⊕ EN

DIABETES surveillance

ROBERT KOCH INSTITUT

Healthy life years (HLY)

Field of action 4: Reducing the burden and costs of disease

Adults

Background

Increasing importance is being given to both life expectancy and the number of years a person can live free from health impairments. For this reason, the difference between people with and without diabetes is, alongside excess mortality, an important indicator of the burden of disease associated with diabetes.

Key messages

▶ In 2014, the number of remaining healthy life years was substantially lower for people with diabetes than for people without diabetes.

▶ Overall, women with diabetes have more remaining healthy life years than men with diabetes.

▶ The remaining healthy life years for people with and without diabetes converge with age.

Figure 1: Number of healthy life years of people with and without diabetes (aged 30 years and older) by age and sex in 2014.
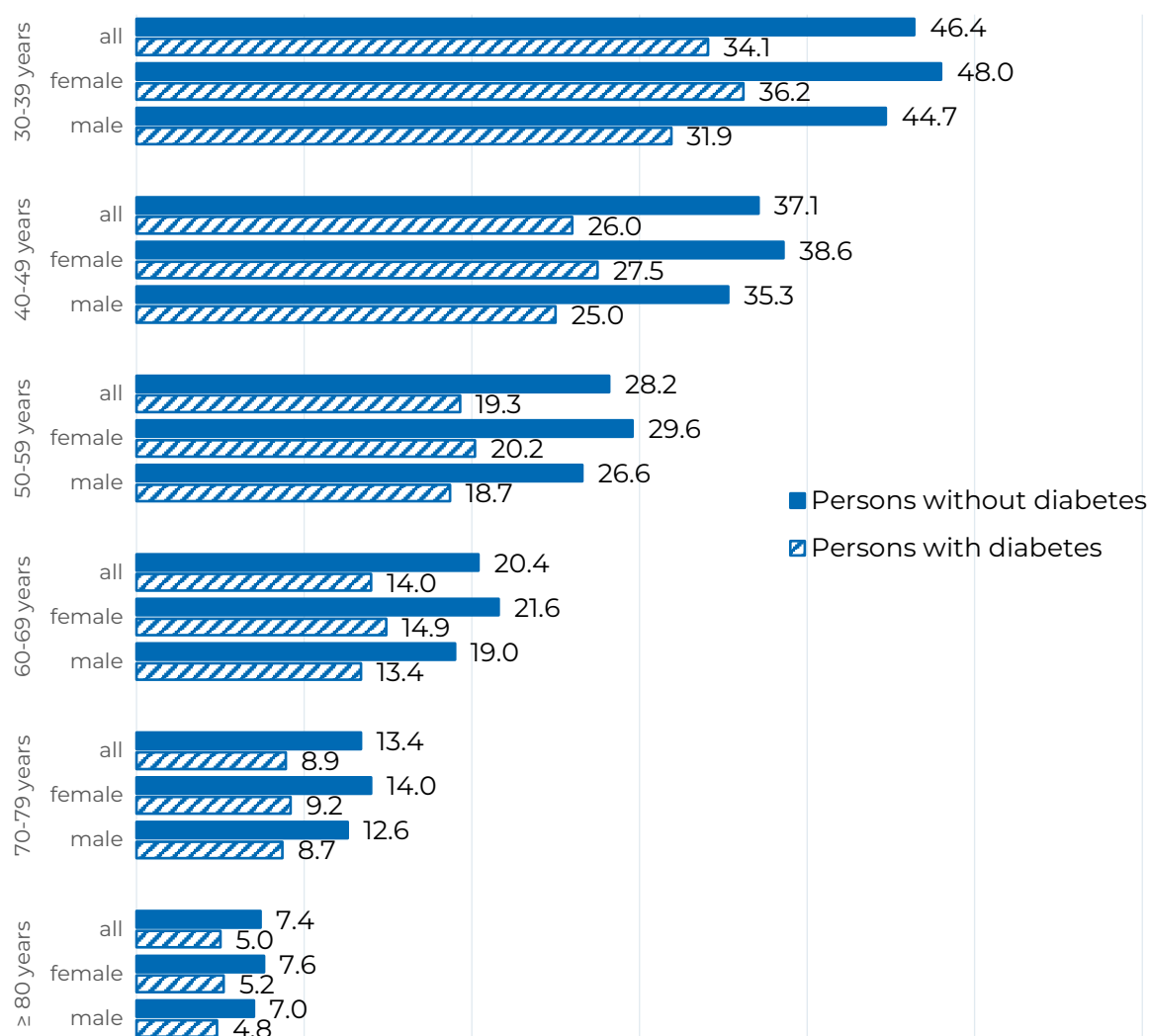
Results

In 2014, the expected number of healthy life years of women and men with diabetes was 36.2 and 31.9 years for the 30- to 39-year age group, 20.2 and 18.7 years for the 50- to 59-year age group and 9.2 and 8.7 years for the 70- to 79-year age group. The expected number of healthy life years for people with diabetes is lower than for people without diabetes, by as much as 9.4 years for women and 7.9 years for men for the 50- to 59-year age group. The healthy life expectancy of both groups converges with age.

