skilled workforce in reaching a fastened demographic dividend. The critical relevance of education and prevention of early marriage towards the successful emancipation of women in an attempt to ensure complete participation and decision making in marriage and family planning is indicated[4,5] and similar observations have also been highlighted in the Indian context.[6,7,8]

Hence, the article incorporates variables such as infant mortality rate and birth rate which are direct and indirect indicators of status of women education, which affects the health status of their families and subsequently shapes the demographic structure of India's population pyramid. However, it needs to be pointed out that women in India are less participative in expressing decision in making choices related to family planning [9,10] and career undertakings.[11]

Nonetheless, the contemporary psycho-social makeup of the youth is reflective of a progressive revolution in terms of women's participation in deciding size of family, frequency of conception and family planning methods, while they continue to upgrade their monetary status by pursuing careers in diverse fields.

METHODS

For the purpose of identifying suitable data set, secondary data in the form of facts and future estimates were derived from the Family Welfare Statistics in India (2011), Statistics Division, Ministry of Health and Family Welfare, Government of India. In addition, the review of literature was restricted to government reports, international reports and reputed national and international journals published in the last ten years. Keywords used in obtaining access to the review material were: elderly, health, demography, government, population projection and demographic transition.

RESULTS AND INTERPRETATIONS

As evident from Figure 1, over a fifteen year period (2001-2016), the population of India escalated from 1029 million to 1269 million, indicating a vertical upsurge by .23 billion number of persons. In the coming decade, the country is estimated to witness growth of additional 130 million, from the present scenario, until the year 2026. The population of the country is expected to grow by 371 million (2001-2026). However, a careful analysis reveals gradual yet substantial decline in marginal increase between the five year period. It is noteworthy to highlight that the population of India would *increase at a diminishing rate* signifying controlled growth rate in the coming years.

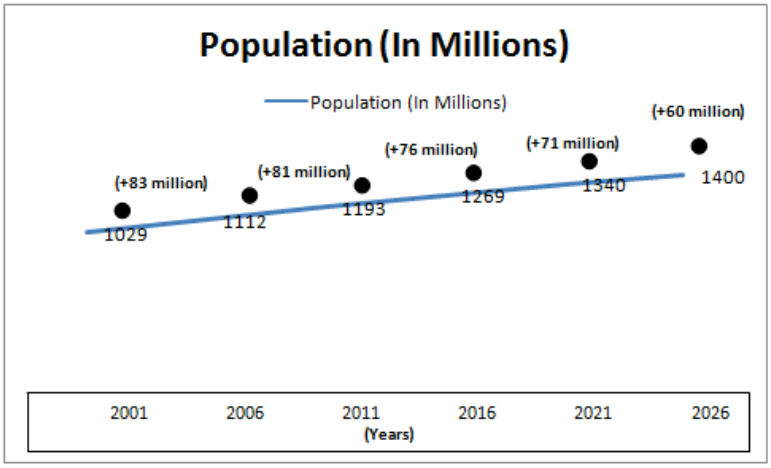

Figure 1 Projected population of India from 2001 to 2026

Source: Developed from Report of the Technical Group on Population Projections-Ministry of Health and Family Welfare (May 2006) in Family Welfare Statistics in India (2011), Statistics Division, Ministry of Health & Family Welfare, GOI

Between 2001-2006, population increased with marginal difference of +83 million, which reduced to +81 million (2006-2011) and is further estimated to reduce to a significant level of +60 million (2021-2026), pointing towards positive change in the demographic structure of India's population, in terms of reduced burden on human, capital and natural resources.

Figure 2 indicates projected population composition across three groups: 0-14 years (young), 15-59 years (adult) and 60 years and above (elderly) from 2001 to 2026. Decline in the percentage of young by 6.3% (2001-2011) and 4% (2011-2021) is expected, which is projected to fall further. Alternatively, a significant 5.5% increase in number of elderly persons (60 years and above) in the total population is expected between 2001 and 2026. Additionally, the composition of adults is projected to increase steadily from 57.7% in 2001 to 63.9% in 2016 and expected to reach 64.3% by the year 2026.

