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## The PANORAMA European study: biomedical and psychological characteristics of people with type 2 diabetes with and without obesity

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**Background and aims:** PANORAMA, a large European cross-sectional study of patients (pts) with type 2 diabetes (T2D) assessed patient reported outcomes (PROs), treatment patterns and glycaemic control. This analysis compares results between obese (body mass index [BMI]  $\geq 30$ ) and non-obese (BMI  $< 30$ ) pts.

**Materials and methods:** 5817 pts  $\geq 40$  y, with a diagnosis of T2D for  $> 1$  y prior to study entry and an available medical record of  $> 1$  y, were randomly or consecutively selected from physician practices (mainly primary care) in 9 countries. All pts received lifestyle advice. Most pts were also being treated with either oral antidiabetes agents (OADs) or injectables (insulin or GLP-1 receptor analogues) with or without OADs. Treatment type was unchanged in the previous 3 months. Pts completed the Audit of Diabetes-Dependent Quality of Life (ADDQoL), Diabetes Treatment Satisfaction Questionnaire (DTSQ), worry subscale of the Hypoglycemic Fear Survey-II (HFS-II) and EuroQoL-5 Dimension (EQ-5D) index and visual analogue scale.

**Results:** 45.6% of pts were obese. Obese pts were younger  $64.2 \pm 10.1$  y vs  $67.3 \pm 10.4$  y;  $p < 0.001$ ) and characterised by shorter diabetes duration ( $8.5 \pm 6.8$  y vs  $9.2 \pm 7.4$  y;  $p < 0.001$ ). The obese group included more women (52.4% vs 41.2%;

p<0.001), fewer current smokers (12.8% vs 15.6%; p=0.002) and were less educated (education after 18 y: 27.4% vs 32.3%; p<0.001). Glycaemic control was worse in obese pts as shown by the proportion with HbA<sub>1c</sub> <7% (57.1% vs 67.3%; p<0.001) and mean HbA<sub>1c</sub> (7.0±1.2% vs 6.8±1.1%; p<0.001). Treatment regimens were more intensive for obese vs non-obese pts: lifestyle advice alone (8.5% vs 11.1%, p=0.001), 1 OAD (31.0% vs 33.2%; p=0.067), 2 OADs (26.2% vs 27.6%; p=0.23), 3 OADs (9.9% vs 8.1%; p=0.019) and insulin ± OAD (22.1% vs 18.5%; p=0.001). Physicians rated pts' adherence to treatment and lifestyle advice as good in 66.0% vs 73.5% and 26.2% vs 49.5% of obese vs non-obese pts (both p<0.001). Obese pts had higher mean systolic (136.1±15.5 vs 133.3±15.1 mmHg) and diastolic (79.5±9.5 vs 77.3±8.8 mmHg) blood pressure than non-obese pts (both p<0.001). Obese vs non-obese pts had a greater prevalence of depressive disorders (16.0% vs 11.9%; p<0.001), sleep disorders (17.5% vs 11.7%; p<0.001) and microvascular complications (30.5% vs 26.7%; p=0.001). Obese pts showed more negative impact of diabetes on QoL (ADDQoL), less treatment satisfaction (DTSQ), greater fear of hypoglycaemia (HFS-ws) and worse health status (EQ-5D) than non-obese pts (all p<0.001).

**Conclusion:** Obesity in pts with T2D was associated with a greater prevalence of co-morbidities and microvascular complications, and poorer glycaemic control. Treatment regimens differed somewhat between obese and non-obese pts. Physicians rated obese pts as less likely to adhere to lifestyle advice and treatment. PRO measures showed more negative responses in obese pts. These results highlight the importance of effective weight management in the treatment of pts with T2D, and suggest that improved efforts to tailor treatments to individual lifestyles may be beneficial for obese pts.

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