

# Health locus of control, depressive symptoms, and insulin resistance

## Implications for treatment and prevention in general population and primary care

Akademisk avhandling

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**Maria C M Eriksson**

Fakultetsopponent:

Professor **Patrik Midlöv**, Lunds Universitet

Avhandlingen baseras på följande delarbeten

- I. Eriksson MCM, Lundgren, J, Hellgren, M, Björkelund, C, Lindblad, U, Daka, B. Association between low Internal Health Locus of Control, Psychological Distress and Insulin Resistance, a cross-sectional study. Manuscript
- II. Kivi, M, Eriksson, M, Hange, D, Petersson, E-L, Vernmark, K, Johansson, B, Björkelund, C. Internet-based Therapy for Mild to Moderate Depression in Swedish Primary Care: Short Term Results from the PRIM-NET Randomized Controlled Trial. Cognitive Behaviour Therapy 2014; 43; 289-298.
- III. Eriksson, M, Kivi, M, Hange, D, Petersson, E-L, Ariai, N, Häggblad, P, Ågren, H, Spak, F, Lindblad, U, Johansson, J, Björkelund, C. Long-term effects of internet-delivered cognitive behavioral therapy for depression in primary care: The PRIM-NET controlled trial. Scandinavian Journal of primary health care 2017; 35: 126-136.
- IV. Eriksson, MCM, Lindblad U, Daka B, Lundgren, J. Validation of a single question to measure internal health locus of control in Swedish primary care. Submitted.

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### **ABSTRACT**

The disease burden of type 2 diabetes and depression is large and challenging for health care systems. Preventive interventions require resources and better knowledge concerning early stages in the development of these diseases. The aims of this thesis were to explore psychological distress (PD), internal health locus of control (IHLC) and insulin resistance in the population and to investigate the effectiveness of internet-based cognitive behavioral therapy (ICBT) for depression in primary care. Moreover, we aimed to investigate the validity of the question used for IHLC. The association between PD, IHLC and insulin resistance was analyzed in a random population sample (n=2816) in southwest Sweden, the Vara-Skövde Cohort (participation rate: 76%). Papers II and III evaluate ICBT for depression compared with treatment as usual (TAU) in primary care, at post-treatment (II), and after one year (III) in a randomized controlled trial called PRIM-NET (n=90). A validation of IHLC against the Multidimensional Health Locus of Control and the General Self-efficacy Scale was carried out in paper IV (n=519). Individuals with low IHLC had higher insulin resistance compared with those with high IHLC and individuals with PD had higher insulin resistance compared with those without PD. However, the statistically significant differences disappeared in the full models. Individuals with both low IHLC and PD had higher levels of logHOMA-ir also in the final model adjusting for age, sex, education, smoking, alcohol consumption, BMI, and physical activity (Mean difference: 0.11, 95% CI:0.00-0.09, p=0.033). ICBT for depression was equally effective as TAU in primary care. There were no differences between ICBT and TAU in depressive symptoms, psychological distress, quality of life or sick leave. Weak, but positive support was found for using the global scale IHLC to measure IHLC.

In conclusion, ICBT can be delivered as a routine treatment alternative in primary care and may improve preventive interventions in primary care on a larger scale. Individuals with PD and low IHLC seem to be at higher risk of developing insulin resistance and preventive interventions in this group may prevent or delay development of type 2 diabetes.

**Keywords:** depression, locus of control, psychological distress, insulin resistance, ICBT, prevention, primary care

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