



Urban-rural differences in the occurrence of hay fever in Germany

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Abstract

Background

Little is known about current trends and small-area variations of hay fever morbidity in Germany. The aim of the present study was to examine current trends and regional variations of diagnosed hay fever. In particular, we were interested in possible differences between urban and rural regions as well as in age-specific temporal developments.

Methods

We used nationwide outpatient claims data from the years 2010 to 2019 to determine the annual diagnosis prevalence of hay fever in Germany. The data contain information for all statutory-health insured individuals in Germany who were treated in respective years. Individuals with a confirmed diagnosis of hay fever in at least one quarter of a year were considered as prevalent cases. We examined the association between the degree of urbanization and age- and sex-standardized prevalence of hay fever. The urbanization type of districts was adopted from the Federal Institute for research on Building, Urban Affairs and Spatial Development (BBSR).

Results

The prevalence of hay fever increased from 6.1% in 2010 to 7.1% in 2019, corresponding to the relative increase of 15% over the observation period of 10 years. In contrast to the whole study population there was a clear decrease in prevalence from 4.1% (2010) to 3.0% (2019) in the age group of 0-10 years. The strongest relative decrease of -53% was observed among females and males of the age group 0–2 years. The standardized prevalence in 2019 was lowest in rural areas with a low population density (6.6%), followed by rural areas with population concentrations (6.9%), urban districts (7.3%) and big urban municipalities (7.8%). A positive association between hay fever prevalence and urbanization degree was observed for the majority of age groups, except for the 0–14 year olds; in contrast to the whole study population the lowest prevalence figures were observed in big urban municipalities (4.3%), followed by urban districts (4.5%), rural areas with population concentrations (4.6%) and rural areas with a low population density (4.6%).

Conclusion

We observed a significant decrease in the prevalence of hay fever in the pediatric age segment and opposite development in the older age groups. A timely stable urban-rural gradient underlines the essential importance of environmental factors associated with the urbanization degree of the place of residence. These findings may be explained by differing age-specific risk factors of hay fever.

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Keywords

Administrative prevalence, adolescents, adults, allergy, children, claims data, Germany, hay fever, pollinosis, prevalence, urban-rural differences, temporal trends

Citation

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