

# Depressive symptoms



**Field of action 3: Reducing the complications of diabetes**

**Adults**

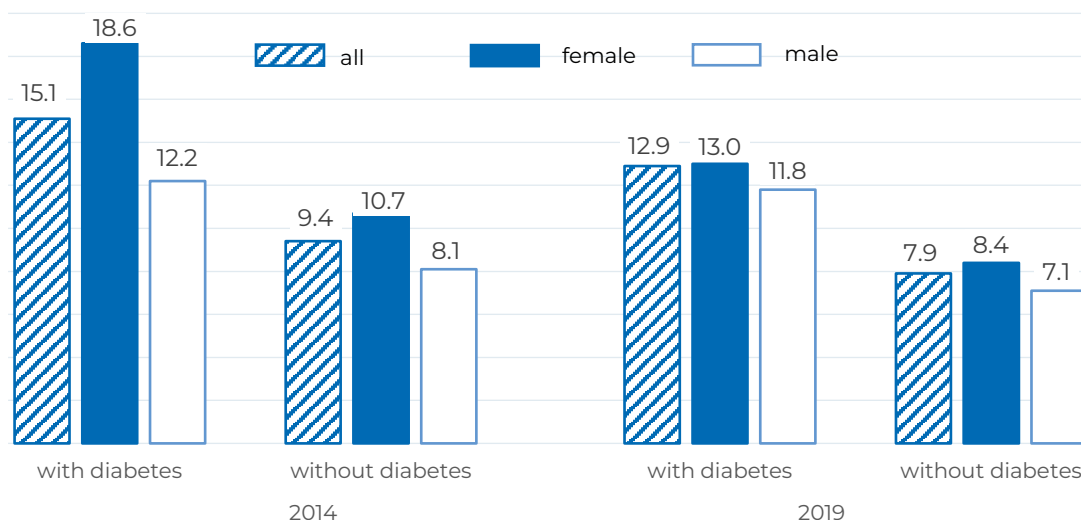
## Background

Depression is one of the most common mental illnesses. It is linked to a high individual and social burden of disease [1], and is regarded as one of the key comorbidities of diabetes. Patients with diagnosed diabetes and comorbid depression are less likely to comply with their treatment regimes [2].

