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Differences and Similarities: A Study of Pattern of Disease Related Mortality in Middle-Aged Females of South Africa and India

Uma[1*]

[1]Senior Assistant Professor, Department of Economics, Lakshmibai College, University of Delhi, Delhi, India. Email: umalbc@lb.du.ac.in

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Abstract

Middle-aged female population is the stable human resource of any country. They can easily come forward to contribute in economic activities given they are healthy. The paper tries to investigate the disease-based aspect of middle-aged female of South Africa and India which is hindering their healthy status. It looks at the differences and similarities of diseases amongst the middle age females of South Africa and India. The paper examines the leading cause of death of females in the age range of 40-64 in South Africa and India. The paper comes with the conclusion that the number of deaths of females per 100,000 population is high in early years of their middle age and low in later years of the middle age in South Africa. In India the number of deaths of females per 100,000 population is low in early years of their middle age and high in later years of their middle age.

Keywords: *Female population, Middle age, Mortality, Healthy status, Human resource, Stable*

1. Introduction

Middle-aged female population is the stable human resource of any country. Female of this age group is mostly free from personal as well as family responsibilities. They attain the desired level of education and training, settles in family life if they wish to and their children are also independent by now. They can easily come forward to contribute in economic activities given they are healthy. The paper tries to investigate the disease-based aspect of middle-aged female of South Africa and India which is hindering their healthy status. These diseases are causing morbidity and mortality to this age group. It looks at the differences and similarities of diseases amongst the middle age females of South Africa and India. The paper tries to find out top 10 diseases which are causing deaths of middle-aged female population of South Africa and India. These top 10 diseases are further categorized under communicable, non-communicable and injuries to understand the severity of the specific diseases in different age groups. The paper examines the leading cause of death of females in the age range of 40-64 in South Africa and India. The study investigates the pattern of the leading cause of death in the years 2000, 2010 and 2019 and tries to suggest a policy proposal to address the issue in both the countries.

2. Literature Review

Pandey *et al.* (2013), opine that Cardiovascular Diseases (CVD) are the most important cause of death amongst middle-aged Indian women. To determine prevalence of CVD risk factors and their determinants they performed a nationwide

* *Corresponding author:Uma, Senior Assistant Professor, Department of Economics, Lakshmibai College, University of Delhi, Delhi, India. Email: umalbc@lb.du.ac.in*

study. Greater prevalence of CVD risk factors in urban middle-aged women is explained by greater income and literacy, dietary fat, low physical activity and obesity. Mohan *et al*. (2016), observe that urbanization is an important determinant of CVD risk. Hsiao *et al.* (2013), write that in India, Road traffic injuries cause a substantial number of deaths, particularly among pedestrians and other vulnerable road users. Patra (2016), finds that adolescent pregnancy is a serious health threat to young women in India. Kahn (2011) writes that in South Africa Mortality has worsened in virtually all age groups, driven largely by HIV and AIDS. The morbidity profile comprises coexisting infectious and non-communicable diseases – including new infections such as HIV and AIDS, and emerging conditions such as vascular illness and diabetes – together with persisting child diarrhoea and malnutrition, and high levels of interpersonal violence and accidents. Matzopoulos *et al.* (2015), conducted a retrospective descriptive study of medico-legal post-mortem investigation data from mortuaries using a multistage random sample, stratified by urban and non-urban areas and mortuary size. They calculated age-specific and age-standardized mortality rates for external causes of death. Using, post-mortem reports, they found more than three times as many deaths from homicide and road-traffic injury than had been recorded by vital registration for this period. The homicide rate was similar to the estimate for South Africa from a global analysis, but road-traffic and suicide rates were almost fourfold higher. Maimela *et al*. (2016), conducted a survey using the WHO "STEP wise approach to the surveillance of non-communicable diseases" (STEPS) methodology. The findings highlighted many facts. Overweight, obesity and high waist circumference were prevalent in females. The cardio-metabolic risk profile was not significantly different between men and women. People who were older than 40 years, overweight or obese and those who consumed alcohol were more likely to be hypertensive. Houle *et al*. (2014) find that Mortality increased particularly after 2002 for ages 30–69 in South Africa. HIV/AIDS and TB deaths increased and recently plateaued at high levels in people under age 60. Noncommunicable disease deaths increased among those under 60, and recently also increased among those over 60. Arbyn *et al.* (2020) write that, cervical cancer was the fourth most common cancer in women in 2018, ranking after breast cancer (2·1 million cases), colorectal cancer (0·8 million) and lung cancer (0·7 million). Cervical cancer was the leading cause of cancer-related death in women in eastern, western, middle, and southern Africa. Globally, the average age at diagnosis of cervical cancer was 53 years, ranging from 44 years (Vanuatu) to 68 years (Singapore). They opine that, cervical cancer continues to be a major public health problem affecting middle-aged women, particularly in less-resourced countries. Nojilana *et al*. (2016) find non-communicable disease as the major threat to premature mortality in South Africa. Dagenais *et al*. (2020) opine that among adults aged 35–70 years, CVD is the major cause of mortality globally. Naghavi *et al*. (2017) feel that conditions, which cause very substantial mortality in young and middle-aged adults, need to receive much greater policy priority. They find that the majority of countries still lack good-quality vital registration systems to adequately support public policy. Gomes *et al.* (2017) opine that causes of many of the fifty million annual deaths in low- and middle- income countries remain unknown, as most of the deaths occur at home without medical attention. Ram *et al*. (2015) opine that in 2014, about two-thirds of India's 10 million deaths per year occurred before age 70 years. About 4·4 million were in adults aged 30–69 years. If 2010 deaths rates were to persist, more than 9 million people in India could die prematurely before the age of 70 years annually by 2030, the most of any country. Bigaard *et al*. (2005) find that waist circumference remained strongly and directly associated with all-cause mortality when adjusted for total body fat in middle-aged men and women, suggesting that the increased mortality risk related to excess body fat is mainly due to abdominal adiposity. Sil and Dhillon (2021) investigate the risk factors associated with adult mortality (15–59 years) due to external causes (accidents, suicide, poisoning, homicide, and violence). Findings suggest that the prevalence of these deaths was higher among older adults (age 50 years and above).

Ruan *et al*. (2018) opine that CVD is one of the leading causes of death worldwide. Their study aimed to investigate the prevalence of two conditions, angina and stroke, and relevant risk factors among older adults in six low- and middle-income countries (LMICs). Smoking was associated with angina in India and South Africa, and was also a risk factor of stroke in South Africa. They observed a stronger association between frequent heavy drinking and stroke in India. Household income was associated with reduced odds of angina in China, India and Russian Federation, however higher household income was a risk factor of angina in South Africa.

3. Materials and Methods

We analyzed South Africa and India mortality data for female aged 40-64 years across a 19-year period. The nature of this research is descriptive and analytical. Time period of this study is from 2000 to 2019. The WHO mortality database is used to obtain mortality data from 2000 to 2019, by age-groups 40–44, 45–49, 50–54, 55–59, and 60–64 years. To analyze causes of mortality, we took data of over two 10-year periods and one 09-year period (2000, 2010 and 2019) to investigate trends in deaths caused by communicable and non-communicable diseases and injury. Top 10 underlying causes of death in all the mentioned age groups are identified and presented through tabular format for analysis. Data is taken

from Global Health Estimates (2020): Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. Geneva, (WHO 2020).

South Africa and India are witnessing various types of communicable, non-communicable and injury-based diseases amongst the middle-aged females. The severity of these diseases is so much that it is causing morbidity and mortality. Table 1 indicates the top causes of death in the age group of 40-44 of females of South Africa and India in the year 2000, 2010 and 2019. From the table it is clear that HIV/AIDS remained the top cause of death in this age group in all the three years, although the trend shows that it increased in 2010 from 2000 and then declined very fast in 2019.

The top cause of death in the age group of 40-44 of females in India was tuberculosis in 2000 and 2010. In 2019 ischaemic heart disease was the top reason of deaths for females in India in this age group.

