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Assessment of Life Expectancy Based on Mortality Experience of Circulatory System Disease Patients

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Abstract: The present study aims to assess the estimating the life expectances to circulatory system disease (CSD) among the patients at various age intervals using life table models (LTMs). Age specific mortality data of CSD was used to estimate the life expectancy with various ages of both genders of Indians. The gender differentials in years of life lost by CSD patients are studied. The results indicated that the life expectancy for female is statistically significant when compared with males at all ages of CSD and also life lost more in female were observed.

Keywords: Circulatory System Disease, Life Expectancy, Age and Cause Specific Mortality, Years of Life Lost, India.

1. Introduction

There are many CSD, all of which interrupt the complex process of distributing blood around the body. CSD are broadly classified in many ways and one among these classifications is: Acute rheumatic fever and chronic rheumatic heart diseases, Hypertensive diseases, Ischaemic heart diseases, Diseases of pulmonary circulation and other forms of heart disease, Cerebrovascular diseases, Other diseases of the circulatory system. CSD are lead cause for mortality for men and women. Each year around 60 million people across the world develops a circulatory disease. Globally it is estimated that one death every 1.5 seconds is observed (British-heart-foundation). The reason for CSD vary from one's genes to one's lifestyle. The quality of life that these patients lead, life expectancies at various ages (mean residual lifetimes (MRLTs)), economy of family are all affected. There is a pressing need to study the life expectancy of these patients as life expectancy helps in prognostic study of treatments for CSD.

The brief description of the CSD that are considered in this study are:

Acute Rheumatic Fever (ARF) and Chronic Rheumatic Heart Diseases (Chronic RHD)

Rheumatic fever is caused by bacterial infection in the age group of 5-15 (mostly). If rheumatic fever is not treated promptly, rheumatic heart disease may occur which

may require heart surgery and may result in death. The estimated mortality rates for ARF and rheumatic heart diseases (RHD) in 2019 are 2.68 and 8.53 respectively, which are critically high (Figueiredo et al., 2019).

Hypertensive Diseases (HD)

HD include high blood pressure (BP), hypertensive heart diseases (with and without heart failure), hypertensive renal disease (with and without renal failure), hypertensive heart and renal disease (with renal failure, with heart failure, with both renal and heart failure), secondary hypertension which includes renovascular hypertension, hypertension secondary to other renal disorders, hypertension secondary to endocrine disorders, various other secondary hypertension (Onusko 2003).

Ischaemic Heart Diseases (IHD)

These are the heart problems caused by narrowed heart arteries that supply blood to the heart muscle (Sun et al., 2015).

Diseases of Pulmonary Circulation and Other Forms of Heart Disease

Pulmonary circulation is the system of transportation that shunts de-oxygenated blood from the heart to the lungs to be re-saturated with oxygen before being dispersed into the systematic circulation(Boyette and Burns2022).

Cerebrovascular Diseases (CBD)

CBD include the following diseases like stroke, carotid stenosis, vertebral stenosis, and intracranial stenosis aneurysms and alsovascular malformations. This requires emergency treatment, rapid assessment, and stroke medication must be administered within a specific time of onset of symptoms.

Other Diseases of the Circulatory System

The common diseases of CSD other than mentioned above are: atherosclerosis (hardening of the arteries), mitral valve prolapse and regurgitation, mitral stenosis, angina pectoris, high cholesterol, peripheral artery disease, venour thromboembolism, aortic aneurysm, arrhythmia and dysrhythmia both refer to abnormal heart rates and rhythms (no rhythm and abnormal rhythm) (Hornberger LK and Sahn DJ 2007).

The health care providers and research community have observed an association between gender and life expectancy and/ or years of life lost (YLL) due to CSD. It is also perceived, there is intimidating increase in life expectancy of both male and femaleCSD patients over a period of time. The reasons for this may be: seamless efforts of researchers in medical field, repository of data with every detail of onset of disease, methods of diagnosis, treatments, co-ordination among healthcare providers across the globe, and also data analysis tools.