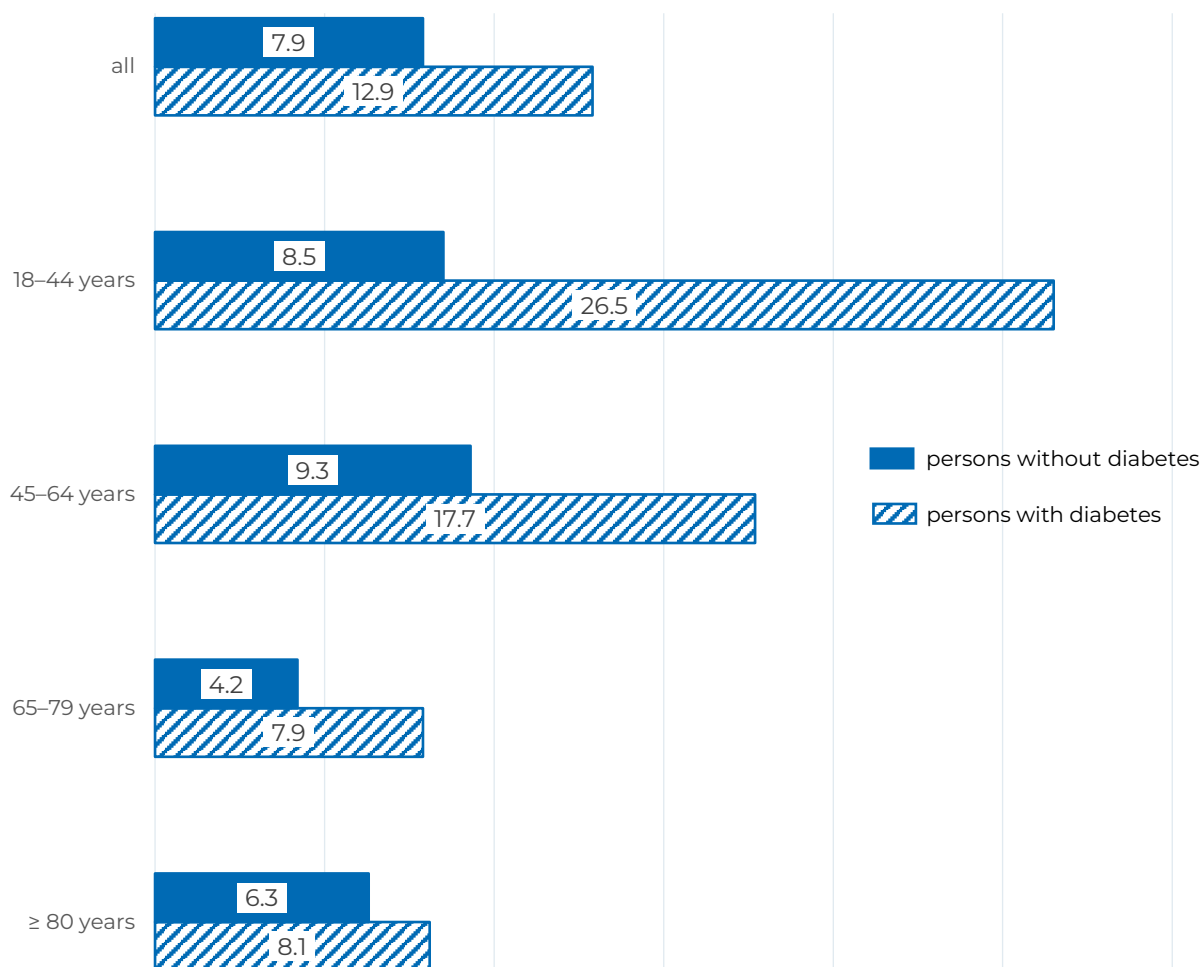
### Key facts

- ▶ Around 13% of adults with diabetes reported current depressive symptoms in 2019.
- ▶ Prevalences of current depressive symptoms in adults with diabetes are comparable in men and women.
- ▶ Current depressive symptoms are about twice as high in adults with diabetes than in adults without diabetes.

