A Comparative Study of Demography of SAARC Countries

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Abstract: This research paper studies the demography of SAARC countries. Firstly, the paper makes an attempt to study the population by age structure under three categories (0 to 14 years, 15 to 64 years and 65 and above years) with the help of population pyramids. Since the age structure of a population affects a nation's key socioeconomic issues; hence, the study of population by age group becomes important. Next the paper studies health indicators, educational indicators followed by social indicators of SAARC countries. Lastly, the paper concludes with the key findings of the study.

Key Words: age structure, total fertility rate, dependency ratio, life expectancy, literacy rate.

Introduction

Population of a country determines various aspects of growth. It affects all areas of human activity-social, cultural, economic and political as well. It could result into boon or bane for the country. Demography has a role in solving some of the challenging problems facing the future of mankind. Also, the policies / schemes are formulated according to the nature of population of a country. For example, countries with young population (high percentage under age 14) need to invest more in schools; while countries with older population (high percentage of 65 years and above) need to invest more in the health sector. Hence, it becomes necessary to study the different characteristics of population.

This research paper has selected SAARC countries for its study because of these countries has many features in common; for example, climate, socio-economic factors, low participation of woman in developmental activities.

About SAARC Group

SAARC stands for the South Asian Association for Regional Cooperation (SAARC) which is the regional intergovernmental organization and geopolitical union of nations in South Asia. SAARC was founded in Dhaka on 8 December 1985. Its member states include Afghanistan, Bangladesh, Bhutan, India, Nepal, the Maldives, Pakistan and Sri Lanka. SAARC comprises 3 per cent of the world's area, 21 per cent of the world's population and 9.12 percent of the global economy, as of 2015.

Figure 1: Proportion of SAARC Population in the World

■ SAARC   ■ Rest of the World
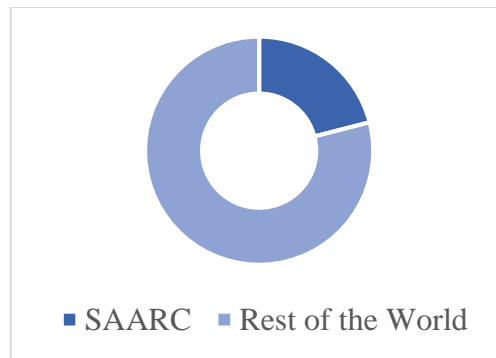
Literature Review

Ponnuswami, I. and Srinivasan, S. (2015): mentioned in their work that the support base for older persons has been shrinking with population ageing. Also the influence of westernization and globalized economic trends and the resulting shift towards reduced family size, nuclearization of families, increasing incidence of paid employment among women and migration have weakened the capability of the family to provide care for older persons. Sandeep, Chauhan, P. and Siddiqui, M. S. (2009) studied the aging demography in SAARC countries which is due to demographic transition as a result of better health care facilities, growing trend of declining fertility (TFR), increase in per capita income, reduction in child and mortalities and increasing life expectancy. It is highlighted by the study that rate of population increase of the elderly in SAARC countries is more than the overall population growth rate.

Objectives of the Study

1. To study the different characteristics of population of SAARC countries:
    (a) composition of population by different age groups and population pyramids
    (b) other characteristics of population (dependency ratio, total fertility rate and annual rate of population increase)
2. To study the health indicators of SAARC countries:
    (a) the maternal and newborn health indicators
    (b) life expectancy at birth
3. To study the educational indicators of SAARC countries.
4. To study the social indicators of SAARC countries.

Hypotheses of the Study

1. There is no difference in the life expectancy at birth between males and females in SAARC countries.
2. There is no difference in the number of males and females in SAARC countries.