In the context of the top causes of death based on the three classification of causes of death in the age group of 35-39 of females in South Africa in 2000, 2010 and 2019 it is clear that HIV/AIDS remained the top cause of death amongst all the types of communicable diseases in this age group in all the three years. In the categories of Injuries; interpersonal violence was the top reason in the age group of 40-44 in the year 2000 and then injury as one of the three categories of disease remained absent in top 10 reasons of deaths for the females of South Africa in 2010 and 2019. It is clear from the table that in the age group of 40-44 cervix uteri cancer was the top most reason of deaths due to non-communicable diseases for females of South Africa in 2000, 2010 and 2019.

Table 1 also reveals the top causes of death based on the three classifications of causes of death in the age group of 40-44 of females in India in the years 2000, 2010 and 2019. From the table it is clear that tuberculosis in 2000, 2010 and 2019 was the top cause of death amongst all the types of communicable diseases in the age groups of 40-44. In the categories of Injuries; self-harm remained the top reason in this age group in all the three years and has increased in 2019. It is clear from the table that in the age group of 40-44 Ischaemic heart disease remained the top most reason of deaths due to non-communicable diseases for females of India in 2000, 2010 and 2019 and having an increasing trend in all these three years. The other diseases which also exhibited increased trend of deaths in 2019 from 2010 were cervix uteri cancer and breast cancer. A new type of disease that was kidney disease surfaced to top 10 in this age group in India in 2019.

Table 1: Top Ten Causes of Death for Female in the Age group of 40-44 in South Africa and India in 100,000 per Population

		SOUTH AFRICA					INDIA		
		AGE GROUP 40-44					AGE GROUP 40-44		
		2000	2010	2019			2000	2010	2019
1	HIV/AIDS	615.1	731.4	216.3	1	Tuberculosis	54.1	34.5	28.2
2	Tuberculosis	59.9	56.2	37.4	2	Self-Harm	14.7	11.8	12.5
3	Interpersonal Violence	33.6	ntt	ntt	3	Maternal Conditions	21.9	ntt	ntt
4	Road Injury	30.3	ntt	ntt	4	Diarrhoeal Diseases	25.3	17	10.9
5	Lower Respiratory Infections	39.7	92.7	65.3	5	Road Injury	ntt	ntt	ntt
6	Maternal Conditions	ntt	ntt	ntt	6	Lower Respiratory Infections	ntt	ntt	ntt
7	Diarrhoeal Diseases	19	36.9	28.4	7	Interpersonal Violence	ntt	ntt	ntt
8	Self harm	ntt	ntt	ntt	8	Cirrhosis of the liver	ntt	10.4	9.7
9	Drug use disorders	ntt	ntt	ntt	9	Rheumatic Heart Disease	14	12	10.2
10	Meningitis	ntt	ntt	ntt	10	Drowning	ntt	ntt	ntt
11	Asthma	ntt	ntt	ntt	11	Ischaemic Heart disease	28.9	29.9	31.4
12	Stroke	23.6	36.3	28.7	12	Fire, heat and hot substances	ntt	ntt	ntt
13	Cervix Uteri Cancer	44.2	41.9	32	13	HIV/AIDS	16.5	15	ntt
14	Breast Cancer	22.9	ntt	ntt	14	Stroke	13.7	12.8	12.6
15	Ischaemic Heart disease	18.3	32.8	26.7	15	Cervix Uteri Cancer	12.4	9.7	10.1
16	Diabetes Mellitus	ntt	25.9	23	16	Breast Cancer	12.2	12.3	14.4
17	Hypertensive heart Disease	ntt	ntt	ntt	17	Asthma	ntt	ntt	ntt
18	Kidney Disease	ntt	28.8	27.6	18	Chronic Obstructive, pulmonary disease	ntt	ntt	ntt
19	Chronic Obstructive, pulmonary disease	ntt	ntt	ntt	19	Kidney Disease	ntt	ntt	8.1
20	Cirrhosis of the Liver	ntt	27.4	20.8	20	Diabetes Mellitus	ntt	ntt	ntt
					21	Falls	ntt	ntt	ntt

Note: ntt: It signifies, those diseases which are not falling under top 10; Green color is used to denote Communicable diseases; Purple color is used to denote Injuries; Blue color is used to denote Non-communicable diseases; Yellow color indicates that the rate of death due to the specific disease has increased in 2019 in comparison to 2010 or emerged after 2010.

Source: Global Health Estimates 2020: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. Geneva, World Health Organization; 2020. (Author's study based on data on top 10 causes of death for female)

Table 2 shows the trend of Death of female in the age group of 40-44, per 100,000 population due to similar diseases in South Africa and India in the years 2000, 2010 and 2019. In South Africa HIV/AIDS is the main cause of death of females of the age group of 40-44 since 2000 to 2019, whereas this cause is present in 2000 and 2010 in India in this age group but missing in 2019. Overall, the percentage of deaths due to top 10 diseases is higher in South Africa than India. In India Tuberculosis, ischaemic heart disease and diarrhoeal disease, were the top three reasons of death in the age group of 40-44 in 2000 whereas ischaemic heart disease and diarrhoeal disease took second and third position respectively in 2010 and ischaemic heart disease and breast cancer took second and third position respectively in 2019. In case of South Africa, it was HIV/AIDS, tuberculosis and cervix uteri cancer were the top three reasons of deaths of female of this age group in 2000. In 2010 and 2019, lower respiratory infections and tuberculosis occupied second and third positions respectively. In India deaths in this age group was also occurring due to one more disease which were not found in South Africa in top 10; rheumatic heart disease which shows a declining trend from 2000 to 2010 and then in 2019. A new type of disease emerged as kidney disease in top 10 in India in this age group in the year 2019 which was already present in South Africa in 2010 and 2019. In India there was increasing trend of breast cancer, self-harm and cervix uteri cancer in this age group from 2010 to 2019.

Table 2: Trend of Death of Female in the Age Group of 40-44, per 100,000 Population Due to Similar Diseases in South Africa and India

		SOUTH AFRICA			INDIA		
		AGE GROUP 40-44			AGE GROUP 40-44		
		2000	2010	2019	2000	2010	2019
1	HIV/AIDS	615.1	731.4	216.3	16.5	15	ntt
2	Tuberculosis	59.9	56.2	37.4	54.1	34.5	28.2
3	Interpersonal Violence	33.6	ntt	ntt	ntt	ntt	ntt
4	Road Injury	30.3	ntt	ntt	ntt	ntt	ntt
5	Lower Respiratory Infections	39.7	92.7	65.3	ntt	ntt	ntt
6	Maternal Conditions	ntt	ntt	ntt	21.9	ntt	ntt
7	Diarrhoeal Diseases	19	36.9	28.4	25.3	17	10.9
8	Self harm	ntt	ntt	ntt	14.7	11.8	12.5
9	Drug use disorders	ntt	ntt	ntt	ntt	ntt	ntt
10	Meningitis	ntt	ntt	ntt	ntt	ntt	ntt
11	Asthma	ntt	ntt	ntt	ntt	ntt	ntt
12	Stroke	23.6	36.3	28.7	13.7	12.8	12.6
13	Cervix Uteri Cancer	44.2	41.9	32	12.4	9.7	10.1
14	Breast Cancer	22.9	ntt	ntt	12.2	12.3	14.4
15	Ischaemic Heart disease	18.3	32.8	26.7	28.9	29.9	31.4
16	Diabetes Mellitus	ntt	25.9	23	ntt	ntt	ntt
17	Hypertensive heart Disease	ntt	ntt	ntt	ntt	ntt	ntt
18	Kidney Disease	ntt	28.8	27.6	ntt	ntt	8.1
19	Chronic Obstructive, pulmonary disease	ntt	ntt	ntt	ntt	ntt	ntt
20	Cirrhosis of the Liver	ntt	27.4	20.8	ntt	10.4	9.7
	INDIA						
	Rheumatic Heart Disease	ntt	ntt	ntt	14	12	10.2
	Drowning	ntt	ntt	ntt	ntt	ntt	ntt
	Fire, heat and hot substances	ntt	ntt	ntt	ntt	ntt	ntt
	Falls	ntt	ntt	ntt	ntt	ntt	ntt

Note: ntt: It signifies, those diseases which are not falling under top 10; Green color is used to denote Communicable diseases; Purple color is used to denote Injuries; Blue color is used to denote Non-communicable diseases; Yellow color indicates that the rate of death due to the specific disease has increased in 2019 in comparison to 2010 or emerged after 2010.