Hugeliteratureis available on the studies of above-mentioned diseases regarding mortality due to the listed diseases, treatments, years of life lost, influence of socio-economic factors, etc. Most significant of them were like,Bravata et al. (2003) have evaluated 5-year mortality in patients with CBD using predictors of 6-month mortality. Pedersen et al. (2006) have studied the prognostic impact of

atrialfibrillation (AF) in heart failure patients with and without ischaemic heart disease and has concluded that AF is associated with increased risk of death only in patients with ischaemic heart diseases. Ian Adatia et al. (2010) have explored the association between pulmonary vascular disease and congenital heart disease which is the preventable cause of mortality due to pulmonary artery hypertension. Mock et al. (2011) have studied life expectancy, standardized mortality ratios for rheumatic diseases in Hong Cong using cohort of patients. Lee et al. (2012) have developed a risk score for predicting survival in pulmonary-arterial-hypertension in United Kingdom. Stecker et al. (2014) have made a community-based study of patients with sudden-cardiac-arrest (SCA) and have concluded that SCA is responsible for half of cardiovascular deaths. Tang et al. (2018) has used Kaplan-Meier, Cox proportional hazards and Support vector machine models to predict occurrence of CSD. Wang et al. (2020) have discussed about association of mortality risk due to CBDwith coronavirus infection. Hariharaputhiran et al. (2022) have studied about survival and life expectancy of hospitalized heart failure patients in Australia andNew Zealand. Goulart et al. (2023) have investigated time dependent effects of risk factors on mortality post-stroke using data from a long-stroke cohort with the tool Cox-regression model.Subsequent sections of the paper are structured as follows: Methodology and data source are outlined in Section 2. Results are summarized in Section 3. Conclusions, limitations and scope of the study are discussed in Section 4.

2. Methodology

The data were collected from the publically available secondary sources (https://www.indiastat.com/data/health/circulatory-system-diseases). Number of medically certified deaths by above considered CSD for the years from 2011 to 2018 in gender-wise and considering the age intervals 0–15, 15–24, 25–34, 35–44, 45–54, 55–64, 65–69 and 70+ are obtained and analysed based on the patients of a given CSD belonging to above mentioned various age-groups who have died during a year as a cohort, functions (columns) of life tables are enumerated using Reed-Merrel's method (Ramkumar(1986)). The SRS (Sample Registration System) based abridged life tables for both the gender (males and females) for 2018 are also studied. Using life expectancy of these life tables and assessed life expectancy of patients with various characteristic of diseases during 2018, the YLL by both gender CSD patients are estimated.

3. Results

The estimated life expectancy at ages $0, 15, 25, 35, 45, 55$ and 65 during the years 2011(1)2018 for Indian male and femalepatients of ARF and Chronic RHD, HD, IHD, diseases of pulmonary circulation, CBDandother diseases of the circulatory system are depicted in Tables 1(A) to 1(F). The bold Figures of each table indicate life expectancy of females. Also, in order to study the change in life expectancy due to these diseases

from 2011to 2018, life expectancies for males and females in years 2011 and 2018 at the considered ages are plotted in Figures A to F. The study of Tables 1(A) to 1(F) and respective figures reveal the following results:

From table 1(A), the data indicated that the life expectancy ranges from approximately 32.15 years in 2012 to about 37.29 years in 2018 for newborns who experienced ARF and chronic RHD. The expectation of life at age 15 has been estimated at 37.43 and 37.92 for males and females in 2018 exhibiting an increase of 2.62 and 4.76 (both the genders respectively) from 2011. But a decline of 0.13 years is observed for life expectancy at age 55 in case of females during the period 2011 to 2018.

From **Figure A**, results indicated that in 2018 life expectancy for individuals with ARF and chronic heart diseases the females have significantly higher life expectancy, as compared to males whereas the situation is the other way in 2011. There is increase in life expectancy from 2011 to 2018 for both genders. Similarly, from **Figure B**, both males and females experience a decline in life expectancy over the period.In case of HD (Table 1(B)), the life expectancy at all ages of females is higher compared to males throughout the study period.

From table 1(C), the data revealed that for IHD patients, life expectancy at age 0 and life expectancy at age 15 do not differ significantly for both genders. Also, no significant change in life expectancy at all ages considered is observed over the period 2011 to 2018. However, from **Figure C**, the results indicates that female life expectancy is more for all ages in both years when compared with males.

From Table 1(D), it is inference that the life expectancy at early ages of life are less in case of diseases of pulmonary circulation and other forms of HD as compared to all other diseases considered except for ARF and chronic RHD. From **Figure D**, the plot is suggestive of over the study period, females consistently have a statistically higher life expectancy than males, and there is hype in overall life expectancy for both genders from 2011 to 2018.

In case of CBD, from Table 1(E), the significantly higher life expectancy at birth for males is estimated as 46.87 during the year 2015 and female life expectancy at birth is recorded as maximum in 2015 itself. For females, the life expectancy at age 65 was found to be least in 2015. In **Figure E**, life expectancy trends for CBD for females, in the year 2011 and 2018 are equal. Subsequently, in 2011 males exhibit slightly more life expectancy, than in 2018 for same gender.

The life expectancy for males of other diseases of circulatory system is higher than that of females at all ages (except at age 65) in the year 2015 (Table 1(F)). There is minimum discernible variation observed in life expectancy for females and males in 2018 (**Figure F**).

