CORRELATION BETWEEN OBESITY, BODY MASS INDEX AND INSULIN RESISTANCE IN BULGARIAN CHILDREN

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➢ **Background and aims:** The spread of obesity among children and adolescents is increasing significantly in the last decades. The World Health Organisation defined the disease as a global epidemic and the need of complex interventions worldwide is well recognized. Obesity is major risk factor for many chronic diseases, including diabetes, cardiovascular and lung diseases, orthopaedic and skin problems, and cancer. There are strong predictors that 50% of pre-pubertal and 50-70% of post-pubertal obese children will continue to have obesity in the adulthood.

➢ Insulin resistance and glucose intolerance are frequent in obese children and adolescents. Homeostasis model assessment for insulin resistance (HOMA-IR) was found to be very reliable in determining insulin resistance in obese children. The purpose of our study was to find a correlation between the obesity defined as body mass index (BMI) and HOMA-IR.

➢ **Methods:** Thirty children with obesity (12 girls, 18 boys) aged between 4 and 17 years were included in the study. All children had BMI > 97th centile. They all had oral glucose tolerance test performed, HOMA-IR calculated and vitamin D levels tested.

➢ **Results:** In 14 children (9 girls, 5 boys) we found high insulin resistance – HOMA-IR>3,0, and