Source: Global Health Estimates 2020: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. Geneva, World Health Organization; 2020. (Author's study based on data on top 10 causes of death for female)

Table 3 indicates the top causes of death in the age group of 45-49 of females of South Africa and India in the year 2000, 2010 and 2019. From the table it is clear that HIV/AIDS remained the top cause of death in this age group in all the three years, although the trend shows that it increased in 2010 from 2000 and then declined very fast in 2019.

The top cause of death in the age group of 45-49 of females in India was ischaemic heart disease in 2000, 2010 and 2019.

In the context of the top causes of death based on the three classification of causes of death in the age group of 45-49 of females in South Africa in 2000, 2010 and 2019 it is clear that HIV/AIDS remained the top cause of death amongst all the types of communicable diseases in this age group in all the three years. In the categories of Injuries; interpersonal violence was the top reason in the age group of 45-49 in the year 2000, 2010 and 2019. It is clear from the table that in the age group of 45-49 stroke was the top most reason of deaths due to non-communicable diseases for females of South Africa in 2000 and 2010 and diabetes mellitus was in 2019.

Table 3 also reveals the top causes of death based on the three classifications of causes of death in the age group of 45-49 of females in India in the years 2000, 2010 and 2019. From the table it is clear that tuberculosis in 2000, 2010 and 2019 was the top cause of death amongst all the types of communicable diseases in the age groups of 45-49. In the categories of Injuries; self-harm remained the top reason in this age group in 2000 and 2019. In 2010 this category was absent in top 10 causes of deaths for the female of India. It is clear from the table that in the age group of 45-49 Ischaemic heart disease remained the top most reason of deaths due to non-communicable diseases for females of India in 2000, 2010 and 2019 and increased in 2010 and then declined in 2019. A new type of disease, ischaemic heart disease surfaced to top 10 in this age group in South Africa in 2019.

Table 3: Top Ten Causes of Death for Female in the Age group of 45-49 in South Africa and India in 100,000 per Population

		SOUTH AFRICA					INDIA		
		AGE GROUP 45-49					AGE GROUP 45-49		
		2000	2010	2019			2000	2010	2019
1	HIV/AIDS	409.6	579.3	200.8	1	Tuberculosis	46.4	28.4	17.7
2	Tuberculosis	68.2	54.9	37	2	Self-Harm	15.2	ntt	11.3
3	Interpersonal Violence	38.8	ntt	ntt	3	Maternal Conditions	ntt	ntt	ntt
4	Road Injury	ntt	ntt	ntt	4	Diarrhoeal Diseases	43.2	26.9	15.5
5	Lower Respiratory Infections	63.2	93.5	55.9	5	Road Injury	ntt	ntt	ntt
6	Maternal Conditions	ntt	ntt	ntt	6	Lower Respiratory Infections	ntt	ntt	ntt
7	Diarrhoeal Diseases	36.3	37.9	23.7	7	Interpersonal Violence	ntt	ntt	ntt
8	Self harm	ntt	ntt	ntt	8	Cirrhosis of the liver	17.6	16.9	13.5
9	Drug use disorders	ntt	ntt	ntt	9	Rheumatic Heart Disease	19.2	16.5	11.7
10	Meningitis	ntt	ntt	ntt	10	Drowning	ntt	ntt	ntt
11	Asthma	ntt	ntt	ntt	11	Ischaemic Heart disease	59.3	63	53.2
12	Stroke	62.8	58.4	40.4	12	Fire, heat and hot substances	ntt	ntt	ntt
13	Cervix Uteri Cancer	44.6	48.3	38.5	13	HIV/AIDS	ntt	ntt	ntt
14	Breast Cancer	ntt	ntt	25.3	14	Stroke	32.9	31.8	24.9
15	Ischaemic Heart disease	51.9	57	38.9	15	Cervix Uteri Cancer	18.3	15.1	13.1
16	Diabetes Mellitus	38.6	54.2	41.4	16	Breast Cancer	19.5	20.8	20.5
17	Hypertensive heart Disease	34	32.3	ntt	17	Asthma	18.8	13.7	ntt
18	Kidney Disease	ntt	33.3	28.4	18	Chronic Obstructive, pulmonary disease	ntt	ntt	ntt
19	Chronic Obstructive, pulmonary disease	ntt	ntt	ntt	19	Kidney Disease	ntt	14.7	13
20	Cirrhosis of the Liver	ntt	ntt	ntt	20	Diabetes Mellitus	ntt	ntt	ntt
					21	Falls	ntt	ntt	ntt

Note: ntt: It signifies, those diseases which are not falling under top 10; Green color is used to denote Communicable diseases; Purple color is used to denote Injuries; Blue color is used to denote Non-communicable diseases; Yellow color indicates that the rate of death due to the specific disease has increased in 2019 in comparison to 2010 or emerged after 2010.

Source: Global Health Estimates 2020: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. Geneva, World Health Organization; 2020. (Author's study based on data on top 10 causes of death for female)

Table 4 shows the trend of Death of female in the age group of 45-49, per 100,000 population due to similar diseases in South Africa and India in the years 2000, 2010 and 2019. In South Africa HIV/AIDS is the main cause of death of females of the age group of 40-44 since 2000 to 2019, whereas this cause is absent in India in this age group in all the three years, 2000, 2010 and 2019. Overall, the percentage of deaths due to top 10 diseases is higher in South Africa than India. In India, ischaemic heart disease, Tuberculosis and self-harm, were the top three reasons of death in the age group of 45-49 in 2000 whereas ischaemic heart disease, stroke and tuberculosis took first, second and third position respectively in 2010 and ischaemic heart disease, stroke and breast cancer took first, second and third position respectively in 2019. In case of South Africa, it was HIV/AIDS, tuberculosis and lower respiratory infections were the top three reasons of deaths of female of this age group in 2000. In 2010 lower respiratory infections and stroke occupied second and third positions respectively. In 2019 lower respiratory infections and diabetes mellitus occupied second and third positions respectively in South Africa. In India deaths in this age group was also occurring due to one more disease which were

not found in South Africa in top 10; rheumatic heart disease which shows a declining trend from 2000 to 2010 and then in 2019. A new type of disease emerged as breast cancer in top 10 in South Africa in this age group in the year 2019 which was already present in India in 2000, 2010 and 2019.

Table 4: Trend of Death of Female in the Age Group of 45-49, Per 100,000 Population Due to Similar Diseases in South Africa and India

		SOUTH AFRICA			INDIA		
		AGE GROUP 45-49			AGE GROUP 45-49		
		2000	2010	2019	2000	2010	2019
1	HIV/AIDS	409.6	579.3	200.8	ntt	ntt	ntt
2	Tuberculosis	68.2	54.9	37	46.4	28.4	17.7
3	Interpersonal Violence	38.8	ntt	ntt	ntt	ntt	ntt
4	Road Injury	ntt	ntt	ntt	ntt	ntt	ntt
5	Lower Respiratory Infections	63.2	93.5	55.9	ntt	ntt	ntt
6	Maternal Conditions	ntt	ntt	ntt	ntt	ntt	ntt
7	Diarrhoeal Diseases	36.3	37.9	23.7	43.2	26.9	15.5
8	Self harm	ntt	ntt	ntt	15.2	ntt	11.3
9	Drug use disorders	ntt	ntt	ntt	ntt	ntt	ntt
10	Meningitis	ntt	ntt	ntt	ntt	ntt	ntt
11	Asthma	ntt	ntt	ntt	18.8	13.7	ntt
12	Stroke	62.8	58.4	40.4	32.9	31.8	24.9
13	Cervix Uteri Cancer	44.6	48.3	38.5	18.3	15.1	13.1
14	Breast Cancer	ntt	ntt	25.3	19.5	20.8	20.5
15	Ischaemic Heart disease	51.9	57	38.9	59.3	63	53.2
16	Diabetes Mellitus	38.6	54.2	41.4	ntt	ntt	ntt
17	Hypertensive heart Disease	34	32.3	ntt	ntt	ntt	ntt
18	Kidney Disease	ntt	33.3	28.4	ntt	14.7	13
19	Chronic Obstructive, pulmonary disease	ntt	ntt	ntt	ntt	ntt	ntt
20	Cirrhosis of the Liver	ntt	ntt	ntt	17.6	16.9	13.5
	INDIA						
	Rheumatic Heart Disease	ntt	ntt	ntt	19.2	16.5	11.7
	Drowning	ntt	ntt	ntt	ntt	ntt	ntt
	Fire, heat and hot substances	ntt	ntt	ntt	ntt	ntt	ntt
	Falls	ntt	ntt	ntt	ntt	ntt	ntt

Note: ntt: It signifies, those diseases which are not falling under top 10; Green color is used to denote Communicable diseases; Purple color is used to denote Injuries; Blue color is used to denote Non-communicable diseases; Yellow color indicates that the rate of death due to the specific disease has increased in 2019 in comparison to 2010 or emerged after 2010.