Table 2 represents YLL by the patients of CSD in 2018. The life expectancy at ages 0,15,25,35,45,55 and 65 of Indian male and female population in 2018 are obtained from SRS based abridged life tables. The difference between these life expectancy at various ages considered and the assessed life expectancies of the diseases considered in 2018

are YLL because of the disease under consideration. Table 2 indicates that the YLL is higher for females for all the listed diseases at all the ages considered. The new-borns are going to lose more years of life in case of ARF and chronic RHD, and other diseases of the circulatory system compared to the other four diseases. The YLL is more at all ages for females in case of all CSD except for IHD early aged female patients. For this IHD, the YLL do not change significantly with respect to age as well as gender. For both genders, it is observed that YLL are approximately equal at ages 55 and 65 for all diseases. Present study indicated overall female life expectancy is statistically significant when compare with males based on the publically available data.

4. Conclusions, Limitations and Scope of the Study

There is statistically insignificant change in life expectancy of aged 0 and life expectancy of aged 15 for both genders, for all diseases of the study period is observed. The study period the life expectancy of females is more as compared to males at all ages for all the diseases considered except 0-15 years. From the literature review, life expectancy at birth and at age 15 is very small for both genders for ARF and chronic RHD compared to other diseases (Lee KB 2014) with respect to children are more likely to be affected by ARF and chronic RHD. Similarly, we observed the female life expectancy in 2018 is more as compared to female life expectancy in 2011 for ARF and chronic RHD. For IHD patients, YLL is about 10 years at all ages except for new-borns. Female have gained more life expectancy from 2011 to 2018, whereas for males the change in life expectancy is negligible for diseases of pulmonary circulation and other forms of HD. Though, in most of the diseases and at all ages considered (with few exceptions) life expectancy for females is more, the YLL is also more for females; this may be due to the fact that life table female life expectancy is also considerable higher.

The limitation of present study is that it used an organizational data without incorporating clinical information such as comorbidities, duration of illness, nature of treatment(s) administered, and types of therapies employed. We observed that thesocioeconomic status and life-style behaviour may influence life expectancy of CSD patients but there no evidence during the study period. The mortality data used is that of Indian CSD patients, may need further studies to conclude about global life expectancy due to the characteristics. Present study serves as an important reference for futuresurvival analysis and helps in strategic planning for health insurers.

Table 1(A). Life Expectancy: Acute Rheumatic Fever and Chronic Rheumatic Heart Diseases

Age	Y2011	Y2012	Y2013	Y2014	Y2015	Y2016	Y2017	Y2018
0	33.62849 **32.56237**	32.14881 **31.59352**	32.63825 **32.65667**	32.8902 **33.4747**	34.97884 **34.19804**	34.39847 **33.76735**	35.90227 **36.08155**	37.28622 **37.99185**
15	34.80622 **33.16503**	33.74304 **33.00065**	33.79465 **33.43832**	34.21527 **34.35924**	35.74721 **34.75156**	36.41113 **35.00296**	36.45077 **36.0927**	37.42868 **37.91879**
25	28.29712 **26.88933**	27.31599 **26.41612**	27.48482 **26.93805**	27.49466 **27.36672**	28.8229 **27.50293**	29.09832 **27.74477**	29.10284 **28.29676**	29.86927 **29.72345**
35	21.49327 **20.52074**	20.91834 **20.299**	20.98974 **20.85594**	20.84846 **21.03502**	22.06683 **21.06809**	21.98187 **21.18509**	21.8616 **21.0572**	22.19191 **22.34705**
45	15.87678 **14.62288**	15.38258 **15.16885**	15.31355 **15.26482**	15.42668 **15.40327**	15.98111 **15.34217**	15.41797 **15.46149**	15.3196 **14.90696**	16.20014 **15.92067**
55	10.38339 **10.4753**	10.53994 **10.62314**	10.23653 **10.24345**	10.20276 **10.38365**	10.62063 **10.59143**	10.51425 **10.58406**	10.21975 **9.708401**	10.63627 **10.337**
65	4.8375 **4.315942**	4.767606 **4.633634**	4.716667 **4.756098**	4.732759 **4.382267**	4.849945 **4.732456**	4.534215 **4.599197**	4.549951 **4.381438**	4.654072 **4.79798**

