CORRESPONDENCE

Trends in Disease Burden in Germany: Results, Implications and Limitations of the Global Burden of Disease Study

by M.Sc. PH Dietrich Plass, Prof. PhD Theo Vos, Prof. Dr. med. Claudia Hornberg, Dr. med. Christa Scheidt-Nave, Prof. Dr. med. Hajo Zeeb, Prof. Dr. med. Alexander Krämer in issue 38/2014

Years of Life Lost

Among the limitations of their study, the authors list the unavailability of German health data of sufficiently high quality (1). Indeed, the precise data sources for Germany remain largely unmentioned. The methods of the Global Burden of Disease (GBD) Study comprise the possibility to transfer data from other countries to Germany while considering national risk factors, which may lead to erroneous estimates.

For this reason, in a comparison calculation we estimated the years of life lost (YLL) due to diabetes on the basis of the KORA-S4/F4 study. KORA is a population based, prospective cohort study that includes undiagnosed diabetes in addition to patients with diagnosed type 2 diabetes (2).

When extrapolating the YLL which result from the KORA data for 2007 by means of an epidemiological model (3) to the age structure in Germany in 2010, the calculation shows 166 000 (95% CI 81 000–278 000) YLL due to diabetes for men and 137 000 (55 000 to 243 000) YLL for women. This tallies very well in the sex ratio as well as in the magnitude of the GBD estimates of 140 000 YLL and 110 000 YLL, respectively (1).

These data and the prognoses from (3) stress the enormous individual and societal burden of diabetes in Germany

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Dr. rer. nat. Ralph Brinks
Annika Hoyer, MSc
Dr. med. Teresa Tamayo
Dr. rer. nat. Dr. rer. san. Bernd Kowall
PD Dr. med. Wolfgang Rathmann
Institut für Biometrie und Epidemiologie
Deutsches Diabetes-Zentrum, Düsseldorf
ralph.brinks@ddz.uni-duesseldorf.de

Global Burden of Disease Study is of Oncological Interest

The proportion of the five most common risk factors that when quantified contribute most to the burden of disease overall is of great oncological interest for women. All five factors are associated with a notably increased risk for breast cancer: a high body mass index (often associated with a high risk diet), metabolic problems, such as diabetes with vascular damage, and therefore development of hypertension, lack of exercise, and smoking.

All these risks for breast cancer could be reduced by lifestyle modification (an example would be a BMI above 30 as a challenge in the medical consultation). In obese postmenopausal women, high estrogen concentrations (from testosterone via aromatase metabolized in large fat deposits) result in a breast cancer risk that is 12 times higher (1). This risk cannot be "compensated" for by mammography screening with the objective of fewer deaths due to breast cancer.

In carriers of the BRCA mutation whose breast cancer risk is high for that reason, a BMI of 25 or more means 1.5 times the risk of developing breast cancer (2).

The fifth most common factor in the Global Burden of Disease Study, "lack of exercise," can be quantified in BRCA carriers at age 45: until that age, 63% of physically inactive and 43% of physically active women will develop breast cancer (2). Even in women who already have breast cancer it is worth tackling these five so important health risks as it is possible to halve the risks of recurrences/metastases in this way.

In conclusion: Avoiding the development of obesity along with increased physical exercise as common and effective non-genetic risk modifiers explicitly confirm the study's data. This should stimulate the discussion about preventive advice in the direction of a lower risk lifestyle.

The most common cancer in women could certainly be reduced, and the same is likely to be true for many other internal diseases.

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Prof. Dr. med. J. Matthias Wenderlein
Universität Ulm
wenderlein@gmx.de

In Reply:

The comments on our article showing the trends in disease burden between 1990 and 2010 in Germany, based on the methods and results of the Global Burden of Disease (GBD) Study 2010, support the arguments we make in our article. They stimulate further discussion and invite debate.

The calculations by Brinks et al. show that, despite the quite complicated modeling procedures of the GBD 2010 Study, the YLL estimates for diabetes, derived from the KORA Study are comparable to those from the GBD 2010 Study. However, the difference to the GBD 2010 data is considerable, and the uncertainty intervals are wide, comparable to those calculated in the GBD 2010 Study. Further studies are necessary to elaborate on the comparability of the morbidity component or the results for other disease entities. The approach taken by Brinks et al. confirms that a concerted initiative is required to estimate the burden of disease at the national level. Possible data sources should be sought, potential discrepancies in the results analyzed, gaps in the data identified, and methodological limitations recognized and if possible reduced or eliminated. We are convinced that such an initiative would not only increase the transparency and reproducibility of the methods and results for estimating disease burden and the burden attributed to risk factors, but can also provide further insights into prevention and other health policy measures. In Germany, a solid basis of data is already available from the population-representative data gathered by the continuous health monitoring carried out by the Robert Koch Institute, and these cross-sectional data will be further improved by a growing pool of longitudinal data acquired in the national cohort. The potential of such continuously and comprehensively gathered data is that diseases are always jointly analyzed, allowing to draw an overall picture of the current state of the health status of the population living in Germany. As indicated by Wenderlein, the burden of disease concept additionally provides the opportunity to study diseases and associated risk factors in a unified framework using a common measure, the DALY.

The results of the current GBD Study already provide a wealth of important information for Germany, which might be further enhanced by a national burden of disease study tailored to the needs and demands with special relevance for health policy making in Germany.

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M.Sc. PH Dietrich Plass
Universität Bielefeld
dietrich.plass@uni-bielefeld.de

Conflict of interest statement
The authors of all contributions declare that no conflict of interest exists.