Research Methodology

1. To fulfil the objectives of the study, secondary data has been fetched from United Nations Population Fund, World Population Data and United Nations World Population Prospects: The 2017 Revision. For easy comparison among the countries and its comprehensibility, data has been presented in the form of tables and figures. Statistical tools like correlation, paired t-test are used to draw the maximum from the data. R and Jamovi softwares are used for statistical computing and graphics.
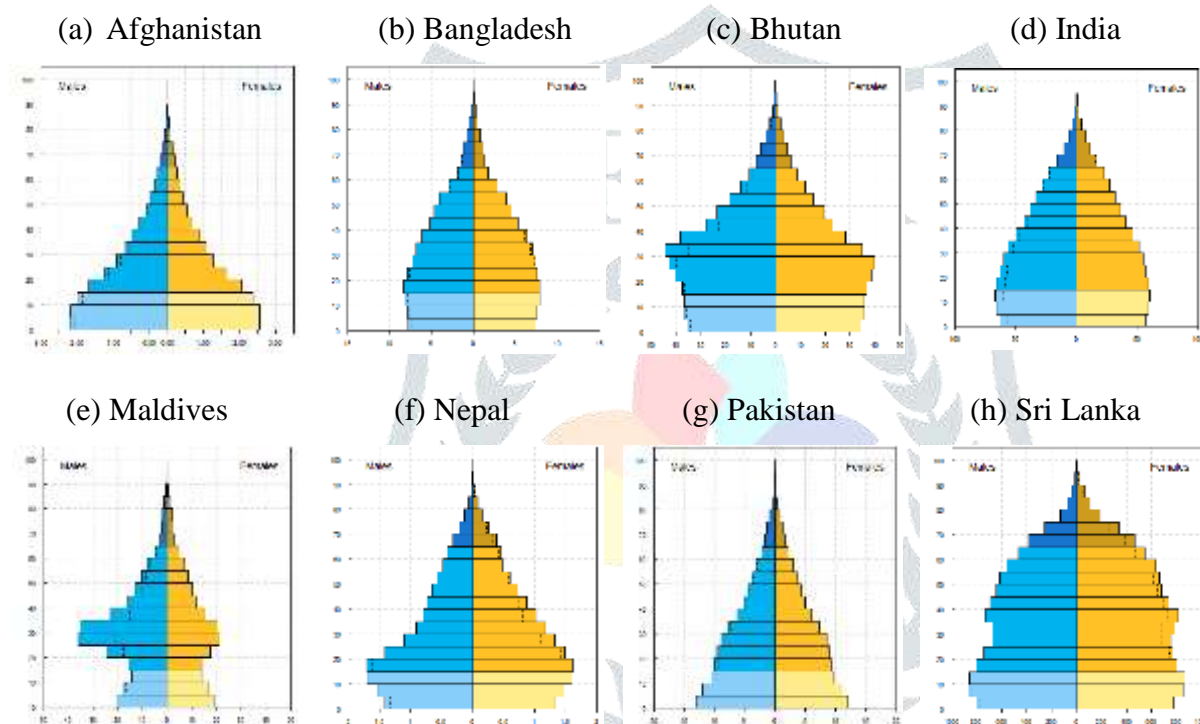
I (A). Composition of Population by age groups

Figure 2: Population of SAARC Countries in Different Age Groups, 2017
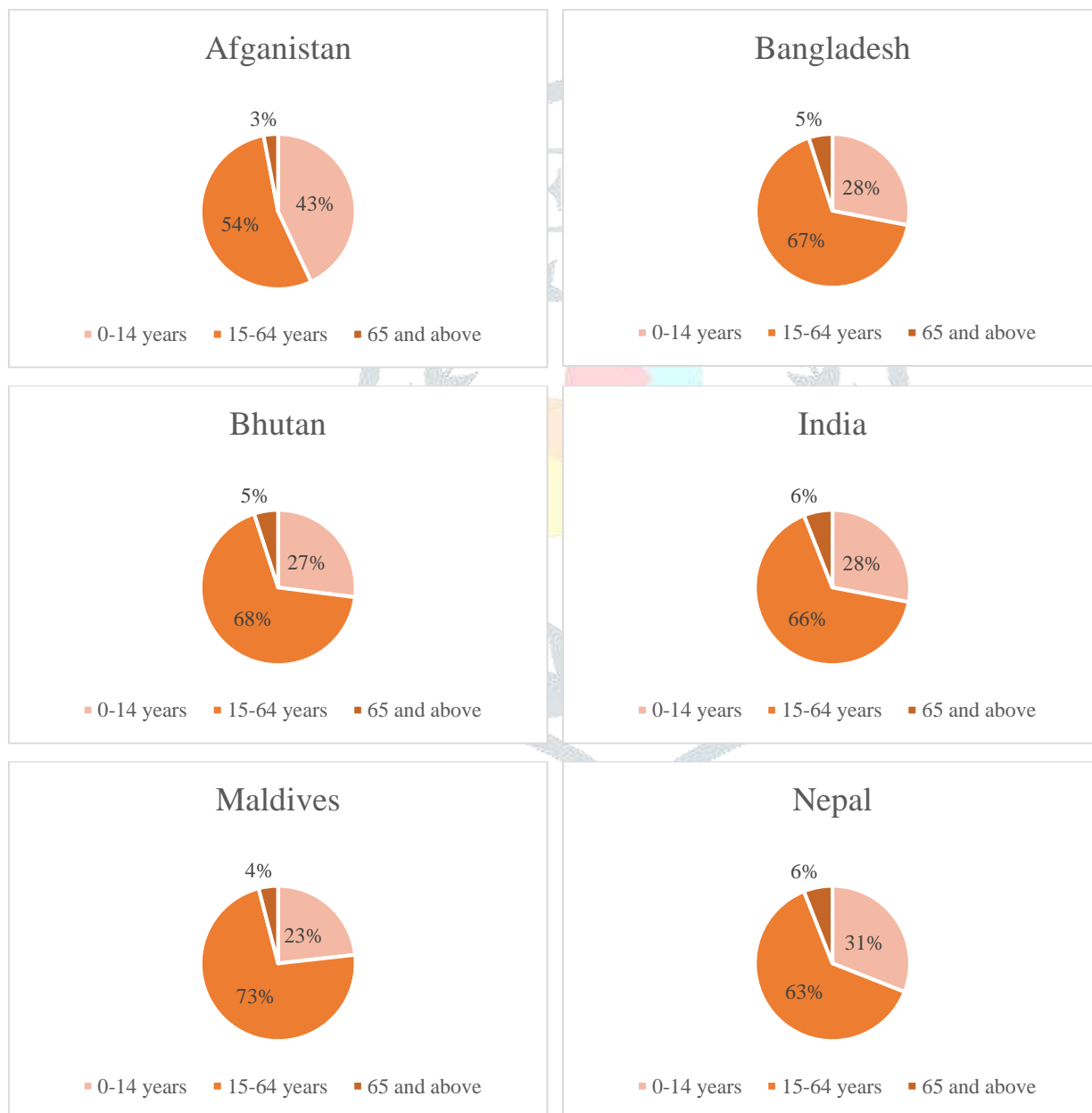
Source: United Nations Population Fund