the correlation analysis showed **significant association between BMI and HOMA-IR.**

➢ We also looked at the vitamin D levels in all patients, **no association was found in those with high HOMA-IR.**

➢ 14 children with obesity have increased insulin resistance (HOMA-IR ≥3,0) (5 boys and 9 girls), and very high IR in 12 (HOMA-IR ≥4,0). HOMA-IR is normal (<3,0) in 16 patients – 13 boys and 3 girls.
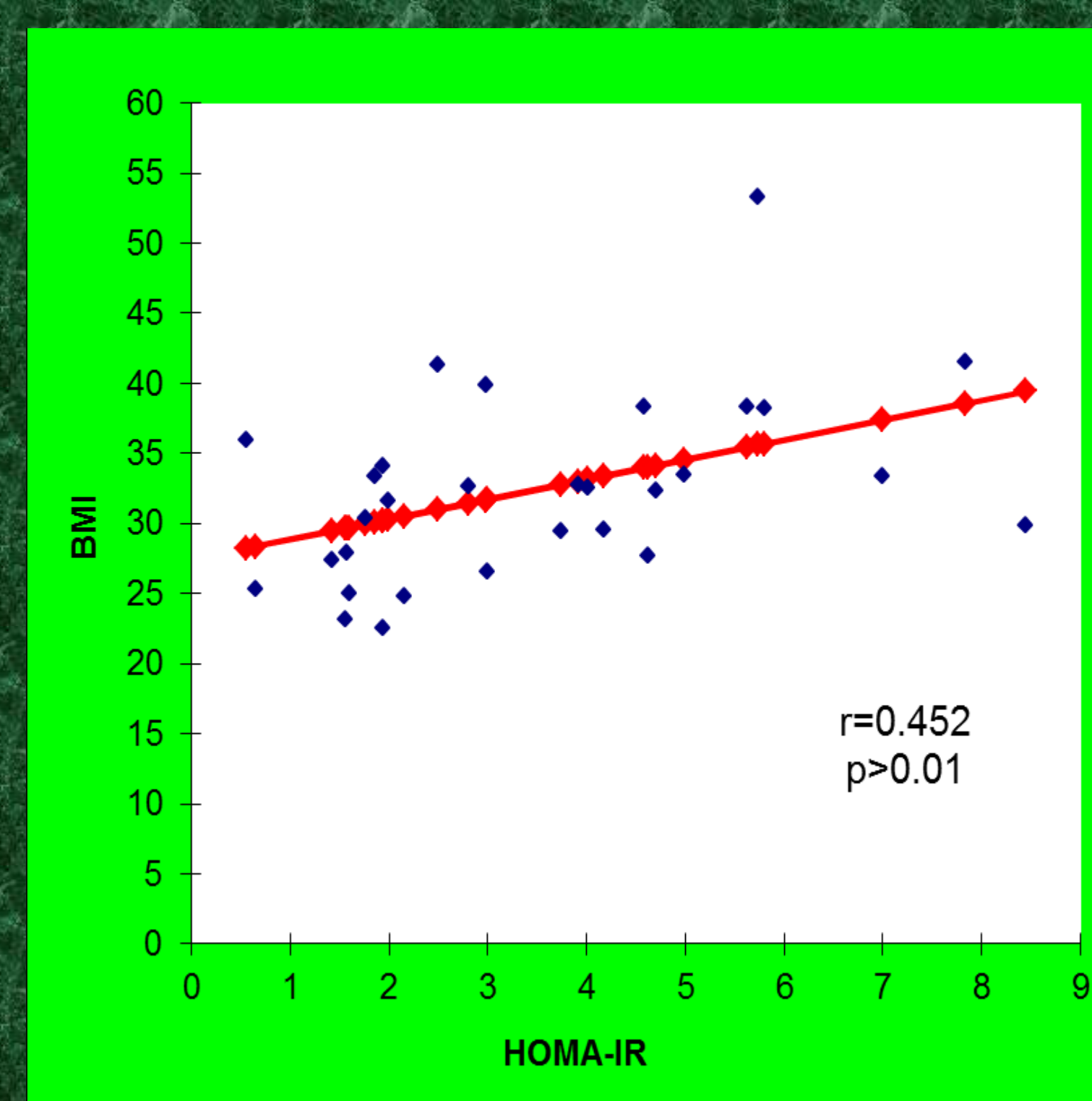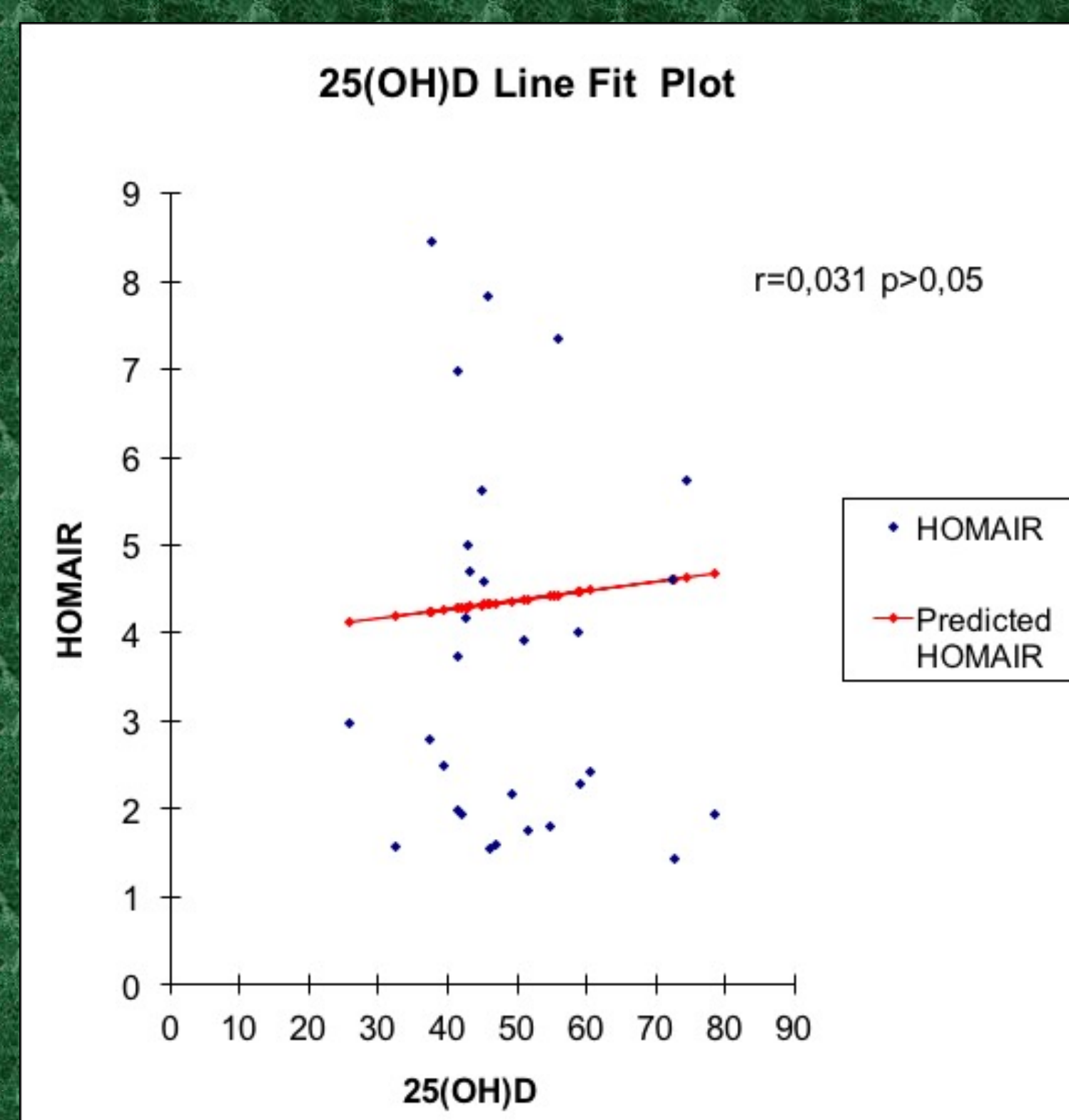