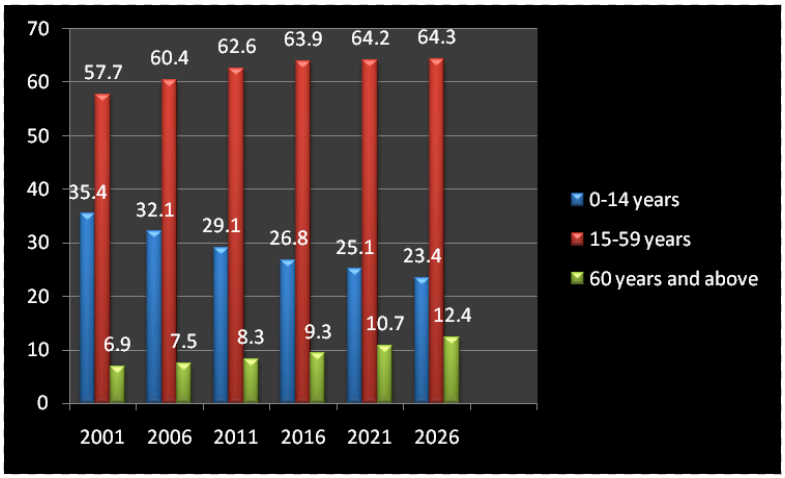

Figure 2Projected population composition (in percentage) across age groups (2001 – 2026)

Source: Developed from Report of the Technical Group on Population Projections-Ministry of Health and Family Welfare (May 2006) in Family Welfare Statistics in India (2011), Statistics Division, Ministry of Health & Family Welfare, GOI

The impact of demographic transition on the size of working group of growing adults has been widely discussed by economists, demographers and social scientists. Researchers are optimistic regarding

theeconomic advantages as a consequence of larger section of economically active workforce on the national income, structural growth and enhanced living standard.[12]

Table 1 encapsulates various demographic indicators such as growth rate, fertility rate and life expectancy across gender until the year 2025. In sync with Figure 1, the Table 1 reflects depreciation in growth rate by .7 billion over a 25 year period from 2001 until the dawn of 2025. Growth rate is expected to fall on account of projected decline in crude birth rate and total fertility rate. Moreover, life expectancy and survival is seen to improve for both the gender groups of India's ageing population, while elderly women are expected to live an additional 2.5 years compared to their male counterparts. The over lived years by the elderly women as widows, divorced/separated and never married will make India an ageing and more importantly, an ageing nation with greater concern and issues related with older women.

Despite controlled population by the year 2025, India will have a higher proportion of elderly persons who in the present time are contributing to the economic portfolio as economically productive adults and unemployed/domestic/semi-skilled to unskilled workers in the organized and unorganized sector. The pressure on resources will be immense.

Table 1 Projected Demographic Indicators of India's Population over a 25 years Period (As on March 2001 – 2026, India)

Projected demographic indicators	2001-2005	2006-2010	2011-2015	2016-2020	2021-2025
Population growth rate	1.6	1.4	1.3	1.1	.9
Crude birth rate (CBR)	23.2	21.3	19.6	18.0	16.0
Crude death rate (CDR)	7.5	7.3	7.2	7.1	7.2
Infant mortality rate(IMR)	61.3	54.3	49.2	44.0	40.2
Total fertility rate (TFR)	2.9	2.6	2.3	2.2	2.0
Life expectancy (Males)	63.8	65.8	67.3	68.8	69.8
Life expectancy (Females)	66.1	68.1	69.6	71.1	72.3

Source: Developed from Report of the Technical Group on Population Projections-Ministry of Health and Family Welfare (May 2006) in Family Welfare Statistics in India (2011), Statistics Division, Ministry of Health & Family Welfare, GOI

Figure 3 reveals the behaviour of death rate for India over a four year period (2005-2009) for the elderly persons in five different age groups. An increase in mortality is observed among the elderly in the age group of 65-69 years, 75-79 years and 85+ years category while control over death rate (manifested in the form of reduction) is indicated in the elderly among the 70-74 years and 80-84 years category. Findings indicate that maximum increase in death rate is recorded in the age group of 75-79 years over the four year period while the same period witnessed least increase (manifested in the form of stringent control over death rate) in 70-74 years and 80-84 years category.

A pattern emerged during the year 2007 pointing towards a dramatic and sudden increase in death rate among two specific age groups: 70-74 years and 80-84 years, despite the control in death rate over the four year period. Hence, it is relevant to point out that regardless of control over mortality among the ageing population; the initiative to control the death rate has not yielded consistent results.