Figure 3: Population Pyramids of SAARC Countries, 2017

Source: United Nations Population Division (The 2017 Revision of World Population Prospects)

Figures 2 shows the distribution of population in three age categories; which are, 0 to 14 years, 15 to 64 years and 65 and above years. The same is also differentiated in Figure 3 with light, medium and dark shades of the two colours at the bottom, middle and top respectively. Figure 3 displays the population pyramids of SAARC countries which represent the breakdown of the population by gender and age at a given point of time. From the figures 2 and 3, it can be drawn that the proportion of population in the age category 0-14 years is highest of Afghanistan (43 per cent) and the proportion of population in the age category of above 65 years is highest of Sri Lanka (10 per cent). Whereas for the middle category, 15 to 64 years, the maximum proportion is that of Maldives (72 per cent).

Afghanistan and Pakistan have expansionary pyramids as can also be seen from the fact that they also have high total fertility rate of 4.5 and 3.4 per woman implying high birth rate, high death rate, short life expectancy. On the contrary, Maldives has a contractionary pyramid implying very low birth rate, low death rate and high

life expectancy. Bhutan and India have almost same structures of their pyramids; also, their dependency ratio is almost equal.

II (B).   Other characteristics of population of SAARC Countries

Table 1

Countries	Dependency Ratio (per cent)	Total fertility rate, per woman, 2017	Annual Rate of Natural Population Increase per 1,000 population
Afghanistan	84.6	4.5	2.71
Bangladesh	51.4	2.1	1.40
Bhutan	46	2.0	1.24
India	51.9	2.3	1.20
Maldives	48.4	2.1	1.54
Nepal	60	2.1	1.36
Pakistan	65	3.4	2.14
Sri Lanka	51.5	2.0	0.88

Source: United Nations Population Fund

Second column of Table 1 gives the dependency ratio of the SAARC countries. The dependency ratio is defined as the percentage of number of children (0-14 years old) and older persons (65 years or over) to the working-age population (15-64 years old). Afghanistan has the highest dependency ratio due to the fact that its 43 per cent of the population lies in the age category of 0-14 years. Bhutan has the least dependency ratio since only 27 per cent of its come under the age category of 0-14 years. Also, Afghanistan's population is increasing at the fastest rate; whereas, Sri Lanka's at the slowest rate.

As fertility levels decline, the dependency ratio falls initially because the proportion of children decreases while the proportion of the population of working age increases. The period when the dependency ratio declines is known as the "window of opportunity" when a "demographic dividend" may be reaped because society has a growing number of potential producers relative to the number of consumers. However, as fertility levels continue to decline, dependency ratios eventually increase because of the proportion of working age starts declining and the proportion of older persons continues to increase. As populations grow older, increases in old-age dependency ratios are indicators of the added pressures that social security and public health systems have to withstand. Sri Lanka and Bhutan have below replacement fertility level (i.e. less than 2.1).

II (A).   Maternal and Newborn Health Indicators

Table 2

Countries	Maternal mortality ratio (deaths per 100,000 live births), 2015	Births attended by skilled health personnel, per cent, 2006-2016	Adolescent birth rate per 1,000 women aged 15 to 19, 2006-2015	Number of Hospital Beds (per 10,000 people)
Afghanistan	396	51	78	5
Bangladesh	176	42	113	6
Bhutan	148	81	28	18
India	174	81	28	7
Maldives	68	96	13	43
Nepal	258	56	71	50
Pakistan	178	55	44	6
Sri Lanka	30	99	20	36

Source: United Nations Population Fund

The above table shows maternal and newborn indicators of SAARC group.