Table 1(B). Life Expectancy: Hypertensive Diseases

Age	Y2011	Y2012	Y2013	Y2014	Y2015	Y2016	Y2017	Y2018
0	47.30867 **49.18858**	46.90028 **49.12137**	49.50052 **51.10142**	46.76034 **48.63437**	46.18957 **48.30888**	45.74273 **47.45905**	45.66264 **47.50751**	45.20131 **47.62176**
15	46.46922 **48.4182**	46.3675 **48.58065**	48.60805 **50.18731**	46.01591 **47.91039**	45.5212 **47.64219**	45.16556 **46.94641**	44.73124 **46.5764**	44.36557 **46.78553**
25	36.76098 **38.75304**	36.56368 **38.91597**	38.7598 **40.32452**	36.43196 **38.36696**	35.85788 **38.10908**	35.62685 **37.57163**	35.52089 **37.43642**	34.70866 **37.15856**
35	27.46685 **29.44725**	27.34732 **29.64343**	29.09923 **30.62428**	27.1689 **29.03795**	26.72204 **28.78932**	26.41569 **28.36495**	26.61827 **28.61454**	25.78974 **28.13365**
45	19.08577 **20.64295**	19.05897 **20.89638**	20.31039 **21.54185**	18.69012 **20.31599**	18.52554 **20.25813**	18.1677 **19.70458**	18.4761 **20.04029**	17.98001 **19.65379**
55	11.88882 **12.7953**	11.89399 **12.89285**	12.08853 **12.98373**	11.84365 **12.64044**	11.71499 **12.58173**	11.53636 **12.26373**	11.61952 **12.42082**	11.42129 **12.26461**
65	5.091589 **5.188224**	4.999725 **5.19251**	5.052129 **5.273765**	5.00426 **5.215748**	4.984186 **5.181307**	4.852038 **5.035172**	4.886469 **5.044814**	4.908726 **5.087557**

Table 1(C). Life Expectancy: Ischaemic Heart Diseases

Age	Y2011	Y2012	Y2013	Y2014	Y2015	Y2016	Y2017	Y2018
0	46.81568 **49.73229**	46.544 **49.59707**	46.39847 **49.71713**	46.26432 **49.65433**	46.69985 **50.26123**	45.66452 **48.7842**	46.59008 **49.33926**	46.86786 **50.04354**
15	45.93073 **48.91474**	45.92206 **49.02666**	45.63793 **49.0418**	45.55251 **49.02438**	45.79927 **49.39457**	44.93184 **47.98219**	45.63626 **48.40924**	45.9596 **49.17917**
25	36.14606 **39.12879**	36.10937 **39.24023**	35.86272 **39.38309**	35.87523 **39.42632**	36.01113 **39.59113**	35.22302 **38.36274**	36.00133 **38.87885**	36.22058 **39.47625**
35	26.94256 **29.72866**	26.85131 **29.77366**	26.75692 **29.93564**	26.87119 **30.1034**	26.80456 **30.07151**	26.13052 **29.07146**	26.9852 **29.6022**	26.97443 **30.01742**
45	18.77604 **20.85441**	18.64974 **20.90135**	18.74099 **21.12667**	18.71738 **21.21643**	18.65172 **21.17149**	17.97027 **20.29761**	18.79078 **20.77821**	18.72141 **21.00585**
55	11.73639 **12.81777**	11.69006 **12.83459**	11.77263 **12.98047**	11.76912 **13.04771**	11.71109 **13.01545**	11.46204 **12.61409**	11.80182 **12.79869**	11.73703 **12.88617**
65	5.12329 **5.232376**	5.074678 **5.282321**	5.073314 **5.272374**	5.084121 **5.307356**	5.090245 **5.320113**	4.89769 **5.142493**	5.00535 **5.190088**	5.006587 **5.21664**

Table 1(D). Life Expectancy: Diseases of Pulmonary Circulation and Other Forms of Heart Disease

Age	Y2011	Y2012	Y2013	Y2014	Y2015	Y2016	Y2017	Y2018
0	40.69145 **41.49558**	40.87653 **41.74162**	40.58567 **42.36769**	40.18793 **41.13857**	32.89548 **36.80951**	41.59156 **42.86097**	42.10083 **43.38198**	42.88806 **44.71815**
15	41.84284 **43.12932**	42.32667 **43.81092**	41.87502 **43.69472**	42.12874 **43.53206**	34.40758 **38.16908**	42.18881 **43.74019**	42.04421 **43.67537**	42.78557 **44.85529**
25	33.16693 **34.95796**	33.52589 **35.52082**	33.32129 **35.44709**	33.27131 **35.2197**	25.98694 **29.86319**	33.31444 **35.35482**	33.19474 **35.35414**	33.90386 **36.24578**
35	25.09594 **27.13449**	25.29573 **27.40443**	25.25048 **27.4495**	25.06612 **27.10377**	18.74299 **21.81078**	25.07876 **27.24027**	25.26821 **27.25079**	25.51841 **27.78387**
45	17.75747 **19.46338**	17.967 **19.63349**	17.90444 **19.68834**	17.70488 **19.24968**	13.22442 **14.14161**	17.62761 **19.30662**	17.79715 **19.31687**	17.90695 **19.59721**
55	11.50893 **12.43698**	11.57353 **12.50895**	11.57417 **12.44966**	11.40902 **12.22624**	14.59479 **7.300285**	11.40405 **12.28534**	11.38441 **12.18963**	11.42766 **12.32234**
65	5.029316 **5.203644**	5.11735 **5.23702**	5.016293 **5.170995**	5.012623 **5.147394**	4.780062 **4.63493**	4.97179 **5.164376**	4.968209 **5.127525**	4.960099 **5.148352**