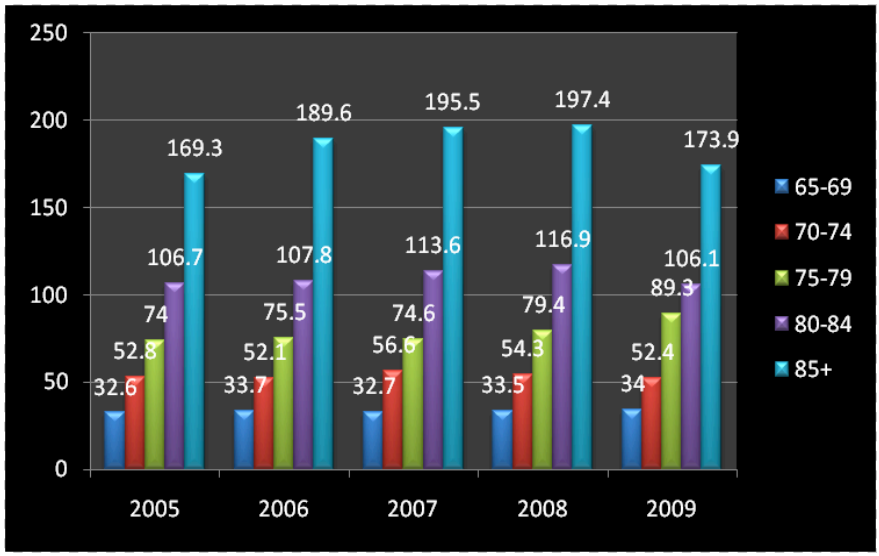

Figure 3Estimated age specific death rates for India (2005 – 2009)

Source: Developed from Report of the Technical Group on Population Projections-Ministry of Health and Family Welfare (May 2006) in Family Welfare Statistics in India (2011), Statistics Division, Ministry of Health & Family Welfare, GOI

Table 2 reveals projected patterns of median age and dependency ratio of the young and older persons on the adult population. In cohesion with previously established facts and estimations about decline in young and increase in older population (Figure 2), the pattern of dependency ratio and median age are also matched. Since the population dependents in the age group of 0-14 years are projected to decline in contrast with the estimated rise in the dependents in the age group of 60 years and above, the dependency ratio narrates different story for these two polarized groups.

Table 2Projected Population Characteristics of India (As on March 2001 – 2026, India)

Population Characteristics	2001	2006	2011	2016	2021	2026
Median Age	22.51	23.88	25.47	27.37	29.33	31.39
	Dependency Ratio					
0-14 (young)	614	532	464	420	392	363
60+ years (old)	119	124	132	146	167	192
Total	734	656	596	566	559	556

Source: Census of India (2001), Population projections for India and States - Report of the Technical Group on Population Projections, 2001-2026, in Family Welfare Statistics in India (2011), Statistics Division, Ministry of Health & Family Welfare, GOI

Greater number of elderly persons will depend on the adult population compared to the young. Nonetheless, the number of young dependents will still remain more in number compared to the elderly. One explanation for this imbalance is that both the birth and death rate will decline as per indications from the demographic transition. However, the birth rate would still be higher than the death rate revealing a humble population growth even in light of present improvements in the health and education sector.

DISCUSSION

Enhanced social awareness as a consequence of expansion in the education sector, combined with government support extended in the form of healthcare schemes, vocational skill development and social security benefits and structural and functional improvements in medical and health infrastructure, are critical parameters required for

controlling fertility and reduction in mortality (Figure 4).

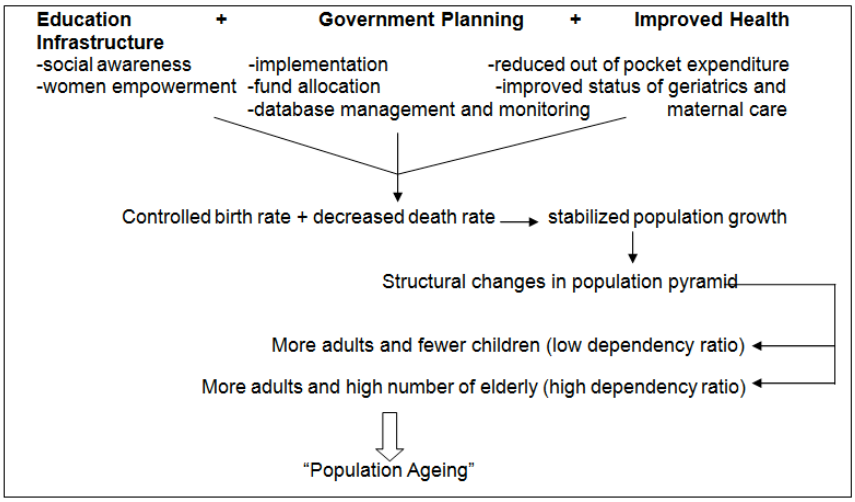

Figure 4Authors conceptualization of factors responsible for population ageing in India

Demographic bulge will be a vital characteristic feature as a consequence of structural transformations in the future population pyramid, revealing maximum number of adult labour workforce in their economically productive years, having the potential skills to bring substantial positive change in the economic and financial statistics and socio-cultural fabric of India. However, the necessary criterion for transformation of "demographic bulge" into "demographic dividend" depends on improved status of the quality of education and skill development.[13]