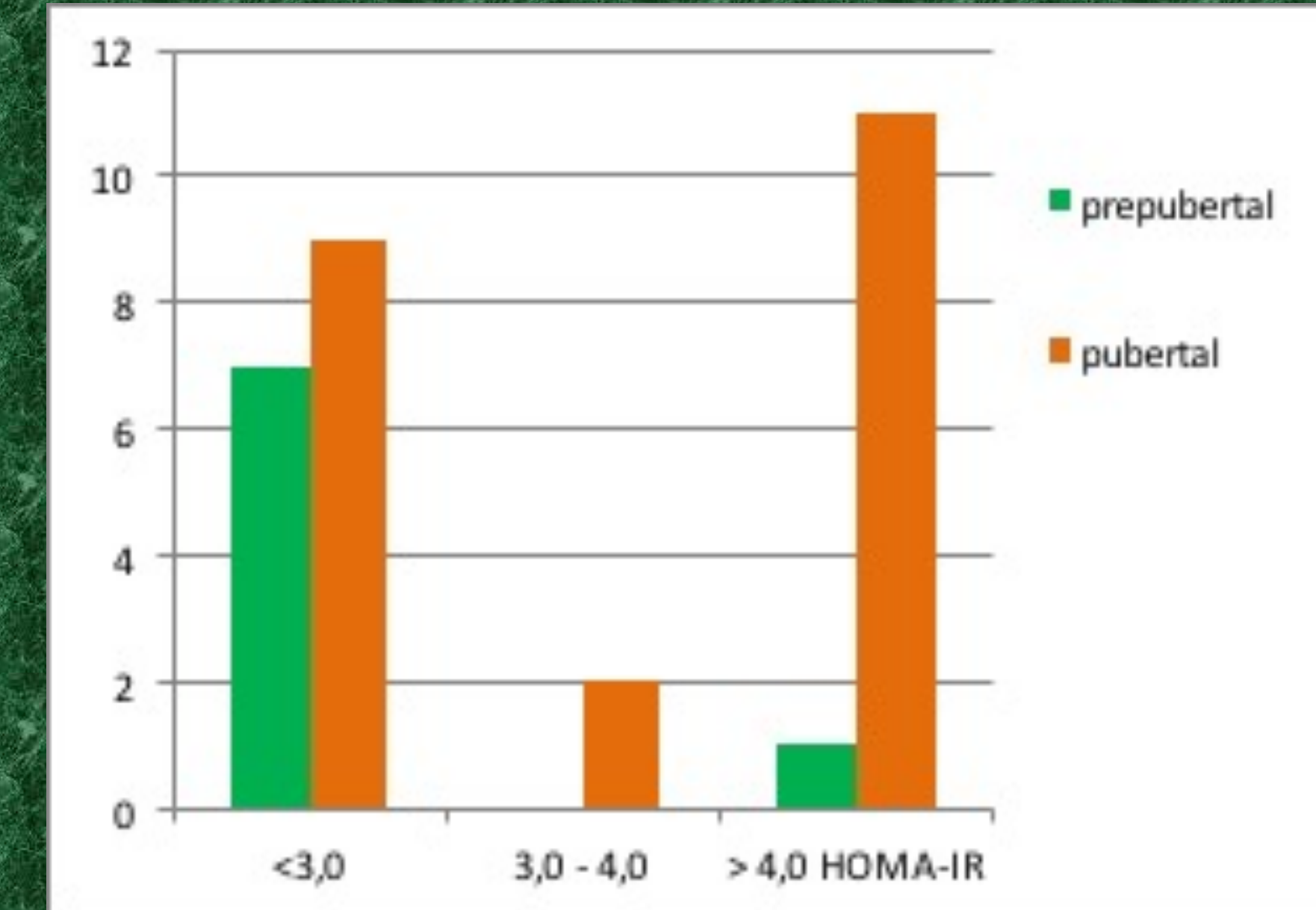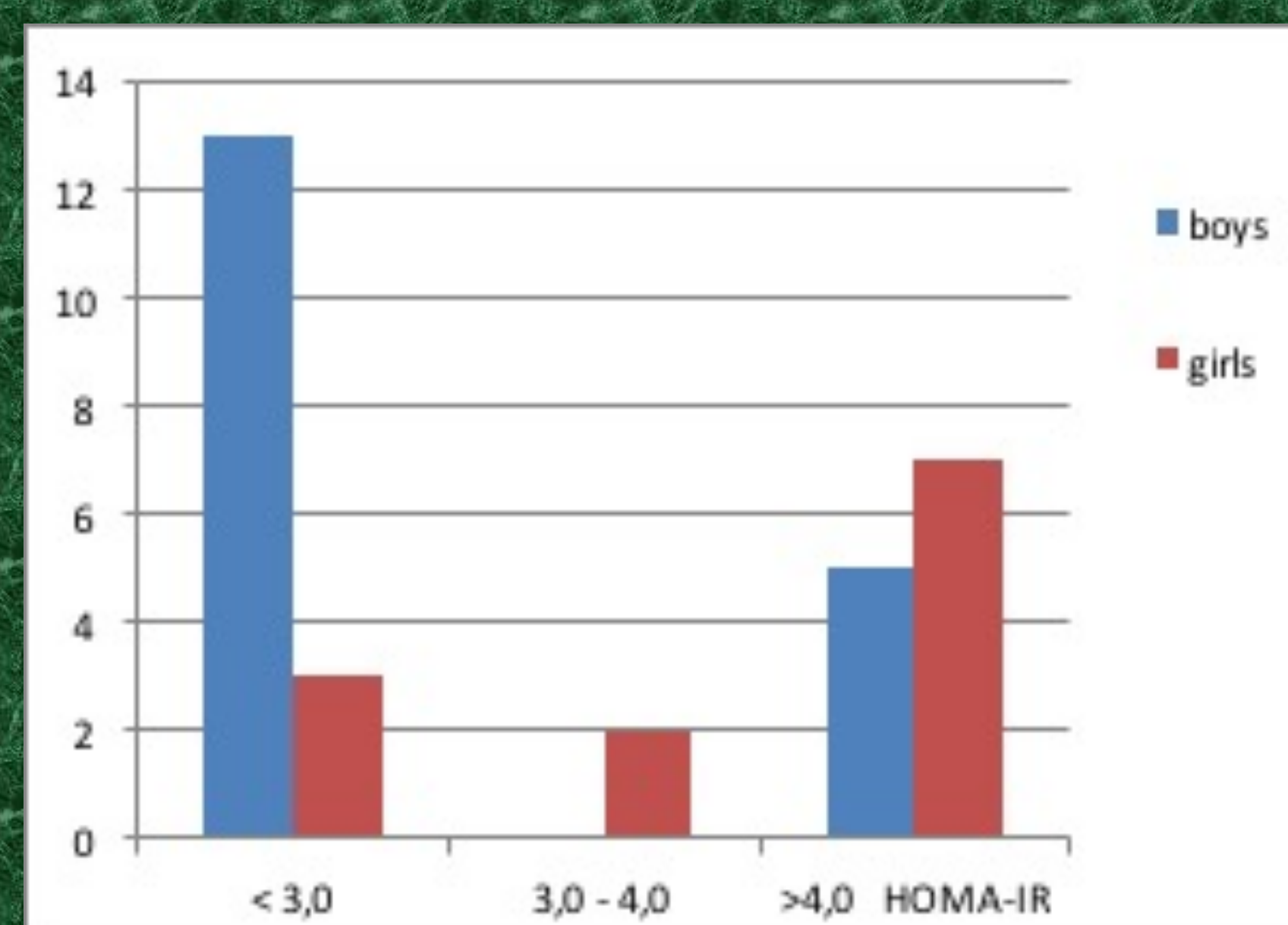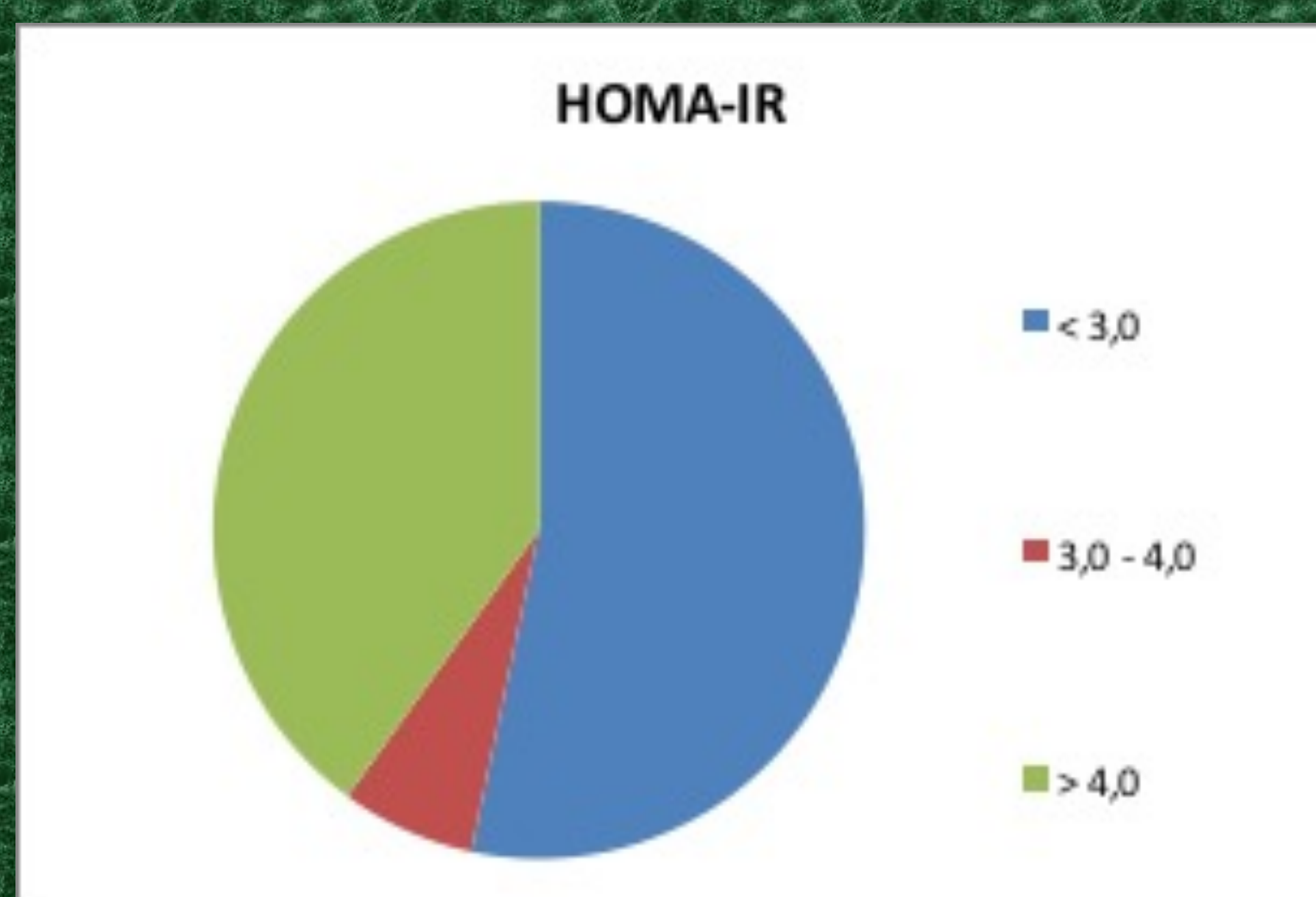
➢ **Conclusions:** Our findings suggest that the increased BMI is associated with high insulin resistance. Weight reduction in children with obesity will improve insulin sensitivity and therefore reduce the risk of developing diabetes type 2, cardiovascular diseases and other complications.

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