Table 1(E). Life Expectancy: Cerebrovascular Diseases

Age	Y2011	Y2012	Y2013	Y2014	Y2015	Y2016	Y2017	Y2018
0	45.2093 **46.94972**	44.64106 **45.55735**	45.80105 **47.2273**	45.35993 **46.94376**	46.87429 **52.79882**	45.20333 **46.17368**	45.37427 **47.04497**	45.20131 **46.8966**
15	44.72865 **46.42382**	44.42257 **45.61008**	45.20607 **46.74838**	44.73842 **46.35903**	46.13028 **51.87232**	44.57147 **45.58368**	44.72347 **46.46501**	44.36557 **46.33012**
25	35.26661 **37.00074**	34.98863 **36.40553**	35.70266 **37.33939**	35.27092 **37.06514**	36.55049 **41.99236**	35.1162 **36.26783**	35.15222 **37.00707**	34.70866 **37.0358**
35	26.33594 **28.17389**	26.17403 **27.61374**	26.7572 **28.41197**	26.40652 **28.09747**	27.54226 **32.17498**	26.11366 **27.35526**	26.31155 **28.05135**	25.78974 **28.06345**
45	18.37977 **19.83625**	18.26424 **19.38857**	18.71075 **20.00906**	18.46108 **19.7822**	19.12969 **22.48145**	18.05468 **19.03499**	18.26035 **19.56619**	17.98001 **19.63687**
55	11.51188 **12.37192**	11.4535 **12.13832**	11.72764 **12.53672**	11.5594 **12.38539**	11.3043 **12.86915**	11.05136 **11.76893**	11.33989 **12.10067**	11.42129 **12.18237**
65	4.974299 **5.092993**	4.952487 **5.085474**	5.05841 **5.194586**	4.994256 **5.132598**	5.722352 **2.894132**	4.856151 **4.99011**	4.915197 **5.067207**	4.908726 **5.080284**

Table 1(F). Life Expectancy: Other diseases of the Circulatory System

Age	Y2011	Y2012	Y2013	Y2014	Y2015	Y2016	Y2017	Y2018
0	42.70835 **44.0678**	41.88063 **41.2731**	37.91672 **39.77677**	40.52266 **40.55367**	52.81361 **48.14712**	42.14548 **42.27315**	41.61341 **41.4636**	39.24621 **38.29506**
15	42.83501 **44.35947**	42.02016 **41.86773**	40.41352 **41.73047**	40.9164 **41.65225**	51.85452 **47.15681**	41.76456 **42.20294**	41.13344 **41.09432**	41.77899 **41.95499**
25	33.86425 **35.79263**	32.96503 **33.7961**	31.94902 **33.30143**	32.31452 **33.49485**	41.90254 **37.17387**	32.85083 **33.51166**	32.14052 **32.70689**	33.00973 **33.07629**
35	25.40258 **28.24305**	24.72518 **26.75171**	24.4701 **25.92582**	24.59961 **26.21765**	32.01308 **27.19352**	24.48315 **25.48795**	23.75055 **24.73029**	24.5991 **25.16861**
45	18.11851 **20.46481**	17.44043 **19.23965**	17.74426 **19.06826**	17.65076 **18.77323**	22.16946 **17.22185**	17.18465 **17.91939**	16.59619 **17.7469**	17.44819 **18.19336**
55	11.55943 **12.84545**	10.99484 **12.38298**	11.50905 **11.99794**	11.21875 **11.91781**	12.32321 **7.245782**	11.14201 **11.49034**	10.58591 **11.36472**	11.18265 **11.92921**
65	4.904084 **5.129108**	4.797017 **5.003604**	4.989583 **5.056296**	4.95 **4.901961**	2.532884 **3.15724**	4.583989 **4.559556**	4.705515 **4.773931**	4.84243 **5.102204**