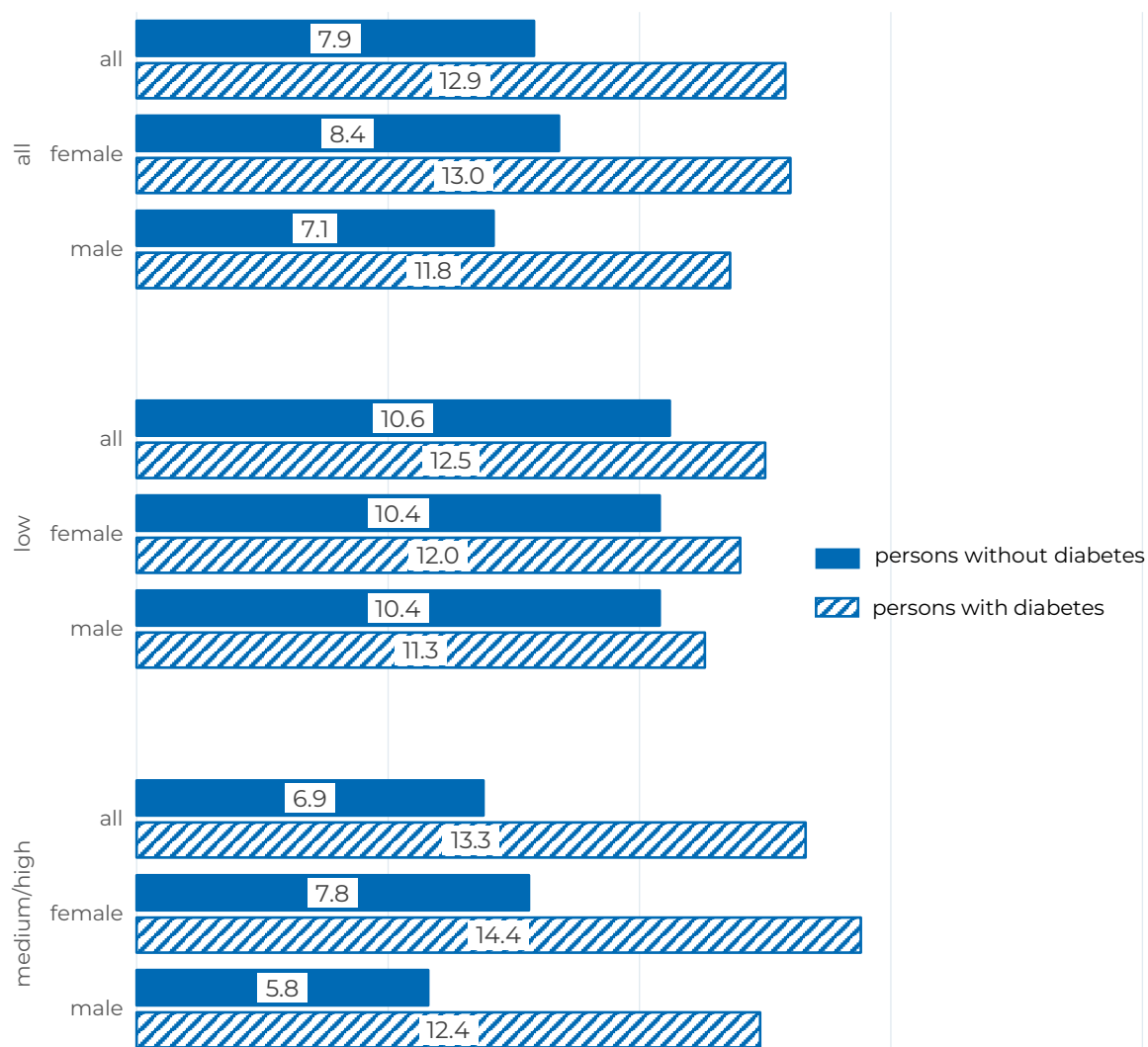
**Figure 1:** Temporal comparison of the prevalence of depressive symptoms among adults with and without diabetes in % by sex between 2014 and 2019 (age-standardised).



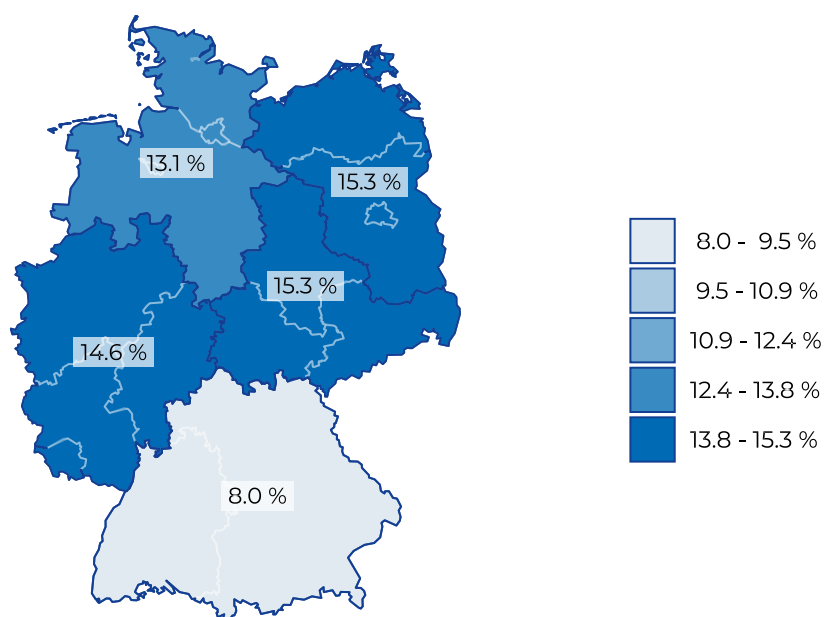
**Figure 2:** Prevalence of depressive symptoms among adults with and without diabetes in % by age in 2019.



