Background

- In Ethiopia, crude death rates and child mortality rate have dropped from 25.1 deaths per 1000 population and 270 deaths per 1000 live births in 1960 to 6.7 deaths per 1000 population and 55 deaths per 1000 live births in 2019 (UN-Online 2019).
- Infant mortality rates have also dropped from 162.2 deaths per 1000 live births in 1960 to 41.2 deaths per 1000 live births in 2019 (UN-Online 2019).
- Because of the large rural population in Ethiopia, poor utilization of health services and the lack of a vital registry system, HDSS sites provide record of mortality and changes over time through longitudinal surveillance.
- Kersa Health and demographic Surveillance System (Kersa HDSS) is collecting demographic events including death since September of 2007.

This analysis tries to characterize mortality pattern and perceived causes of death of the site for the period of 2008-2019.

Methods

- Kersa HDSS established in February 2007 which consists of a representative selection of Kabele with average population size of 5000 each and collected primarily demographic and household data and information about vital events (births, deaths and migration) in the area.
- Follow up surveys beginning in September 2008 began collecting health information as part of the surveillance.
- In 2015 the population of the study site has been doubled to increase the population under surveillance to over 130,000 in 24 Kabeles.
- The Crude Death Rate, Infant Mortality Rate, Child (Under 5) Mortality Rate, Life Expectancy and Age-Specific Death Rate were calculated for each year’s population from 2008 to 2019.
- The Crude Death Rate, Infant mortality rates were 11.19 in 2008 and fall to 5.53 in 2019 per 1000 population (Table 1). The average mortality rate for the twelve-year period was 8.39 deaths per 1000 population.

Results

Mortality over the twelve-year period from 2008 to 2019 showed a significant reduction in the death pattern. Though the rates vary by sex, consistent reduction between the two gender is observed. Regression analysis showed that the slight rate of decrease of 0.54 deaths per 1000 population per year with a significant correlation coefficient of (r2=0.52) (Figure 2).

The infant mortality rate was found to be declining at 3.17 deaths per live births per year (r2=0.52) (Figure 2).

The overall CBR dropped from 11.19 in 2008 to 5.53 in 2019.

The infant mortality rate increased significantly, by 6.8 deaths per 1000 live births per year (r2=0.52) (Figure 2).

Overall, the mortality rate increased significantly, by 6.2 deaths per 1000 population, with each five-year age group (r2=0.58).

The neonatal, infant and under-five mortality rates were 24.15, 69.35 and 147.37 in 2008 and becomes 17.62, 42.54 and 85.38 in 2019, respectively (Table 2).

The Crude Death Rate, Infant Mortality Rate, Life Expectancy and Age-Specific Death Rate were calculated for each year’s population from 2008 to 2019.

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The life expectancy at birth has changed significantly over 12 –year period with annual increase of 1.34 years (Figure 4) per year (r2=0.86) (Figure 1). The average life expectancy at birth was 67.7 years in 2008 and becomes 79.02 years in 2019 (Figure 4).

Mortality rates were similar for men and women throughout most age groups. Between age groups 35-39 to 60-64 years, men had greater mortality rates than women (Figure 3).

Mortality rates were highest during infancy, childhood (under 5 years) and old age (65+ years) and increased with age (after age 5). Overall the mortality rate increased significantly, by 6.2 deaths per 1000 population, with each five-year age group (r2=0.58). Mortality rates were similar for men and women throughout most age groups. Between age groups 35-39 to 60-64 years, men had greater mortality rates than women (Figure 3).

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There are significant differences in the other leading causes of death between men and women and children and adults.

While this gives little insight into mortality decline in the area and its association with population growth, it does shed some light on the fact that Kersa, and possibly in Ethiopia, has not yet completed the epidemiological transition.

Conclusions

- There is significant change in the rates of mortality in Kersa HDSS between 2008 and 2019, over the twelve-year period.
- The overall CBR dropped from 11.19 in 2008 to 5.53 in 2019.
- Similarly there is a drop in under-five mortality from 147.37 to 85.38 for 2019, still it is one of the highest even compared to the national report.
- The primary cause of death, based on the perceived report form the close by family in Kersa HDSS was Group I causes (communicable, maternal, perinatal and nutrition deficiency related).
- There were significant differences in the other leading causes of death between men and women and children and adults.
- There is significant change in the rates of mortality in Kersa HDSS between 2008 and 2019, over the twelve-year period.

References