

Heike U. Krämer

Dr. sc. hum.

Assessment of gender differences in health care of patients with type 2 diabetes

Promotionsfach: DKFZ (Deutsches Krebsforschungszentrum)

Doktorvater: Prof. Dr. med. Hermann Brenner, MPH

The number of type 2 diabetes (T2DM) patients is increasing worldwide due to demographic aging, an increase of sedentary lifestyles and obesity. T2DM is a chronic disease with a high burden. Generally, the development of T2DM is slow and subtle leading to a delayed diagnosis. Individuals above the age of 60 years as well as patients with impaired metabolic control due to obesity, hypertension or hypercholesterolemia are at highest risk for developing T2DM. In general, T2DM is associated with a large number of short- and long-term complications of the micro- and macrovascular disease spectrum, e.g. coronary heart disease, nephropathy, neuropathy, retinopathy and foot ulcers. This way, T2DM negatively affects morbidity and mortality as well as health-related quality of life.

Overall, T2DM requires long-term treatment and a high quality of health care particularly in the outpatient care setting along with efficient patient self-management. Outpatient care is mainly guided by general practitioners (GP) who have a gate-keeping position and often long-standing relationships with patients. Since diabetes treatment by GPs directly or indirectly influences health care utilization and compliance and in order to improve outpatient quality of diabetes care, disease management programs (DMP-DM) were implemented in Germany in 2003.

Generally, T2DM treatment is complex and comprises a change of lifestyles (i.e. physical activity and nutrition) and a wide range of oral and injectable medications. Therapies are generally intensified if cardiovascular risk factors or comorbidity are present. Maintaining and improving treatment compliance is crucial, since poor compliance was found to be related to an increased morbidity and mortality as well as a poor quality of life.

For the last two to three decades, differences between men and women in health care have been investigated. However, analyses of differences between diabetic men and women in primary care setting are still rare. In Germany, evidence on specific characteristics of diabetes care (e.g. medication, glycemic control, medication prescription, outpatient and inpatient health care

utilization, compliance) taking into account a large number of diabetes-related covariates and confounding factors and using data of a relatively large population is either limited or still missing.

The aim of this thesis was to assess gender differences of health and health care in a German population of patients with T2DM using data of the DIANA study (Type 2 Diabetes Mellitus: New Approaches to Optimize Medical Care in General Practice), an epidemiological prospective cohort study with T2DM patients conducted in the Ludwigsburg-Heilbronn area located in South-West Germany. For these analyses baseline data on 1,146 men and women aged 23 to 93 years were used. Information on patients' characteristics and health care were obtained by participant and physician questionnaire and glycosylated hemoglobin A1c (HbA_{1c}) measurement.

Descriptive analyses showed a higher socioeconomic status, worse lifestyle, higher prevalence of cardiovascular diseases, but lower prevalence of depression as well as lower compliance (GP-rated) among men than among women. Significant differences between DMP-DM participants and non-participants were found in sociodemographic factors, outpatient health care utilization and comorbidity.

Bivariate and multivariate regression analyses showed higher prescriptions of some T2DM and coronary heart disease medications in men than in women. Independent of glycemic control status, women compared to men had significantly more medical specialist appointments, more prescribed medications (i.e. total number of medications and diabetes medications) and stayed in rehabilitation significantly longer. An association between self-rated medication adherence and glycemic control was found in men but not in women.

Overall, the results indicate that gender-specific efforts are needed in diabetes care in Germany in order to improve the currently suboptimal quality of care of diabetic men and women. Further research should focus on reasons for gender differences in diabetes care and quality of care, on barriers for adequate treatment and on potentials for improvements in order to understand the gender-specific complex and possibly synergistic effect of diabetes, its risk factors and comorbidities on health care.