Source: Global Health Estimates 2020: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. Geneva, World Health Organization; 2020. (Author's study based on data on top 10 causes of death for female)

Table 5 indicates the top causes of death in the age group of 50-54 of females of South Africa and India in the year 2000, 2010 and 2019. From the table it is clear that HIV/AIDS remained the top cause of death in this age group in all the three years, although the trend shows that it increased in 2010 from 2000 and then declined very fast in 2019.

The top cause of death in the age group of 50-54 of females in India was ischaemic heart disease in 2000, 2010 and in 2019. It increased in the year 2019.

In the context of the top causes of death based on the three classification of causes of death in the age group of 50-54 of females in South Africa in 2000, 2010 and 2019 it is clear that HIV/AIDS remained the top cause of death amongst all the types of communicable diseases in this age group in all the three years. In the categories of Injuries; interpersonal violence was the top reason in the age group of 50-54 in the year 2000. In 2010 and 2019 the category of injury is absent as top 10 cause of death of female in South Africa. It is clear from the table that in the age group of 50-54 stroke was the

top most reason of deaths due to non-communicable diseases for females of South Africa. In 2010 and 2019 it was diabetes mellitus was the top cause in this age group.

Table 5 also reveals the top causes of death based on the three classifications of causes of death in the age group of 50-54 of females in India in the years 2000, 2010 and 2019. From the table it is clear that diarrhoeal diseases in 2000 and 2010 was the top cause and in 2019 again tuberculosis was the top reason of death amongst all the types of communicable diseases in the age groups of 50-54. The category of Injuries is absent as the top reason in this age group in 2000, 2010 and 2019. It is clear from the table that in the age group of 50-54 Ischaemic heart disease remained the top most reason of deaths due to non-communicable diseases for females of India in 2000, 2010 and 2019 and increased in 2019. There were increase in the deaths due to types of non-communicable diseases such as, stroke, cervix uteri cancer, breast cancer, chronic obstructive, pulmonary disease, kidney disease and diabetes mellitus in this age group in India in 2019.

Table 5: Top Ten Causes of Death for Female in the Age group of 50-54 in South Africa and India in 100,000 per Population

		SOUTH AFRICA					INDIA		
		AGE GROUP 50-54					AGE GROUP 50-54		
		2000	2010	2019			2000	2010	2019
1	HIV/AIDS	256.9	379	159.9	1	Tuberculosis	67.4	38.7	34.2
2	Tuberculosis	97.1	70.2	48.7	2	Self-Harm	ntt	ntt	ntt
3	Interpersonal Violence	40.7	ntt	ntt	3	Maternal Conditions	ntt	ntt	ntt
4	Road Injury	ntt	ntt	ntt	4	Diarrhoeal Diseases	76	46.1	31
5	Lower Respiratory Infections	82.3	102.4	57.5	5	Road Injury	ntt	ntt	ntt
6	Maternal Conditions	ntt	ntt	ntt	6	Lower Respiratory Infections	ntt	ntt	ntt
7	Diarrhoeal Diseases	47	42.3	ntt	7	Interpersonal Violence	ntt	ntt	ntt
8	Self harm	ntt	ntt	ntt	8	Cirrhosis of the liver	24.3	20.2	ntt
9	Drug use disorders	ntt	ntt	ntt	9	Rheumatic Heart Disease	26.9	21.7	21.2
10	Meningitis	ntt	ntt	ntt	10	Drowning	ntt	ntt	ntt
11	Asthma	ntt	ntt	ntt	11	Ischaemic Heart disease	92.8	91.2	112.5
12	Stroke	113.1	95.9	59.7	12	Fire, heat and hot substances	ntt	ntt	ntt
13	Cervix Uteri Cancer	55.3	53.4	41.6	13	HIV/AIDS	ntt	ntt	ntt
14	Breast Cancer	ntt	ntt	32.2	14	Stroke	56.9	50	57.8
15	Ischaemic Heart disease	94.6	92.7	61	15	Cervix Uteri Cancer	23	ntt	20.9
16	Diabetes Mellitus	95.1	110.3	79.9	16	Breast Cancer	26.9	27.9	36.7
17	Hypertensive heart Disease	62.5	55.2	35.5	17	Asthma	30.5	21.7	ntt
18	Kidney Disease	ntt	45.2	35.5	18	Chronic Obstructive, pulmonary disease	33.2	26.1	28.6
19	Chronic Obstructive, pulmonary disease	ntt	ntt	ntt	19	Kidney Disease	ntt	21.7	27.8
20	Cirrhosis of the Liver	ntt	ntt	ntt	20	Diabetes Mellitus	ntt	ntt	26.2
					21	Falls	ntt	ntt	ntt

Note: ntt: It signifies, those diseases which are not falling under top 10; Green color is used to denote Communicable diseases; Purple color is used to denote Injuries; Blue color is used to denote Non-communicable diseases; Yellow color indicates that the rate of death due to the specific disease has increased in 2019 in comparison to 2010 or emerged after 2010.

Source: Global Health Estimates 2020: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. Geneva, World Health Organization; 2020. (Author's study based on data on top 10 causes of death for female)

Table 6 shows the trend of Death of female in the age group of 50-54, per 100,000 population due to similar diseases in South Africa and India in the years 2000, 2010 and 2019. In South Africa HIV/AIDS is the main cause of death of females of the age group of 50-54 since 2000 to 2019, whereas this cause is absent in India in this age group in all the three years, 2000, 2010 and 2019. Overall, the percentage of deaths due to top 10 diseases is higher in South Africa than India. In India, ischaemic heart disease, diarrhoeal diseases and Tuberculosis were the top three reasons of death in the age group of 50-54 in 2000 whereas ischaemic heart disease, stroke and diarrhoeal diseases took first, second and third position respectively in 2010 and ischaemic heart disease, stroke and breast cancer took first, second and third position respectively in 2019. In case of South Africa, it was HIV/AIDS, stroke and tuberculosis were the top three reasons of deaths of female of this age group in 2000. In 2010, diabetes mellitus and lower respiratory infections occupied second and third positions respectively. In 2019 diabetes mellitus and stroke occupied second and third positions respectively in South Africa. In India deaths in this age group was also occurring due to one more disease which were not found in South Africa in top 10; rheumatic heart disease which shows a declining trend from 2000 to 2010 and then in 2019.

