

Frequency of severe hypoglycaemia



Field of action 3: Reducing the complications of diabetes

Adults

Background

Severe hypoglycaemia (low blood sugar) can lead to impaired consciousness and hypoglycaemic coma and is associated with an increased risk of complications such as cardiovascular events, dementia, fall-related fractures and even death [1]. Prevention of severe hypoglycaemic episodes in particular can be seen as a quality indicator of good glycaemic control [2].

Key facts

- ▶ Overall, 2.5% of adults with known diabetes were affected by severe hypoglycaemia in 2014.
- ▶ No significant sex-, age- or education-related differences were observed.

Figure 1: Proportion of adults with known diabetes who experienced severe hypoglycaemia in the last 12 months in % by age and sex in 2014.

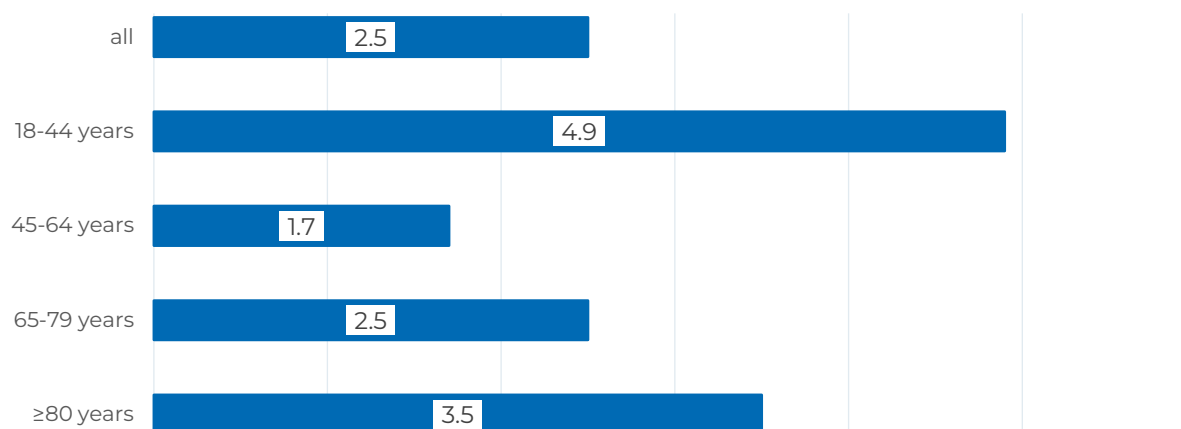


Figure 2: Proportion of adults with known diabetes who experienced severe hypoglycaemia in the last 12 months in % by education group and sex in 2014.



Results

In 2014, the proportion of adults with known diabetes who experienced severe hypoglycaemia in the last 12 months and required subsequent medical treatment was 2.5% (women: 2.1%; men: 3.0%). The corresponding proportion varies between age and education groups as well as between eastern and western Germany – however, these differences are not statistically significant, possibly due to the limited number of cases.

Conclusion

Severe hypoglycaemia is a not rare and distressing acute complication in persons with diabetes that can occur due to therapy with antihyperglycemic medications [3]. Minimizing the burden of hypoglycaemia must be therefore an important aim in diabetes therapy. Individualized therapy goals based on a comprehensive consideration of patient characteristics and treatment options can contribute to reaching this aim, as recommended, for example, in the updated Practice Guideline for the therapy of type 2 diabetes [4].

Methodology and data sources

Definition

The indicator frequency of severe hypoglycaemia is defined as the proportion of people with known diabetes who have had severe hypoglycaemia that led to medical treatment within the past 12 months.

Operationalisation

Information provided by the respondents to the following questions:

- ▶ *'Have you had any of the following illnesses or complaints in the past 12 months': diabetes (not including gestational diabetes)*
 - Yes
 - No
- ▶ If yes, then *'Have you had acute hypoglycaemia in the past 12 months?'*
 - Yes
 - No
- ▶ If yes, then *'Has this hypoglycaemia led to medical treatment in the past 12 months, such as hospital admission or emergency medical treatment or care?'*
 - Yes
 - No

Reference population

Resident population in Germany with known diabetes, aged 18 and over.

Data source

Nationwide interview survey German Health Update (GEDA) 2014/15-European Health Interview Survey (EHIS) of the Robert Koch Institute (RKI) based on a sample from registration offices and self-completion questionnaire (online/written).

Number of cases

- ▶ GEDA 2014/15-EHIS: n = 24,016

For the frequency of severe hypoglycaemia indicator, only people with known diabetes in the past 12 months were considered:

- ▶ GEDA 2014/15-EHIS: n = 1,712 people with known diabetes

Calculation

- ▶ **Description:** For the indicator, the figures for total, women and men are provided and are stratified by age group, residential area and education as far as the number of cases available

for the figure is ≥ 5 and the statistical uncertainty in the estimate of the indicator is not considered too large (a coefficient of variation $\leq 33.5\%$).

- ▶ **Stratification:** The geographical classification of the residence of the participating person was carried out by east and west (east = former East Germany, including all of Berlin; west = former West Germany, not including West Berlin). Educational status was determined using the Comparative Analysis of Social Mobility in Industrial Nations (CASMIN) index, which takes information on both school and vocational training into account and allows a categorisation into a low, medium and high education group.
- ▶ **Weighting:** In order to correct for deviations from the underlying reference population due to different participation rates or sampling probabilities, a weighting factor was used when calculating the indicator. This adjusts the survey to the structure of the resident population in Germany of the reference population in terms of sex, age, federal state, municipality type and education as of 31 December 2014.

Data quality

Robert-Koch-Institute (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.

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. Amiel SA. The consequences of hypoglycaemia. *Diabetologia*. 2021;64(5):963-70. doi: 10.1007/s00125-020-05366-3.
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3. Alwafi H, Alsharif AA, Wei L, Langan D, Naser AY, Mongkhon P, et al. Incidence and prevalence of hypoglycaemia in type 1 and type 2 diabetes individuals: A systematic review and meta-analysis. *Diabetes Res Clin Pract*. 2020;170:108522. doi: 10.1016/j.diabres.2020.108522.
4. Landgraf R, Aberle J, Birkenfeld AL, Gallwitz B, Kellerer M, Klein HH, et al. Therapie des Typ-2-Diabetes. *Diabetologie und Stoffwechsel*. 2021;16(S 02):S168-S206. doi: 10.1055/a-1394-2313.

External links

- ▶ Robert Koch Institute. Information on the study German Health Update (GEDA) 2024 [cited 30.01.2025]. Available from: <https://www.rki.de/EN/Topics/Noncommunicable-diseases/Health-surveys/Studies/geda-german-health-update.html?nn=16782096>.

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