

# Abstract

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## Psychological distress and risk of pre-diabetes and Type 2 diabetes in a prospective study of Swedish middle-aged men and women.

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**AIMS:** To determine the role of psychological distress as a predictor of pre-diabetes and Type 2 diabetes.

**METHODS:** This cohort study comprised 2127 Swedish middle-aged men and 3100 women with baseline normal glucose tolerance measured by oral glucose tolerance test. At follow-up 8-10 years later, 245 men and 177 women had pre-diabetes [impaired fasting glucose (IFG), impaired glucose tolerance (IGT) and IFG + IGT] and Type 2 diabetes was detected in 103 men and 57 women. Baseline psychological distress was measured by an index of five questions concerning anxiety, apathy, depression, fatigue and insomnia. Odds ratios (ORs) were estimated for pre-diabetes and Type 2 diabetes in association with total psychological distress. In addition, ORs of the single-item questions were calculated.

**RESULTS:** In men, adjusted ORs (95% confidence interval) in the highest index group of psychological distress compared with the lowest group were 1.9 (1.2-2.8) and 2.2 (1.2-4.1) for pre-diabetes and Type 2 diabetes, respectively. Corresponding estimates in women were 1.2 (0.7-2.1) and 0.5 (0.2-1.2). In the middle symptoms groups, adjusted ORs in men were 1.1 (0.8-1.4) for pre-diabetes and 1.2 (0.7-2.0) for Type 2 diabetes and in women 1.8 (1.1-3.0) and 0.7 (0.3-1.4). When analysed separately, the associations with each of the five single factors were similar.

**CONCLUSIONS:** The results indicate that psychological distress, including symptoms of anxiety, apathy, depression, fatigue and insomnia, increases the risk of pre-diabetes and Type 2 diabetes in Swedish middle-aged men. Increased risks were not present in women, except for pre-diabetes in the middle index group.

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