Table 6: Trend of Death of Female in the Age Group of 50-54, per 100,000 Population Due to Similar Diseases in South Africa and India

		SOUTH AFRICA			INDIA		
		AGE GROUP 50-54			AGE GROUP 50-54		
		2000	2010	2019	2000	2010	2019
1	HIV/AIDS	256.9	379	159.9	ntt	ntt	ntt
2	Tuberculosis	97.1	70.2	48.7	67.4	38.7	34.2
3	Interpersonal Violence	40.7	ntt	ntt	ntt	ntt	ntt
4	Road Injury	ntt	ntt	ntt	ntt	ntt	ntt
5	Lower Respiratory Infections	82.3	102.4	57.5	ntt	ntt	ntt
6	Maternal Conditions	ntt	ntt	ntt	ntt	ntt	ntt
7	Diarrhoeal Diseases	47	42.3	ntt	76	46.1	31
8	Self harm	ntt	ntt	ntt	ntt	ntt	ntt
9	Drug use disorders	ntt	ntt	ntt	ntt	ntt	ntt
10	Meningitis	ntt	ntt	ntt	ntt	ntt	ntt
11	Asthma	ntt	ntt	ntt	30.5	21.7	ntt
12	Stroke	113.1	95.9	59.7	56.9	50	57.8
13	Cervix Uteri Cancer	55.3	53.4	41.6	23	ntt	20.9
14	Breast Cancer	ntt	ntt	32.2	26.9	27.9	36.7
15	Ischaemic Heart disease	94.6	92.7	61	92.8	91.2	112.5
16	Diabetes Mellitus	95.1	110.3	79.9	ntt	ntt	26.2
17	Hypertensive heart Disease	62.5	55.2	35.5	ntt	ntt	ntt
18	Kidney Disease	ntt	45.2	35.5	ntt	21.7	27.8
19	Chronic Obstructive, pulmonary disease	ntt	ntt	ntt	33.2	26.1	28.6
20	Cirrhosis of the Liver	ntt	ntt	ntt	24.3	20.2	ntt
	INDIA						
	Rheumatic Heart Disease	ntt	ntt	ntt	26.9	21.7	21.2
	Drowning	ntt	ntt	ntt	ntt	ntt	ntt
	Fire, heat and hot substances	ntt	ntt	ntt	ntt	ntt	ntt
	Falls	ntt	ntt	ntt	ntt	ntt	ntt

Note: ntt: It signifies, those diseases which are not falling under top 10; Green color is used to denote Communicable diseases; Purple color is used to denote Injuries; Blue color is used to denote Non-communicable diseases; Yellow color indicates that the rate of death due to the specific disease has increased in 2019 in comparison to 2010 or emerged after 2010.

Source: Global Health Estimates 2020: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. Geneva, World Health Organization; 2020. (Author's study based on data on top 10 causes of death for female)

Table 7 indicates the top causes of death in the age group of 55-59 of females of South Africa and India in the year 2000, 2010 and 2019. From the table it is clear that HIV/AIDS remained the top cause of death in this age group in all the three years, although the trend shows that it increased in 2010 from 2000 and then declined very fast in 2019.

The top cause of death in the age group of 55-59 of females in India was ischaemic heart disease in 2000, 2010 and in 2019. It increased in the year 2019.

In the context of the top causes of death based on the three classification of causes of death in the age group of 55-59 of females in South Africa in 2000, 2010 and 2019 it is clear that HIV/AIDS remained the top cause of death amongst all the types of communicable diseases in this age group in all the three years. The category of Injury was absent as top 10 cause of death of female in South Africa in all the three years in the age group of 55-59. It is clear from the table that in the age group of 55-59 stroke was the top most reason of deaths due to non-communicable diseases for females of South Africa in 2000. In 2010 and 2019 it was diabetes mellitus was the top cause in this age group.

Table 7 also reveals the top causes of death based on the three classifications of causes of death in the age group of 55-59 of females in India in the years 2000, 2010 and 2019. From the table it is clear that diarrhoeal diseases in 2000, 2010

and 2019 was the top cause of death amongst all the types of communicable diseases in the age groups of 55-59. The category of Injuries is absent as the top reason in this age group in 2000, 2010 and 2019. It is clear from the table that in the age group of 55-59 Ischaemic heart disease remained the top most reason of deaths due to non-communicable diseases for females of India in 2000, 2010 and 2019 and increased in 2019. There were increase in the deaths due to types of non-communicable diseases such as, breast cancer, kidney disease and diabetes mellitus in this age group in India in 2019.

Table 7: Top Ten Causes of Death for Female in the Age group of 55-59 in South Africa and India in 100,000 per Population

		SOUTH AFRICA					INDIA		
		AGE GROUP 55-59					AGE GROUP 55-59		
		2000	2010	2019			2000	2010	2019
1	HIV/AIDS	114.2	218.9	126.9	1	Tuberculosis	66.5	36.1	ntt
2	Tuberculosis	79.7	65.9	41.1	2	Self-Harm	ntt	ntt	ntt
3	Interpersonal Violence	ntt	ntt	ntt	3	Maternal Conditions	ntt	ntt	ntt
4	Road Injury	ntt	ntt	ntt	4	Diarrhoeal Diseases	136.8	77	48.9
5	Lower Respiratory Infections	97.2	117.1	62.2	5	Road Injury	ntt	ntt	ntt
6	Maternal Conditions	ntt	ntt	ntt	6	Lower Respiratory Infections	37.7	ntt	26
7	Diarrhoeal Diseases	61.9	53.3	ntt	7	Interpersonal Violence	ntt	ntt	ntt
8	Self harm	ntt	ntt	ntt	8	Cirrhosis of the liver	37.2	28.5	28.3
9	Drug use disorders	ntt	ntt	ntt	9	Rheumatic Heart Disease	39.6	ntt	ntt
10	Meningitis	ntt	ntt	ntt	10	Drowning	ntt	ntt	ntt
11	Asthma	ntt	ntt	ntt	11	Ischaemic Heart disease	193.1	150.8	175.2
12	Stroke	163.1	138.5	80.1	12	Fire, heat and hot substances	ntt	ntt	ntt
13	Cervix Uteri Cancer	65.4	61.8	46.2	13	HIV/AIDS	ntt	ntt	ntt
14	Breast Cancer	ntt	ntt	40.1	14	Stroke	123.7	87	92.1
15	Ischaemic Heart disease	143.4	139.6	84.4	15	Cervix Uteri Cancer	ntt	32.4	ntt
16	Diabetes Mellitus	160.8	185	125.1	16	Breast Cancer	ntt	ntt	40.3
17	Hypertensive heart Disease	94	86.1	51.7	17	Asthma	57.4	35.2	30.5
18	Kidney Disease	53.3	59.4	44.7	18	Chronic Obstructive, pulmonary disease	82.6	54.4	53.3
19	Chronic Obstructive, pulmonary disease	ntt	ntt	ntt	19	Kidney Disease	37.2	28.2	33.7
20	Cirrhosis of the Liver	ntt	ntt	ntt	20	Diabetes Mellitus	ntt	30.1	36.7
					21	Falls	ntt	ntt	ntt

Note: ntt: It signifies, those diseases which are not falling under top 10; Green color is used to denote Communicable diseases; Purple color is used to denote Injuries; Blue color is used to denote Non-communicable diseases; Yellow color indicates that the rate of death due to the specific disease has increased in 2019 in comparison to 2010 or emerged after 2010.

Source: Global Health Estimates 2020: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. Geneva, World Health Organization; 2020. (Author's study based on data on top 10 causes of death for female)

Table 8 shows the trend of Death of female in the age group of 55-59, per 100,000 population due to similar diseases in South Africa and India in the years 2000, 2010 and 2019. In South Africa HIV/AIDS is the main cause of death of females of the age group of 55-59 since 2000 to 2019, whereas this cause is absent in India in this age group in all the three years, 2000, 2010 and 2019. Overall, the percentage of deaths due to top 10 diseases is higher in South Africa than India. In India, ischaemic heart disease, stroke and Tuberculosis were the top three reasons of death in the age group of 55-59 in 2000 whereas ischaemic heart disease, stroke and chronic obstructive, pulmonary disease took first, second and third position respectively in 2010 and 2019. In case of South Africa, it was stroke, diabetes mellitus and ischaemic heart disease, were the top three reasons of deaths of female of this age group in 2000. In 2010, HIV/AIDS, ischaemic heart disease and stroke occupied first, second and third positions respectively. In 2019 HIV/AIDS, diabetes mellitus and ischaemic heart disease, occupied first, second and third positions respectively in South Africa. In India deaths in this age group was also occurring due to one more disease which were not found in South Africa in top 10; rheumatic heart disease in 2000 but in 2010 and in 2019 it was absent.

Table 9 indicates the top causes of death in the age group of 60- of females of South Africa and India in the year 2000, 2010 and 2019. From the table it is clear that stroke in 2000, diabetes mellitus in 2010 and 2019 was the top cause of death in this age group.