Table 2. Years of Life Lost Due to Circulatory System Diseases

CSDs / Age	ARF&CRH	HD	IHD	DPC&OFHD	CBD	ODCS
0	31.37 **33.41**	23.4 **24.5**	21.74 **21.36**	23.4 **23.78**	25.71 **26.69**	29.36 **33.11**
15	19.17 **21.88**	12.24 **13.47**	10.64 **10.62**	12.24 **13.02**	13.82 **14.95**	14.82 **17.85**
25	17.13 **20.58**	12.49 **13.26**	10.98 **10.82**	12.49 **13.14**	13.30 **14.06**	14.19 **17.22**
35	15.71 **18.55**	12.11 **12.84**	10.93 **10.89**	12.11 **12.77**	12.38 **13.12**	13.30 **15.73**
45	13.00 **15.68**	11.22 **11.96**	10.48 **10.60**	11.22 **11.95**	11.29 **12.01**	11.75 **13.41**
55	10.36 **12.66**	9.58 **12.62**	8.11 **10.11**	9.58 **10.74**	9.58 **10.68**	9.82 **11.07**
65	9.55 **10.72**	9.29 **10.42**	9.19 **10.28**	9.29 **10.41**	9.24 **10.36**	9.36 **10.40**

where, ARF&CRH: ARF and Chronic RHD, HD: Hypertensive Diseases, IHD: Ischaemic Heart Diseases, DPC&OFHD: Diseases of Pulmonary Circulation and Other Forms of Heart Disease, CBD: Cerebrovascular Diseases, ODCS: Other Diseases of the Circulatory System.

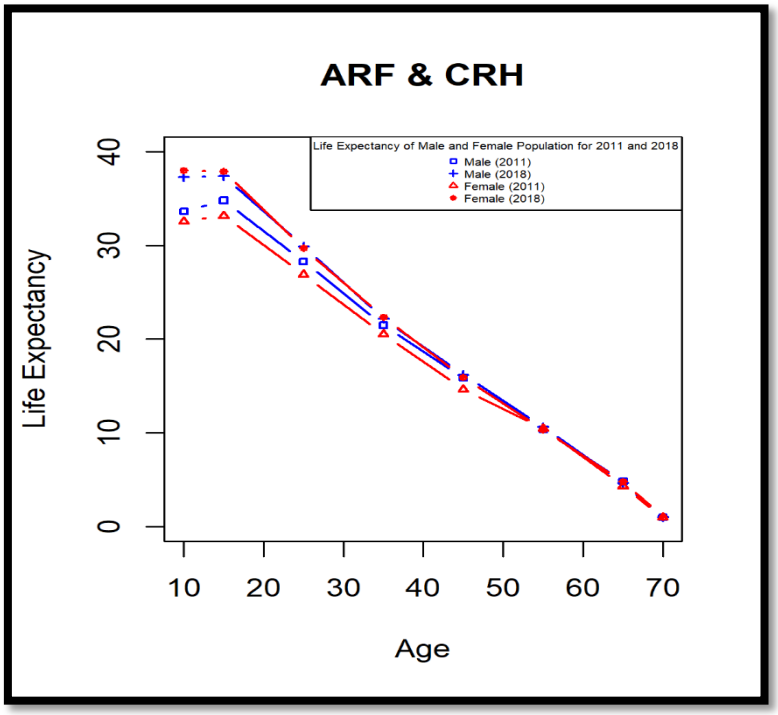

Figure A. Life Expectancy of Male and Female Population for 2011 and 2018 for Acute Rheumatic Fever (ARF) and Chronic Rheumatic Heart Diseases (Chronic RHD)

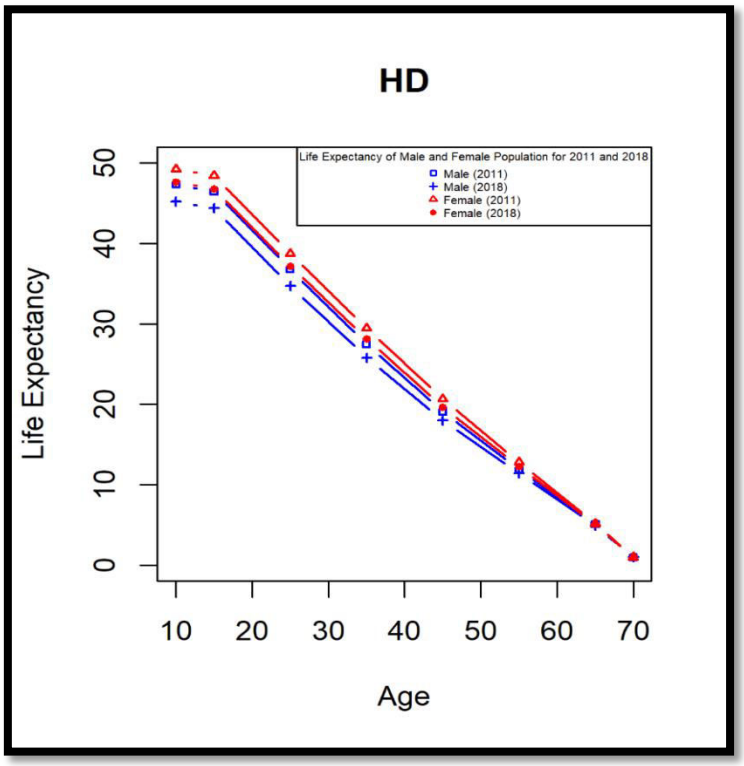

Figure B. Life Expectancy of Male and Female Population for 2011 and 2018 for Hypertensive Diseases (HD)