Maternal Mortality Rate (MMR) varies hugely from 30 deaths per 100,000 live births in Sri Lanka to 396 deaths per 100,000 live births in Afghanistan. The coefficient of correlation (r) between "MMR" and "births attended by skilled health personnel" is -0.741 (and significant also) which implies that the countries where births are attended by skilled health personnel have less MMR.

However, The coefficient of correlation (r) between "MMR" and "adolescent birth rate per 1,000 women aged 15 to 19" is 0.617 but not significant.

II (B). Life Expectancy at birth, 2017 (Male and Female)

Table 3

Countries	Life Expectancy at birth, 2017 (years)		Life Expectancy at age of 65 (years)	
	Male	Female	Male	Female
Afghanistan	63	65	12	14
Bangladesh	71	75	16	18
Bhutan	70	71	17	17
India	67	70	14	15
Maldives	77	79	16	17
Nepal	69	72	13	15
Pakistan	66	68	14	14

| Sri Lanka | 72 | 79 | 16 | 18 |

Source: United Nations Population Fund & World Population Data

Table 3 gives the life expectancy at birth (for the year 2017) for both male and female. The coefficient of correlation (r) of life expectancy at birth between "male" and "female" is +0.933; which implies that the countries having higher life expectancy at birth for one gender also have higher life expectancy for another gender. From the table, it is clear that the life expectancy at birth is higher for females than the males without any exception. To check whether the difference is statistically significant at 5 per cent level of significance, following hypothesis is formulated and tested by applying paired t-test.

H_0: There is no difference in the life expectancy at birth between males and females in SAARC countries.

H_A: Life expectancy at birth for males is less than females in SAARC countries.

Paired Samples T-Test

			statistic	p	Mean difference	95% Confidence Interval	
						Lower	Upper
Male Life Expectancy	Female Life Expectancy	Student's t	-4.58	0.001	-3.00	- ∞	-1.76

The above box displays the results for the same. Since the p-value is less than 0.05, absolute t-statistic is high and zero does not lie in the confidence interval; it can be concluded from here that the life expectancy at birth for males is significantly less than females in SAARC countries.

III.   Educational Indicators

Table 4

Countries	Literacy Rate (% ages 15-24)		Pupil-Teacher Ratio (Primary School)
	Male	Female	
Afghanistan	61.9	32.1	44
Bangladesh	90.9	93.5	34
Bhutan	90.4	84.5	38
India	90.0	81.8	35
Maldives	99.1	99.4	10
Nepal	89.9	80.2	21
Pakistan	79.8	65.5	48
Sri Lanka	97.7	98.6	23

Source: Human Development Report, 2018

It can be observed that the countries which are lagging behind in health indicators are also lagging behind in educational indicators. For example, there is high negative correlation (r = -0.874) between pupil-teacher ratio and hospital beds.

IV.   Social Indicators

Table 5

Countries	Urban Population (per cent)	Sex Ratio at Birth (Males per 100 females)
Afghanistan	25	106
Bangladesh	37	105
Bhutan	39	104
India	34	111
Maldives	39	107
Nepal	20	107
Pakistan	37	109
Sri Lanka	19	104

Source: World Population Data

It is clear from Table 4 that the sex ratio at birth is more than 100 for all the countries. To check whether the number of males per 100 females is statistically greater than 100, one sample t-test is used.

H_0: There is no difference in the number of males and females in SAARC countries.

H_A: The number of males per 100 females is statistically greater than 100 in SAARC countries.

One Sample T-Test

		statistic	df	p	95% Confidence Interval	
					Lower	Upper
Sex Ratio at Birth	Student's t	7.66	7.00	< .001	105	Inf

Note. H_a males per 100 females > 100

Since the p-value is quite low, zero does not lie in confidence interval and t-statistic is high; it can be drawn from here that the number of males per 100 females is statistically greater than 100 at five per cent level of significance.

Conclusion

Some of the key findings from the study are that for the age category below 14 years, the highest proportion of population is of Afghanistan which leads to the fact that Afghanistan has expansionary population; for the age category below 15-64 years, the highest proportion is of Maldives; and for the age category of above 65 years, maximum share is that of Sri Lanka. Afghanistan also has the highest dependency ratio and total fertility rate. Whereas, Bhutan has the least dependency ratio and least total fertility rate along with Sri Lanka. SAARC countries exhibit varied maternal mortality ratio. Another major finding is that the life expectancy at birth for males is significantly less than females in SAARC countries; and number of males per 100 females (sex ratio at birth) is significantly greater than 100, signifying a skewed sex ratio in favour of males. It is also observed that the countries which are lagging behind in health indicators are also lagging behind in educational indicators.

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