Table 8: Trend of Death of Female in the Age Group of 55-59, per 100,000 Population Due to Similar Diseases in South Africa and India

		SOUTH AFRICA			INDIA		
		AGE GROUP 55-59			AGE GROUP 55-59		
		2000	2010	2019	2000	2010	2019
1	HIV/AIDS	114.2	218.9	126.9	ntt	ntt	ntt
2	Tuberculosis	79.7	65.9	41.1	66.5	36.1	ntt
3	Interpersonal Violence	ntt	ntt	ntt	ntt	ntt	ntt
4	Road Injury	ntt	ntt	ntt	ntt	ntt	ntt
5	Lower Respiratory Infections	97.2	117.1	62.2	37.7	ntt	26
6	Maternal Conditions	ntt	ntt	ntt	ntt	ntt	ntt
7	Diarrhoeal Diseases	61.9	53.3	ntt	ntt	ntt	ntt
8	Self harm	ntt	ntt	ntt	ntt	ntt	ntt
9	Drug use disorders	ntt	ntt	ntt	ntt	ntt	ntt
10	Meningitis	ntt	ntt	ntt	ntt	ntt	ntt
11	Asthma	ntt	ntt	ntt	57.4	35.2	30.5
12	Stroke	163.1	138.5	80.1	124	87	92.1
13	Cervix Uteri Cancer	65.4	61.8	46.2	ntt	32.4	ntt
14	Breast Cancer	ntt	ntt	40.1	ntt	ntt	40.3
15	Ischaemic Heart disease	143.4	139.6	84.4	193	150.8	175.2
16	Diabetes Mellitus	160.8	185	125.1	ntt	30.1	36.7
17	Hypertensive heart Disease	94	86.1	51.7	ntt	ntt	ntt
18	Kidney Disease	53.3	59.4	44.7	37.2	28.2	33.7
19	Chronic Obstructive, pulmonary disease	ntt	ntt	ntt	82.6	54.4	53.3
20	Cirrhosis of the Liver	ntt	ntt	ntt	37.2	28.5	28.3
	INDIA						
	Rheumatic Heart Disease	ntt	ntt	ntt	39.6	ntt	ntt
	Drowning	ntt	ntt	ntt	ntt	ntt	ntt
	Fire, heat and hot substances	ntt	ntt	ntt	ntt	ntt	ntt
	Falls	ntt	ntt	ntt	ntt	ntt	ntt

Note: ntt: It signifies, those diseases which are not falling under top 10; Green color is used to denote Communicable diseases; Purple color is used to denote Injuries; Blue color is used to denote Non-communicable diseases; Yellow color indicates that the rate of death due to the specific disease has increased in 2019 in comparison to 2010 or emerged after 2010.

Source: Global Health Estimates 2020: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. Geneva, World Health Organization; 2020. (Author's study based on data on top 10 causes of death for female)

The top cause of death in the age group of 60-64 of females in India was ischaemic heart disease in 2000, 2010 and in 2019. It increased in the year 2019.

In the context of the top causes of death based on the three classification of causes of death in the age group of 60-64 of females in South Africa in 2000, 2010 and 2019 it is clear that lower respiratory infections were the top cause of death amongst all the types of communicable diseases in this age group in all the three years. The category of Injury was absent as top 10 cause of death of female in South Africa in all the three years in the age group of 60-64. It is clear from the table that in the age group of 60-64 stroke was the top most reason of deaths due to non-communicable diseases for females of South Africa in 2000. In 2010 and 2019 it was diabetes mellitus was the top cause in this age group.

Table 9 also reveals the top causes of death based on the three classifications of causes of death in the age group of 60-64 of females in India in the years 2000, 2010 and 2019. From the table it is clear that diarrhoeal diseases in 2000, 2010 and 2019 was the top cause of death amongst all the types of communicable diseases in the age groups of 60-64. The category of Injuries in the type of falls emerged under the top 10 reasons of deaths for female in this age group in 2010 and 2019. This type is specific to India and nowhere in the top 10 causes of deaths for females in South Africa in this age group. It is clear from the table that in the age group of 60-64 Ischaemic heart disease remained the top most reason of deaths due to non-communicable diseases for females of India in 2000, 2010 and 2019 and increased in 2019 from 2010. There was increase in the deaths due to types of non-communicable diseases such as, stroke, breast cancer, kidney disease and diabetes mellitus in this age group in India in 2019.

Table 9: Top Ten Causes of Death for Female in the Age group of 60-64 in South Africa and India in 100,000 per Population

		SOUTH AFRICA					INDIA		
		AGE GROUP 60-64					AGE GROUP 60-64		
		2000	2010	2019			2000	2010	2019
1	HIV/AIDS	ntt	118.4	86.9	1	Tuberculosis	70.8	45.4	ntt
2	Tuberculosis	97.9	73.4	48.6	2	Self-Harm	ntt	ntt	ntt
3	Interpersonal Violence	ntt	ntt	ntt	3	Maternal Conditions	ntt	ntt	ntt
4	Road Injury	ntt	ntt	ntt	4	Diarrhoeal Diseases	259.6	161.8	101.9
5	Lower Respiratory Infections	150.4	161.9	91	5	Road Injury	ntt	ntt	ntt
6	Maternal Conditions	ntt	ntt	ntt	6	Lower Respiratory Infections	70	56	57.6
7	Diarrhoeal Diseases	70.1	ntt	ntt	7	Interpersonal Violence	ntt	ntt	ntt
8	Self harm	ntt	ntt	ntt	8	Cirrhosis of the liver	45.7	ntt	ntt
9	Drug use disorders	ntt	ntt	ntt	9	Rheumatic Heart Disease	ntt	ntt	ntt
10	Meningitis	ntt	ntt	ntt	10	Drowning	ntt	ntt	ntt
11	Asthma	ntt	ntt	ntt	11	Ischaemic Heart disease	268.2	254.5	275.3
12	Stroke	318.8	260.4	155.4	12	Fire, heat and hot substances	ntt	ntt	ntt
13	Cervix Uteri Cancer	74.7	64.5	51.2	13	HIV/AIDS	ntt	ntt	ntt
14	Breast Cancer	ntt	ntt	50	14	Stroke	205.5	171.5	175.5
15	Ischaemic Heart disease	223.1	208.9	133.2	15	Cervix Uteri Cancer	ntt	ntt	ntt
16	Diabetes Mellitus	318.1	348.3	240	16	Breast Cancer	ntt	ntt	42.4
17	Hypertensive heart Disease	115.7	100.8	65.7	17	Asthma	84.1	62.7	50.6
18	Kidney Disease	64.3	72.3	55.4	18	Chronic Obstructive, pulmonary disease	171.6	141.2	134.2
19	Chronic Obstructive, pulmonary disease	68.7	60.9	ntt	19	Kidney Disease	47.2	42.9	49.4
20	Cirrhosis of the Liver	ntt	ntt	ntt	20	Diabetes Mellitus	62.7	62.6	72.8
					21	Falls	ntt	37.4	36.5

Note: ntt: It signifies, those diseases which are not falling under top 10; Green color is used to denote Communicable diseases; Purple color is used to denote Injuries; Blue color is used to denote Non-communicable diseases; Yellow color indicates that the rate of death due to the specific disease has increased in 2019 in comparison to 2010 or emerged after 2010.

Source: Global Health Estimates 2020: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. Geneva, World Health Organization; 2020. (Author's study based on data on top 10 causes of death for female)

Table 10 shows the trend of Death of female in the age group of 60-64, per 100,000 population due to similar diseases in South Africa and India in the years 2000, 2010 and 2019. In South Africa stroke is the main cause of death of females of the age group of 60-64 in 2000, in 2010 and 2019 it was diabetes mellitus whereas this cause was not the main cause of death in India in this age group in all the three years, 2000, 2010 and 2019. Overall, the percentage of deaths due to top 10 diseases is higher in South Africa than India. In India, ischaemic heart disease, diarrhoeal diseases and stroke were the top three reasons of death in the age group of 60-64 in 2000 whereas ischaemic heart disease, stroke and diarrhoeal diseases in 2010 and ischaemic heart disease, stroke and chronic obstructive, pulmonary disease took first, second and third position respectively in 2019. In case of South Africa, it was stroke, diabetes mellitus and ischaemic heart disease, were the top three reasons of deaths of female of this age group in 2000. In 2010, diabetes mellitus, stroke and ischaemic heart disease occupied first, second and third positions respectively. In 2019 diabetes mellitus, stroke and ischaemic heart disease, occupied first, second and third positions respectively in South Africa. In India deaths in this age group was also occurring due to one more reason which was not found in South Africa in top 10; falls. It emerged in 2010 and the percentage increased in 2019.