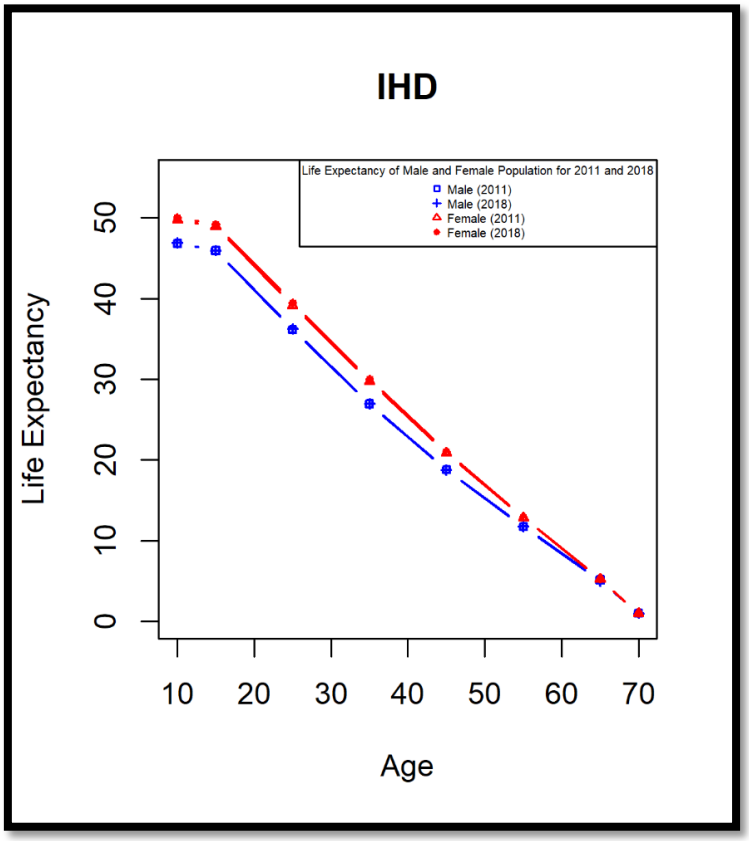

Figure C. Life Expectancy of Male and Female Population for 2011 and 2018 for Ischaemic Heart Diseases (IHD)

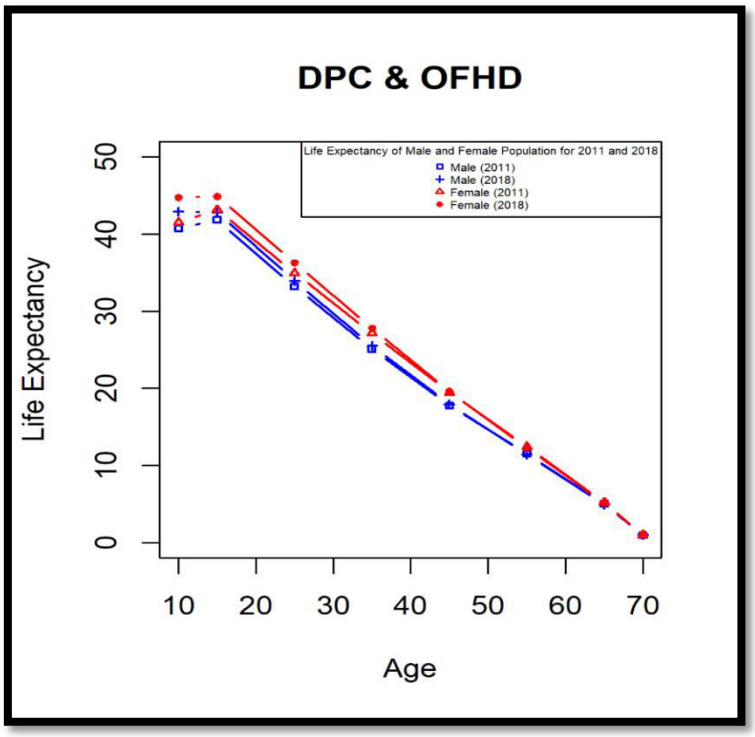

Figure D. Life Expectancy of Male and Female Population for 2011 and 2018 for Diseases of Pulmonary Circulation and Other Forms of Heart Disease (DPC and OFHD)

