



**Karolinska
Institutet**

Institutionen för medicin

Epidemiological studies on type 2 diabetes: assessment of diabetes risk factors and study participation

AKADEMISK AVHANDLING

som för avläggande av medicine doktorsexamen vid Karolinska Institutet offentligen försvaras i Rolf Luft Auditorium L1:00, Karolinska universitetssjukhuset Solna

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ABSTRACT

Type 2 diabetes is a disease with increasing prevalence. Better knowledge of risk factors may form the bases for specific interventions and preventive measures. The aim of this thesis was to contribute to the knowledge on type 2 diabetes, by examining family history of diabetes and other risk factors with emphasis on psychological exposures.

The studies are based on the cohort of the Stockholm Diabetes Prevention Program (SDPP) in which 12,952 men and 19,416 women 35-56 years old were screened for diabetes and diabetes in close relatives. The baseline health examination comprised 3,128 men and 4,821 women of whom 50% had a family history of diabetes. An oral glucose tolerance test identified 65 men and 63 women with previously undiagnosed diabetes, and 228 men and 208 women with pre-diabetes (IFG, IGT or IFG+IGT). At the follow-up 8-10 years later, 2383 men and 3329 women were re-examined. 183 men and 106 women were then classified with diabetes, and 291 men and 211 women with pre-diabetes. In study IV, diabetes was assessed according to filled prescriptions of anti-diabetic drugs 2005-2008, through record linkage to the Swedish Prescribed Drug Register. The health examinations included body measurements, and information was obtained by questionnaire on life style, psychosocial, personality and socioeconomic factors. Prevalence odds ratios (OR) with 95% confidence intervals (CI) were calculated in logistic regression analyses for cross-sectional and prospective studies.

Our findings indicate that a family history of diabetes is an important risk factor in both men and women. A combined exposure to a family history of diabetes and another risk factor, such as obesity, physical inactivity, smoking or low sense of coherence (capacity to cope with stressors) had a greater effect on type 2 diabetes than any of these factors alone. Biologic interaction was not suggested, with the exception for the combination of a family history of diabetes and obesity in women with pre-diabetes. High psychological distress conferred a two-fold increased risk for type 2 diabetes and pre-diabetes in men, and in women middle scores were associated with an almost two-fold increase of pre-diabetes. Among personality traits, low antagonism in men was associated with a reduced risk of having abnormal glucose regulation (pre-diabetes or type 2 diabetes), as were high hedonic capacity in both men and women. No significant associations were found with the impulsivity, negative affectivity, and alexithymia scales. Non-response bias did not seem to be present at screening- and baseline steps indicating that diabetes prevalence and risk may be estimated from a cohort study such as the SDPP. At follow-up, the overall risk for diabetes was slightly lower in the study group, although the effect of this for the association studies was limited.

In conclusion, a combined exposure to a family history of diabetes and lifestyle factors had greater effect on type 2 diabetes than any of these factors alone. There was no cross-sectional biologic interaction between studied risk factors, except for a family history of diabetes and obesity in women with pre-diabetes. Psychological distress seems to be involved in the aetiology of type 2 diabetes, at least for men. In addition, some personality traits may be associated with abnormal glucose regulation.

Keywords: cohort, family history of diabetes, lifestyle, personality, psychological distress, screening, type 2 diabetes

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