Conclusion

People with diabetes can lose up to 12 years of healthy life compared with people without diabetes depending on age group. Future analyses should focus on identifying particularly disadvantaged groups in order to promote health policy measures that reduce inequalities.

Methodology and data sources

Definition
The indicator healthy life years (HLY) is defined as the expected number of remaining years free of health impairments [1, 2] of people with diabetes compared to people without diabetes.

Operationalisation
The calculation of the indicator requires various figures that are used to estimate the number of healthy life years a person would have lived for:

- **Prevalence of known diabetes:** Participant's response to the question: *'Have you ever been diagnosed with diabetes by a doctor?'*
- **Prevalence of health limitations:** Participant's response to the question: *'To what extent are you permanently limited in your everyday activities due to illness? By permanent we mean for at least half a year.'*
  - Severely limited
  - Limited but not severely
  - Not limited
  - I do not know
  - No reply

  Prevalence: The proportion of people who stated 'severely limited'. Complementary groups are people who stated 'limited but not severely' or 'not limited'.
- **Death rate in the general population:** The death rates are determined using the cause of death statistics of the Federal Statistical Office.
- **Diabetes-related excess mortality:** The ratio of the death rate for people with documented diabetes to the death rate for people without documented diabetes (indicator "mortality").
- The specified figures are reported in total and separately for sex for people from 30 to 89 years in 10-year age groups; people aged 90 years and over are combined into one age group.

Reference population
Resident population in Germany, aged 30 years and over.

Data source

Three data sources are used to measure the various indicators:

▶ The prevalences of diabetes and health impairments are based on three interview surveys (German Health Update (GEDA) 2009, GEDA 2010, GEDA 2012) of the Robert Koch Institute (RKI) based on telephone samples (landline) and telephone-based questionnaire.

▶ The mortality rates are based on 2014 data from the Federal Statistical Office.

▶ The figures on diabetes-related excess mortality are based on data collected in accordance with the Data Transparency Ordinance (DaTraV) from 2014 (indicator "mortality").

Calculation

The number of healthy life years is determined in three steps:

▶ **Diabetes-specific death rates:** In the first step, mortality rates for people with diabetes and for people without diabetes are determined using the mortality rate in the general population, diabetes prevalence and diabetes-related excess mortality.

▶ **Life expectancy:** In the second step, the life expectancy for people with and without diabetes is determined using the diabetes-specific death rates.

▶ **Healthy life years:** In the third step, the number of remaining healthy years of life is determined using the age-specific life expectancy and the age-specific prevalence of health limitations using the Sullivan method.

▶ **Weighting:** Weighting factors are used to calculate the prevalence of diabetes and health complaints, which correct for selection bias as well as deviations in the sample from the population structure based on 31 December 2011 with regard to sex, age, education and regional distribution.

Data quality

▶ RKI interview surveys provide representative results for the resident population of Germany aged 18 years and over. As is the case in all population-based studies, underrepresentation of the seriously ill and those living in institutions must be assumed. Furthermore, all information is self-reported and not based on personal interviews conducted by study physicians or standardised measurements or examinations.

▶ Mortality rates for Germany are drawn from the official statistics of the Federal Statistical Office. When determining life expectancy, the current mortality ratios are used and thus assumed to be constant over time, which can lead to an underestimation of actual life expectancy.

▶ DaTraV data are claims data on all people covered by statutory health insurance (SHI). DaTraV data include documented outpatient and inpatient diagnoses as well as information on prescribed medications. The quality of claims data from SHI depends on conduct of documentation. DaTraV data do not cover people insured by private health insurance and do not provide information on inpatient or outpatient care.

Data download

Robert Koch Institute. (2024). Results of the National Diabetes Surveillance 2015 – 2024 [Data set]. Zenodo. https://doi.org/10.5281/zenodo.14935276 (in German)

References

1. Bogaert P, Van Oyen H, Beluche I, Cambois E, Robine J-M. The use of the global activity limitation Indicator and healthy life years by member states and the European Commission. Arch Public Health. 2018;76:30. doi: 10.1186/s13690-018-0279-z.
2. Eurostat. Healthy life years statistics. 2024 [cited 28.11.2024]. Available from: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Healthy_life_years_statistics.

External links

▶ Baumert J, Heidemann C, Reitzle L, Schmidt C. Healthy life years among people with and without diabetes in Germany. J Health Monit. 2021;6(2):43-50. http://dx.doi.org/10.25646/8331.

Imprint

Editor
Robert Koch Institute · Department of Epidemiology and Health Monitoring
National Diabetes Surveillance · Nordufer 20 · 13353 Berlin

Citation
National Diabetes Surveillance at the Robert Koch Institute (2024)
Results of the Diabetes Surveillance 2015 – 2024. Healthy life years (HLY) – Adults.
Robert Koch Institute, Berlin. doi: 10.25646/12405.

Open access
CC BY 4.0 Attribution 4.0 International

Funding
The project Developing National Diabetes Surveillance at the Robert Koch Institute with expansion to an NCD Surveillance (2015 – 2024) was funded by the Federal Ministry of Health (funding references: GE20150323, GE20190305, 2522DIA700, 2523DIA002).

Supported by:

Federal Ministry
of Health

on the basis of a decision
by the German Bundestag