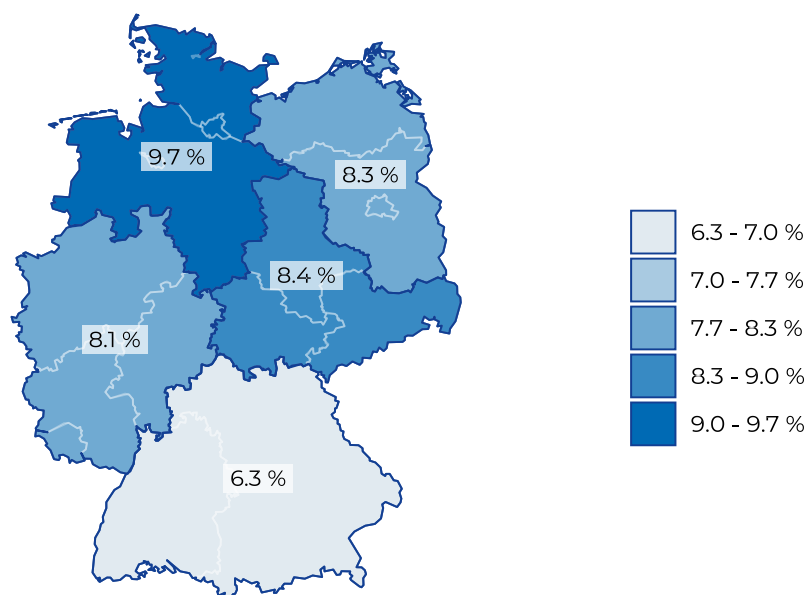
**Figure 3:** Prevalence of depressive symptoms among adults with and without diabetes in % by education group and sex in 2019.



**Figure 4:** Prevalence of depressive symptoms among adults with diabetes in % by region (north east, north west, middle east, middle west, south) in 2019.



**Figure 4:** Prevalence of depressive symptoms among adults without diabetes in % by region (north east, north west, middle east, middle west, south) in 2019.



## Results

In 2019, 12.9% of adults with known diabetes in Germany present with current depressive symptoms (women: 13.0%; men: 11.8%); these figures are about twice as high as in the absence of known diabetes (age-adjusted odds ratio 2.15; women: 2.01; men: 2.10). From the age of 65 years, the prevalence of depressive symptoms decreases in people with and without known diabetes.

Current depressive symptoms are less often reported in the South than in other regions of Germany. Compared to 2014, the prevalence of depressive symptoms is lower for women with known diabetes in 2019; no differences are observed here for men with known diabetes.

## Conclusion

One in eight adults with known diabetes in Germany exhibits current symptoms of depression. Depressive symptoms are far more common in adults with diabetes than in adults without diabetes. For this reason, the treatment of diabetes requires still a particular focus on depressive symptoms.

## Methodology and data sources

### Definition

The indicator depressive symptoms is assessed by the German version of the Patient Health Questionnaire-8 (PHQ-8). It is defined as the proportion of people with known diabetes compared to those without diabetes who have had current depressive symptoms in the previous two weeks (PHQ-8 sum score  $\geq 10$ ).

