



## **MORTALITY ANALYSIS IN HETEROGENEOUS POPULATIONS**

*Talawar A. S<sup>1</sup> & Rajani P. A<sup>2</sup>*

*<sup>1</sup>Professor, Department of Statistics, Karnatak University, Dharwad, India*

*<sup>2</sup>Research Scholar, Department of Statistics, Karnatak University, Dharwad, India*

### **ABSTRACT**

*In the mortality data, a lower order polynomial does not provide a good fit especially in case of age interval. A possible approach to get a good fit is to increase the order of the polynomial. The higher order polynomial works well for mortality data with age interval of five years and suitable when mortality data for single year is not available. We use the polynomial regression model in one explanatory variable to fit mortality data where mortalities are available in age interval. In case of the higher order polynomials, the problem of multicollinearity is resolved by centering explanatory variable. We observe from the fitting that the polynomial regression model is very good approximation for all the three heterogeneous subpopulations. For all the subpopulations (male & female, rural male & female and urban male & female) polynomial approximation is the simplest suitable choice of fitting model to mortality data. Using the estimated mortality values by age interval, other columns of life tables are constructed. Life expectancies for these subpopulations are presented in the tables.*

**KEYWORDS:** *Mortality, Polynomial Regression, Heterogeneity, Co-Efficient of Determination, Life Expectancy*

---

### **Article History**

**Received: 30 Jan 2020 | Revised: 07 Feb 2020 | Accepted: 18 Feb 2020**

---