



Health care utilisation and costs in the general population in Germany



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ABSTRACT

Aim: To elicit reference values of medical and non-medical health care utilisation and costs in Germany from a societal perspective.

Methods: 5007 telephone interviews were conducted in a representative sample of the German-speaking population above the age of 18. Participants were asked about medical and non-medical health care utilisation over the preceding six months. Participants were also asked about medical conditions, lifestyle, sociodemographic characteristics, employment status and sick leave. Resource utilisation was valued monetarily and analysed by means of descriptive and econometric tools (generalised linear models/two-part models). To obtain representative results, we weighted observations according to age, gender, education and state of residence.

Results: 95% of the respondents had at least one contact with an outpatient physician. 12% of the respondents were hospitalised and 3% received rehabilitative care. Direct costs per respondent were €1475 on average. The mean cost of physician visits was €278. We found differences in average costs for physician visits between men (€232) and women (€321). Indirect costs were €1554 on average per full-time employee. Multivariate analysis showed significant associations between direct costs and morbidity, age and gender. Indirect costs appeared to be significantly associated with morbidity and age, but not with gender.

Conclusion: Our reference values can be regarded as representative reference values for health care utilisation and costs, and can be used for the calculation of disease-specific excess costs.

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1. Introduction

General population reference values of individual health care utilisation and health care costs are valuable for health care policy and research. Such reference values can be used

for monitoring health care demand and spending in health care systems. Moreover, they are required in research to perform analyses such as calculation of excess costs for specific patient groups.

In Germany it is nearly impossible to obtain comprehensive information on utilisation and costs of all health services at an individual level from claims data. One reason for this is that the German health care system has multiple payers whose data cannot be linked easily. For example, statutory health insurance (which consists of about 130 different funds) covers the costs of physician visits, medication and hospital stays while rehabilitation is frequently

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financed by statutory pension insurance. Moreover, claims data are often not available in the desired level of detail. For example, since lump-sum remuneration was introduced in the outpatient sector, it has not been possible to obtain the number of outpatient physician contacts from claims data [1]. Furthermore, some services are not reported in claims data at all, for example informal care services. Consequently, the only way to assess health care utilisation comprehensively is to elicit such information directly from population surveys. The disadvantage of using data from population surveys is that the process of data collection is usually costly and time-consuming. Consequently, sample sizes are often small. Moreover, the sampling strategy should be chosen carefully, otherwise data can be affected by sampling bias [2]. Other major problems in analysing survey data are non-response leading to missing values and recall bias leading to wrong estimates [3]. Furthermore, estimating health care costs with survey data is a particular challenge, since the actual amount of resources consumed has to be assessed and monetarily valued with the correct prices. This often leads to imprecise estimates, whereas claims data reveals exact costs. Nevertheless, we decided to conduct a population survey, because it allowed collecting data that directly fit the research question and can be combined with already existing data sets from population studies more easily (e.g. to calculate excess costs). In addition, we could collect information on socio-demographic aspects, morbidity and well-being that are not contained in secondary data.

The aim of this study was to provide gender- and age-specific reference values for medical and non-medical health care utilisation as well as of direct and indirect costs based on a representative general population survey in Germany. Further, these reference values can be used as controls in the calculation of disease-specific excess costs. To calculate excess costs, patients diagnosed with a specific disease are compared to a control group without the disease. The presented reference values can be used for the excess cost calculation of diseases with a low prevalence in the general population.

2. Methods

2.1. Sample selection and response rate

Data were obtained from the ADM-telephone-sample “Easy Sample” [4]. This sample comprises registered and generated telephone numbers according to the area network system of the federal network agency. Telephone numbers were drawn proportional to the regional structure of residents at the federal state level, stratified for the known city size classes of administrative districts and communities. This was supposed to assure a random selection of contacted households [5]. In the household, the person to be interviewed was determined by the Kish-Selection-Grid [6]. The response rate was 47%, which could lead to substantial sample bias [2]. Table 1 summarises the selection process that resulted in 5007 complete telephone interviews from a representative sample of the German-speaking population above the age of 18. The interviews

were conducted by the German market research institute USUMA GmbH in March and April 2014.

2.2. Questionnaire

All interviews were based on a questionnaire that was developed in cooperation with USUMA. Since morbidity, health care utilisation and costs are likely to be correlated, we asked respondents whether they had ever received a particular diagnosis (“Has a doctor ever diagnosed one of the following diseases?”) and if this was the case, whether they had utilised health care due to this particular diagnosis during the preceding six months (“If yes: Have you utilised any health care or have you been to a medical practice in the preceding six months due to this disease?”). We restricted the enquiry to the most frequent, mainly chronic conditions or disease groups [7–11]: lung diseases, diabetes, other metabolic diseases, chronic pain, diseases of the digestive tract, cancer, cardiac and circulatory diseases, skin diseases, osteoporosis, mental disorders or joint diseases. In a subsequent question we asked, whether health care was used in the preceding six months due to diseases that have not been mentioned yet (“Have you utilised any health care or have you been to a medical practice in the preceding six months due to a disease, injury or intoxication that has not been mentioned yet?”). Irrespective of existing diseases, health care utilisation was subsequently assessed. Participants were asked which physicians and therapists they consulted in the preceding six months and how many contacts they had with each. They were further asked if they stayed in a hospital, rehabilitation centre or nursing home and if they used informal care, mobile nursing services or domestic helps due to a health event in the preceding six months. If the respondent reported utilisation of any of these services, additional questions regarding duration and frequency followed. Unfortunately, there is no clear evidence on which recall period is optimal [3,12]. We used a six-month recall period that is supposed to minimise recall bias while still capturing rare events.

We included the PHQ-4 to screen for undiagnosed depression and anxiety and the ISR-S to screen for undiagnosed somatoform disorder. Finally, we collected information on age, gender, health insurance, height and weight, smoking and drinking habits, marital status, school qualification, professional qualification, employment status and number of sick leave days during the preceding six months and number of household members.

2.3. Statistical analysis

To increase the representativeness of our findings for the German-speaking adult population, observations were weighted according to the distribution of specific characteristics in the population. The rationale behind the weighting process was to put higher weights on underrepresented observations and lower weights on overrepresented observations to adapt the sample to the population [13]: persons in larger households had a smaller chance to be selected than persons living in smaller households, whereas the non-response was higher in smaller households. To obtain a representative household sample, the distribution of

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