### Operationalisation

The PHQ-8 questionnaire assesses the symptoms of major depression (not including suicidal thoughts) in accordance with the Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV with regard to the frequency of their occurrence over the past two weeks. Participants with a total PHQ-8 sum score of  $\geq 10$  are considered to show depressive symptoms.

- Symptoms: The initial question *‘Over the last 2 weeks, how often have you been bothered by...?’* was used to measure little interest or pleasure, depressed mood, sleep disturbances, tiredness or little energy, poor appetite or overeating, feelings of worthlessness or guilt, trouble concentrating, psychomotor retardation or agitation.

The following responses were provided:

- 0 = Not at all
- 1 = Several days
- 2 = More than half of the days
- 3 = Nearly every day

- PHQ-8 total score: sum of the scores gained from the responses to questions about the eight symptoms.

- Known diabetes in the last 12 months: The introductory question *‘Have you had any of the following diseases or complaints in the last 12 months?’* was used to collect data on individual diseases/complaints, including ‘diabetes (not including gestational diabetes)’. The following responses were provided:

- Yes
- No

- Indicators depicted separately for people with or without known diabetes in the past 12 months.

## Reference population

German-speaking resident population in Germany with and without known diabetes, aged 18 years and over.

## Data source

Nationwide interview surveys German Health Update (GEDA) 2014/2015-European Health Interview Survey (EHIS) of the Robert Koch Institute (RKI) based on a sample from registration offices and self-completion questionnaire (online/written) as well as GEDA 2019/2020-EHIS based on telephone sample (landline and mobile phone) and a telephone-based questionnaire.

## Number of cases

- ▶ GEDA 2014/15-EHIS: n = 24,016
  - 1,712 people **with** known diabetes in the past 12 months
  - 21,633 people **without** known diabetes in the past 12 months
  
- ▶ GEDA 2019/2020-EHIS: n = 22,708 (aged 18 years and over), among them
  - 2,059 people **with** known diabetes in the past 12 months
  - 20,615 people **without** known diabetes in the past 12 months

## 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  $\geq 5$  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 region (north east, north west, middle east, middle west and south). 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 and district type as of 31 December 2014 (GEDA 2014/15-EHIS) and of 31 December 2019 (GEDA 2019/20-EHIS) as well as of the distribution of education levels in the microcensus 2013 (GEDA 2014/15-EHIS) and 2017 (GEDA 2019/20-EHIS).
- ▶ **Age standardisation:** Direct age standardisation to the adult resident population in Germany as of 31 December 2019.

## Data quality

RKI interview surveys (GEDA) 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 standardized 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. World Health Organization (WHO). Depressive disorder (depression). 2021 [cited 22.08.2024]. Available from: <https://www.who.int/news-room/fact-sheets/detail/depression>.
2. Gonzalez JS, Peyrot M, McCarl LA, Collins EM, Serpa L, Mimiaga MJ, et al. Depression and diabetes treatment nonadherence: a meta-analysis. *Diabetes Care*. 2008;31(12):2398-403. doi: 10.2337/dc08-1341.

## External links

- ▶ Bretschneider J, Kuhnert R, Hapke U. Depressive symptoms among adults in Germany. *J Health Monit*. 2017;2(3):77-83. <https://doi.org/10.17886/RKI-GBE-2017-070>.
- ▶ Jung A, Du Y, Nübel J, Busch MA, Heidemann C, Scheidt-Nave C, et al. Are depressive symptoms associated with quality of care in diabetes? Findings from a nationwide population-based study. *BMJ Open Diabetes Res Care*. 2021;9(1):e001804. <https://doi.org/10.1136/bmjdr-2020-001804>.
- ▶ Heidemann C, Scheidt-Nave C, Beyer A-K, Baumert J, Thamm R, Maier B, et al. Health situation of adults in Germany – Results for selected indicators from GEDA 2019/2020-EHIS. *J Health Monit*. 2021(3):3--25. <http://dx.doi.org/10.25646/8459>.

## Imprint

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