

# **Exercise facilities and prevalence of obesity and type 2 diabetes mellitus: A population study of 1,270,512 adults from an equity perspective in the city of Madrid.**

Luis Cereijo, Pedro Gullón, Isabel del Cura, David Valadés,  
Usama Bilal, Hannah Badland, Manuel Franco.

## **SUPPLEMENTARY MATERIALS**

- ESM Table 1.** Characteristics by January 1<sup>st</sup>, 2017 of administrative units in the City of Madrid and whole Spain.
- ESM Table 2.** Description of the classification of the exercise facilities based on its characteristics.
- ESM Table 3.** Area Level Socioeconomic status indicators.
- ESM Table 4.** Sensitivity analysis by deciles of exercise facilities availability.

**ESM Table 1.** Characteristics by January 1<sup>st</sup>, 2017 of administrative units in the City of Madrid and whole Spain

	<b>Unit</b>	<b>Description</b>	<b>N</b>	<b>Area*</b>	<b>Population*</b>
<b>SPAIN</b>	<b>Autonomous Communities</b>	Main Regional division of Spain	17	11073.55 (4995.87-93827.15)	2031.48 (315.38-8379,82)
	<b>Provinces</b>	Main Regional Subdivision	52	9722.31 (1906.09-21792.47)	611764.5 (84.96-6507.18]
	<b>Municipalities</b>	Main Local division of Spain	8124	34.9 (0.03-1753.85)	0.53 (0-3182.98)
<b>CITY OF MADRID</b>	<b>Census Districts</b>	Main Local subdivision	21	14.05 (4.68-237.84)	143.42 (46.88-244)
	<b>Neighborhoods</b>	Sub-divisions of districts	131	1.36 (0.25-187.6)	22.40 (1.11-80.3)
	<b>Census Sections</b>	Basic census area	2443	0.04 [0.1-94.7]	1.2 (0.11-2.44)

Key: \*Area is in km<sup>2</sup> and shown as the Median (Min-Max); Population is in 1000s of residents, excluding the two Autonomous Cities (Ceuta and Melilla), and shown as the Median (Min-Max).

**ESM Table 2.** Description of the classification of the exercise facilities based on its characteristics.

<b>Exercise facility type</b>	<b>Definition</b>	<b>N (%)</b>
<b>All the facilities</b>		595
<b>Publicly owned</b>	Monthly payment option. Public ownership	59 (10%)
<b>Privately owned</b>	Monthly payment $\geq$ 30€/month. Private ownership	222 (37%)
<b>Low cost</b>	Monthly payment < 30€/month. Private ownership	63 (11%)
<b>Sessional</b>	Facilities with Pay-per-session (e.g. Pilates Studios, Dance Schools, electrostimulation centres...). Private ownership.	251 (42%)

**ESM Table 3.** Area Level Socioeconomic status indicators.

<b>Construct</b>	<b>Domain</b>	<b>Indicator</b>	<b>Operationalization</b>	<b>Source</b>	<b>Level</b>
SES	Education	Low Education	Residents with mandatory studies or below / all residents aged 25 years or above	Padron	Census Section
		High Education	Residents with university education or above / all residents aged 25 years or above	Padron	Census Section
	Occupation	Part time Jobs	Workers in part-time jobs / all workers	Social Security	Neighbourhood
		Temporary Jobs	Workers in temporal jobs / all workers		
		Manual Occupation Class	Workers in manual or unskilled occupations / all workers		
	Wealth	Housing Prices	Average sale price of housing per m <sup>2</sup>	Idealista Report	Census Section
	Living Conditions	Unemployment Rate	Residents registered as unemployed / all residents aged 16–64 years	Employment Service	Neighbourhood

**Key:** SES = Socio-Economic Status

**ESM Table 4.** Sensitivity analysis: Association between exercise facility availability (by deciles) and prevalence of obesity and type 2 diabetes in Madrid, adjusted by gender, age and population density.

<b>Exercise facilities availability</b>	<b>Decil 1 High</b>	<b>Decil 2</b>	<b>Decil 3</b>	<b>Decil 4</b>	<b>Decil 5</b>	<b>Decil 6</b>	<b>Decil 7</b>	<b>Decil 8</b>	<b>Decil 9</b>	<b>Decil 10 Low</b>
<b>Prevalence Ratio of Obesity</b>	1 (Ref.)	1.08 (1.05 - 1.11)	1.09 (1.06 - 1.12)	1.19 (1.16 - 1.22)	1.22 (1.19 - 1.26)	1.26 (1.23 - 1.30)	1.30 (1.26 - 1.33)	1.30 (1.26 - 1.33)	1.36 (1.33 - 1.40)	1.26 (1.22 - 1.29)
<b>Prevalence Ratio of Type 2 Diabetes</b>	1 (Ref.)	1.13 (1.09 - 1.16)	1.22 (1.18 - 1.26)	1.43 (1.39 - 1.47)	1.41 (1.37 - 1.45)	1.54 (1.49 - 1.58)	1.55 (1.51 - 1.60)	1.57 (1.52 - 1.61)	1.69 (1.64 - 1.74)	1.49 (1.44 - 1.54)

Results are Prevalence Ratio (Confidence Interval at 95%). All coefficients are statistically significant ( $p < 0.000$ ). Ref= Decile of reference.