Table 11 highlights about the Leading cause of death for females of South Africa and India in between the age groups of 40-64 in the years 2000, 2010 and 2019. In the case of South Africa HIV/AIDS remained the top reason of deaths in the age groups of 40-44, 45-49 and 50-54 in all the three years that is 2000, 2010 and 2019. In India it was tuberculosis for the age group of 40-44 and for the rest of all the age groups till 64 it was ischaemic heart disease. South Africa witnessed stroke as leading cause of deaths of female in the age groups of 55-59 and 60-64 in the year 2000. In 2010 and 2019 the leading cause of death for the female was HIV/AIDS in the age group of 55-59 and diabetes mellitus in the age group of 60-64.

Table 10: Trend of Death of Female in the Age Group of 60-64, per 100,000 Population Due to Similar Diseases in South Africa and India

		SOUTH AFRICA			INDIA		
		AGE GROUP 60-64			AGE GROUP 60-64		
		2000	2010	2019	2000	2010	2019
1	HIV/AIDS	ntt	118.4	86.9	ntt	ntt	ntt
2	Tuberculosis	97.9	73.4	48.6	70.8	45.4	ntt
3	Interpersonal Violence	ntt	ntt	ntt	ntt	ntt	ntt
4	Road Injury	ntt	ntt	ntt	ntt	ntt	ntt
5	Lower Respiratory Infections	150.4	161.9	91	70	56	57.6
6	Maternal Conditions	ntt	ntt	ntt	ntt	ntt	ntt
7	Diarrhoeal Diseases	70.1	ntt	ntt	260	161.8	101.9
8	Self harm	ntt	ntt	ntt	ntt	ntt	ntt
9	Drug use disorders	ntt	ntt	ntt	ntt	ntt	ntt
10	Meningitis	ntt	ntt	ntt	ntt	ntt	ntt
11	Asthma	ntt	ntt	ntt	84.1	62.7	50.6
12	Stroke	318.8	260.4	155.4	206	171.5	175.5
13	Cervix Uteri Cancer	74.7	64.5	51.2	ntt	ntt	ntt
14	Breast Cancer	ntt	ntt	50	ntt	ntt	42.4
15	Ischaemic Heart disease	223.1	208.9	133.2	268	254.5	275.3
16	Diabetes Mellitus	318.1	348.3	240	62.7	62.6	72.8
17	Hypertensive heart Disease	115.7	100.8	65.7	ntt	ntt	ntt
18	Kidney Disease	64.3	72.3	55.4	47.2	42.9	49.4
19	Chronic Obstructive, pulmonary disease	68.7	60.9	ntt	172	141.2	134.2
20	Cirrhosis of the Liver	ntt	ntt	ntt	45.7	ntt	ntt
	INDIA						
	Rheumatic Heart Disease	ntt	ntt	ntt	ntt	ntt	ntt
	Drowning	ntt	ntt	ntt	ntt	ntt	ntt
	Fire, heat and hot substances	ntt	ntt	ntt	ntt	ntt	ntt
	Falls	ntt	ntt	ntt	ntt	37.4	36.5

Note: ntt: It signifies, those diseases which are not falling under top 10; Green color is used to denote Communicable diseases; Purple color is used to denote Injuries; Blue color is used to denote Non-communicable diseases; Yellow color indicates that the rate of death due to the specific disease has increased in 2019 in comparison to 2010 or emerged after 2010.

Source: Global Health Estimates 2020: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. Geneva, World Health Organization; 2020. (Author's study based on data on top 10 causes of death for female)

Table 11: Leading Cause of Death for Females of South Africa and India in Different Age Groups Falling Under the Age 40-64 in the Years 2000, 2010 and 2019

	2000	2010	2019
40-44 SA	HIV/AIDS	HIV/AIDS	HIV/AIDS
40-44 IND	Tuberculosis	Tuberculosis	Tuberculosis
45-49 SA	HIV/AIDS	HIV/AIDS	HIV/AIDS
45-49 IND	Ischaemic Heart Disease	Ischaemic Heart Disease	Ischaemic Heart Disease
50-54 SA	HIV/AIDS	HIV/AIDS	HIV/AIDS
50-54 IND	Ischaemic Heart Disease	Ischaemic Heart Disease	Ischaemic Heart Disease
55-59 SA	Stroke	HIV/AIDS	HIV/AIDS
55-59 IND	Ischaemic Heart Disease	Ischaemic Heart Disease	Ischaemic Heart Disease
60-64 SA	Stroke	Diabetes Mellitus	Diabetes Mellitus
60-64 IND	Ischaemic Heart Disease	Ischaemic Heart Disease	Ischaemic Heart Disease

Note: Green color is used to denote Communicable diseases; and Blue color is used to denote Non-Communicable diseases..

Source: Derived from the various tables analyzed above (Author's study)

Table 12 represents the number of deaths of female per 100,000 population due to leading cause of disease in South Africa and India. Throughout there is a volatile trend in the number of deaths of females due to HIV/AIDS in South Africa in all the age groups. The number has increased in 2010 from 2000 and then declined sharply in 2019. In India although number of deaths of females in 2019 has declined from 2010 due to tuberculosis in the age group of 40-44 but in most of the age groups the cases of ischaemic heart disease is on rise in 2019 in comparison to 2010.

Table 12: Leading Cause of Death for Females of South Africa and India in Different Age Groups Falling Under the Age 40-64 in the Years 2000, 2010 and 2019 (Value in Figures is Deaths of Females, per 100,000 Population)

	2000	2010	2019
40-44 SA	HIV/AIDS 615.1	HIV/AIDS 731.4	HIV/AIDS 216.3
40-44 IND	Tuberculosis 54.1	Tuberculosis 34.5	Tuberculosis 28.2
45-49 SA	HIV/AIDS 409.6	HIV/AIDS 579.3	HIV/AIDS 200.8
45-49 IND	Ischaemic Heart Disease 59.3	Ischaemic Heart Disease 63	Ischaemic Heart Disease 53.2
50-54 SA	HIV/AIDS 256.9	HIV/AIDS 379	HIV/AIDS 159.9
50-54 IND	Ischaemic Heart Disease 92.8	Ischaemic Heart Disease 91.2	Ischaemic Heart Disease 112.5
55-59 SA	Stroke 163.1	HIV/AIDS 218.9	HIV/AIDS 126.9
55-59 IND	Ischaemic Heart Disease 193.1	Ischaemic Heart Disease 150.8	Ischaemic Heart Disease 175.2
60-64 SA	Stroke 318.1	Diabetes Mellitus 348.3	Diabetes Mellitus 240
60-64 IND	Ischaemic Heart Disease 268.2	Ischaemic Heart Disease 254.5	Ischaemic Heart Disease 273.3

Note: Green color is used to denote Communicable diseases; and Blue color is used to denote Non-Communicable diseases.

Source: Derived from the various tables analyzed above (Author's study)

Table 13 indicates that female of South Africa is severely affected with communicable disease in the form of HIV/ AIDS as the leading cause of mortality whereas, female of India is affected with non-communicable disease such as Ischaemic heart disease as the leading cause of deaths in the middle age group.

Figure 1 (a) indicates the number of deaths of females per 100,000 population in the age groups of 40-64. From the figure it is clear that number of deaths are high in early middle age and slowly it is decreasing in the later years reaching to 64 in South Africa. The total number of deaths increased in 2010 in comparison to 2000 but there is a sharp drop in 2019.