Table 3Definitions

Crude Birth Rate	Number of Births per 1000 population in a given year.
Crude Death Rate	Number of Deaths per 1000 population in a given year.
Total Fertility Rate (TFR)	Average number of children that would be born to a woman if she experiences the current fertility pattern throughout her reproductive span (15-49 years).
Age Dependency Ratio	The age-dependency ratio is the ratio of persons in the "dependent" ages (generally under age 15 and over age 64) to those in the "economically productive" ages (15-64 years) in a population.
Median Age	The median age is the age at which exactly half the population is older and half is younger.
Total Fertility Rate (TFR)	Average number of children that would be born to a woman if she experiences the current fertility pattern throughout her reproductive span (15-49 years).
Infant Mortality Rate(IMR)	Number of infants dying under one year of age in a year per 1000 live births of the same year.

Source: Adapted from Family Welfare Statistics in India (2011), Statistics Division, Ministry of Health & Family Welfare, GOI.

Notable impact will be felt on the status, living conditions and social interactions of the ageing and the elderly, due to the expected favourable situation. The progressed earning capacity, per capita income and re-wired conditioning of India's adult population is likely to support structural and functional enhancements in the field of geriatrics, assisted medical care and nursing facilities and elderly user compatible technologies.

The percentage composition pattern of different age groups (Figure 2) reveals critical demographic changes in the composition of India's population,

which bears direct and indirect repercussions on the elderly. The shrinking size of the young and expanding size of older adults, reflected in terms of rising dependency ratio of the elderly and gradually rising median age (Table 2), is presumed to put economic, financial and social responsibility on the adult population. Ageing population is escalating fast, attributable to steady rise in median age of India's population. A substantial increase of +8.88 years in the median age is a definite indicator of improvement in life expectancy, longevity and sustainability index.

Population ageing in India is undergoing sharp uprising due to improved life expectancy amongst the two gender categories. Despite an argument supporting the view that India will witness dominance of elderly men due to preference for male child [14]; in the coming 25 years the male population is projected to live longer by six years while female counterparts are expected to outlive them by additional years (Table 1). Findings highlight the critical aspect of "feminization of ageing population". Issues related to economic and financial mobility [15] and inequalities related to health [16] of ageing women have been discussed.

In addition to the projected decline in infant mortality (Table 1) from 61.3 (2001-05) to 40.2 (2021-25); significant depreciation can be observed in age specific death rate in all sub-groups of elderly (post 65 and until 85+ years) in urbanized parts of the country, however, an unfortunate increase was witnessed in death rate among the elderly in rural areas.[17]

In totality, irrespective of the domicile, death rate among the elderly has increased over the years, as indicated in Figure 3. Nonetheless, the situation can be improved, provided the associated stakeholders such as government planning departments, policy makers, demographers, social scientists and activists and reformers, collectively invest significant human and capital resources to alter the present situational statistics by reducing the death rate among the elderly persons across demographic divides.

Insights from Figure 3 reveal that despite an unfavourable increase in the death rate among India's elderly, certain fractions among the age old peers have benefitted from improvements in health infrastructure, government planning and reformations in the education industry and consequent growth in the number of skilled workforce, including medical specialists, geriatricians, researchers and policy makers.

RECOMMENDATIONS

Healthy nation embraces healthy individuals across demographic borders, religion, age, gender and socio-economic status and political identity markers. The infrastructural development particularly in health and education towards the achievement of fastened demographic dividend is vital. The authors propose improvements in education, particularly for the girl child, through systematic efforts targeting ground realities such as construction of toilets in school, appointment of skilled teachers across diverse levels of schooling and ensuring safe and employment oriented educational curriculum. Only an educated nation values health. The double objective of education and health nation can be achieved by investing human and capital investments in the health sector by stakeholders including the government, public-private partnership, corporate and individual citizen.

Smaller family size can be achieved on account of provisions in medical infrastructure and improved status of education. Moreover, amongst the observed merits of limited family size are the overlooked benefits of undivided parental attention, reduced chronic health risks in future, improved standard of living and investment towards care of the ageing members and senior citizens. Geriatrics requires extensive development in India. The central government in 2015 has introduced a new healthcare scheme for the elderly and the system requires constant technological, medical and financial up gradation for accelerating the status of geriatrics in India.

CONCLUSIONS

There are two futuristic implications of faster demographic dividend on demographic structure of

India population: (1) Smaller family size, fewer children and enhanced quality of life of dependent young population, who in the future will prove an immensely promising economic prospect and financial gain for the economy, and; (2) significant improvements in health, well-being and social security of the elderly keeping in view the greater availability of natural, human and economic resources. Notably, changes in the demographic profile of India's population have direct and indirect impact on the health status of its dependents, particularly the fast ageing persons who in near future will age into older adults.

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