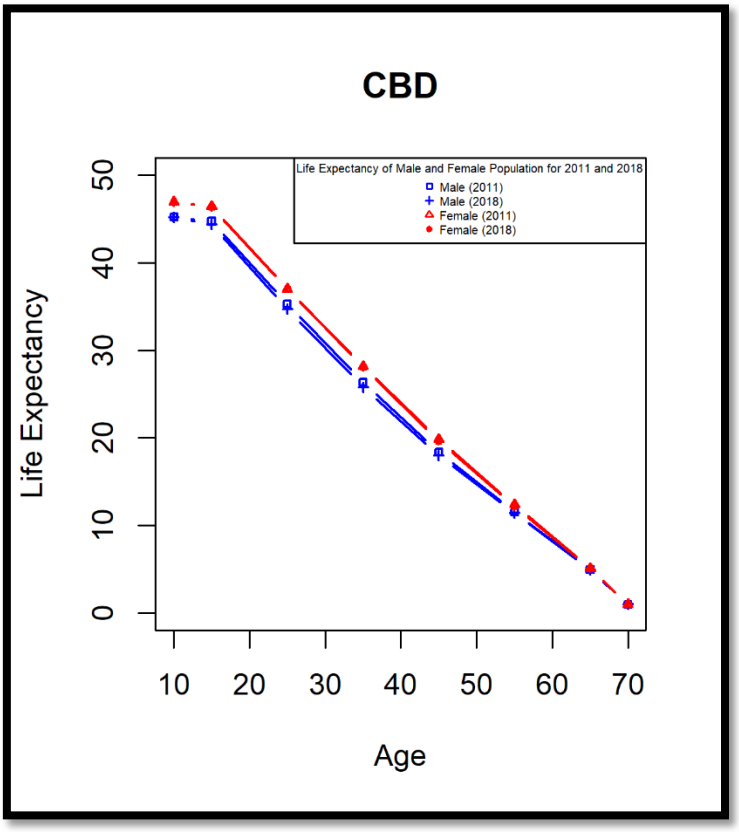

Figure E. Life Expectancy of Male and Female Population for 2011 and 2018 for Cerebrovascular Diseases (CBD)

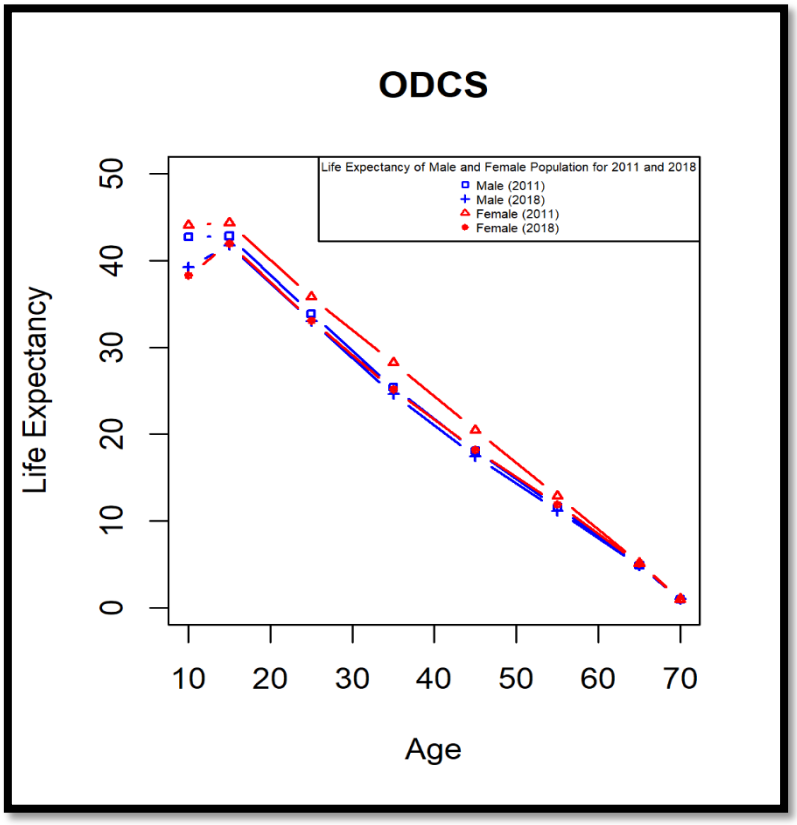

Figure F. Life Expectancy of Male and Female Population for 2011 and 2018 for Other Diseases of the Circulatory System (ODCS)

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