Table 13: Leading Cause of Death for Females of South Africa and India in Different Age Groups Falling Under the Age 40-64 in the Years 2000, 2010 and 2019 (Value in Figures is Deaths of Females, per 100,000 Population)

		South Africa	
Age group	2000	2010	2019
40-44	615.1	731.4	216.3
45-49	409.6	579.3	200.8
50-54	256.9	379	159.9
55-59	163.1	218.9	126.9
60-64	318.1	348.3	240
Total	1762.8	2256.9	943.9
		India	
	2000	2010	2019
40-44	54.1	34.5	28.2
45-49	59.3	63	53.2
50-54	92.8	91.2	112.5
55-59	193.1	150.8	175.2
60-64	268.2	254.5	275.3
Total	667.5	594	644.4

Note: Green color is used to denote Communicable diseases; and Blue color is used to denote Non-Communicable diseases.

Source: Derived from the various tables analysed above (Author's study)

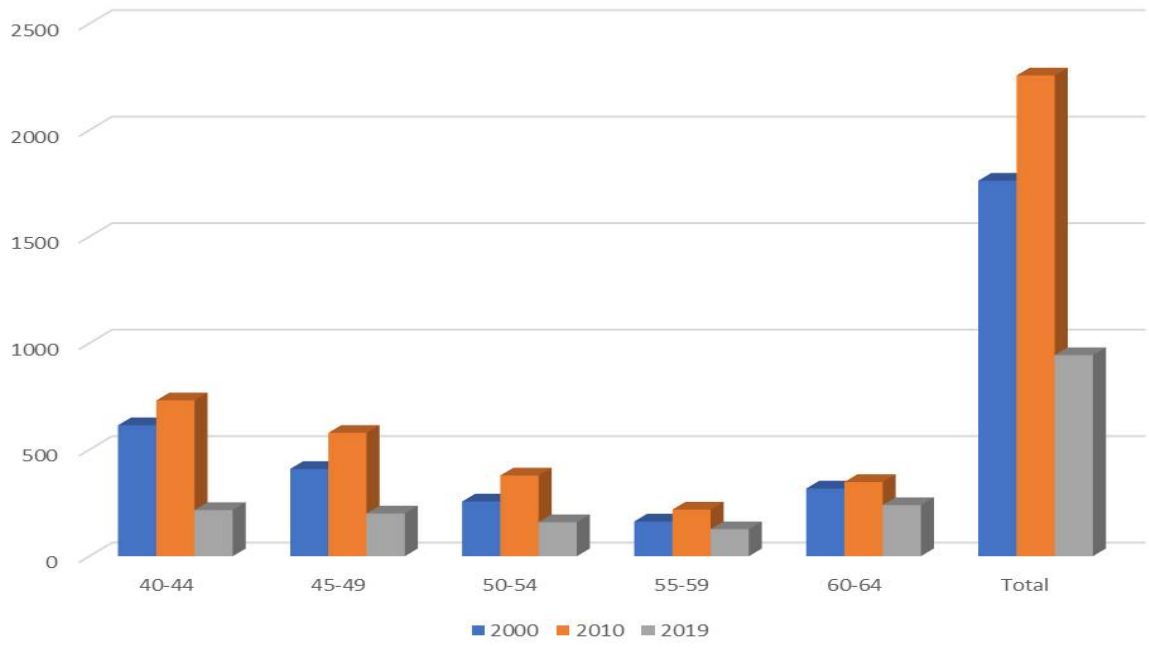

Figure 1(a): Deaths of Females per 100,000 Population Due to Leading Cause of Disease in South Africa

Figure 1 (b) indicates the number of deaths of females per 100,000 population in the age groups of 40-64. From the figure it is clear that number of deaths are low in early middle age and slowly it is increasing in the later years reaching to 64 in India. The total number of deaths decreased in 2010 in comparison to 2000 but then there is rise in 2019.

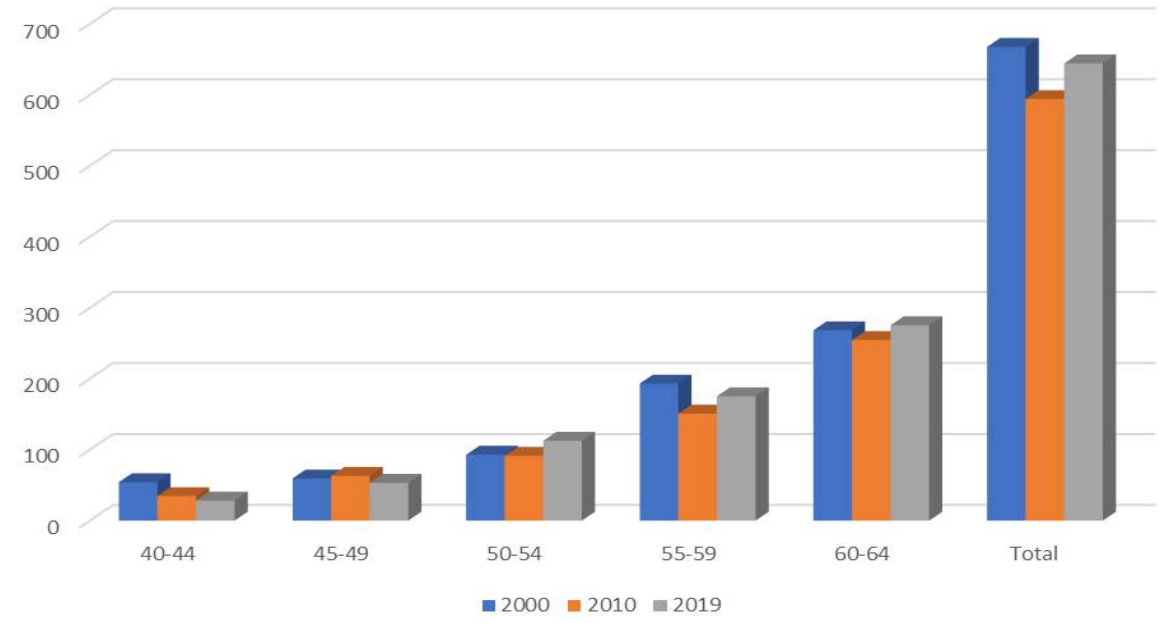

Figure 1(b): Deaths of Females per 100,000 Population Due to Leading Cause of Disease in India

4. Results and Discussion

HIV/AIDS is the top reason of deaths of females in the middle age group in South Africa. Still the number of deaths of female is quite high due to this communicable disease. In the age group of 60-64 stroke and diabetes mellitus a non-communicable disease is emerging as the leading cause of deaths of females in South Africa.

Tuberculosis is the leading cause of deaths of females in the age group of 40-44 in India but in rest of all the age groups till 64 Ischaemic Heart disease is the leading cause of deaths for females in all the three years that is 2000, 2010 and 2019 and the numbers are increasing in the recent years.

In South Africa HIV/AIDS a communicable disease is the leading cause of deaths of females whereas in India Ischaemic heart disease a non-communicable disease is the leading cause of deaths of females in their middle age.

The number of deaths of females per 100,000 population is high in early years of their middle age and low in later years of the middle age in South Africa. The total number of deaths of females increased in 2010 from 2000 and then declined sharply in 2019 in South Africa.

The number of deaths of females per 100,000 population is low in early years of their middle age and high in later years of their middle age in India. The total number of deaths of females per 100,000 population decreased in 2010 from 2000 and then rose in 2019 in the country.

5. Conclusion

Interventions to prevent HIV/AIDS, tuberculosis and Ischaemic heart disease might address over half of the middle-aged deaths of females in South Africa and India. Improved prehospital care and post hospital care might address just over a third of the deaths related to ischaemic heart diseases. Risk factors for stroke and diabetes mellitus disease are high in middle-aged females in South Africa. High levels of obesity rendering them at greater risk for metabolic disease. Reducing the negative impacts of the health transition in the middle-aged females will require targeted efforts within the health and social sectors, as well as broader development initiatives in South Africa and India. Focusing on national awareness programs about the use of protective measures, free and door to door availability of contraceptive methods, tobacco control, sugar control and stress control programs combined with access to adequate treatment, could yield

significant gains for the middle-aged females' health in both the countries. While the specific mix of risk factors contribute to disease prevalence in different ways in South Africa and India, they should all be targeted in multi-sectoral efforts to reduce the high burden of communicable and non-communicable diseases in today's society. A need to strengthen awareness and mentorship programs for middle-aged female to control such disease related deaths is recommended.

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