SUPPLEMENTARY DATA

Appendix: List of PreveCardio collaborators

A total of 162 collaborators contributed to the design, implementation, and execution of the PreveCardio program across 42 primary care centers in Madrid, Spain. Their roles included program coordination, participant screening and assessment, recruitment scheduling, and additional support functions.

A. Primary care directorate nursing and medical directors as well as area coordinators

(14 collaborators)

Clara Abad Schilling	Sonia Lopez Palacios
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Blanca Escrivá de Romaní de Gregorio	Julia Inés Quevedo Rivera
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Inmaculada Garcia Ferradal	Javier Roldán San Juan
Sandra García Estévez	José Manuel Sanchez García
Beatriz Herrera Sánchez	Mª Paz Vitores Picón

B. Investigator nursing staff

(127 collaborators)

Eugenia Aldama Martin	Noelia Jimenez Zapico
Mª Angeles Almodovar Lopez	María Jesús Jiménez Moreno
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Veronica Alonso Diaz	Margarita Lopez Hernandez
Tamara Alonso Garcia	Juan Manuel López Luna
María José Arcala García	Cristina López Yáñez
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Cristina Baena Cortes	Sonia Luna Ramírez
Laura Baños Alcalde	Isabel Manjarres Gonzalez
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Isabel Barquin Barea	Raquel Martinez Valencia
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Carmen Cabañas Galan	Gema Montero Calle
Sergio Cabezas Estrella	Lucia Moreno Valencia
Daniel Cabrera Guedes	Inmaculada Muñoz Fraile
Liliana Calderon Durand	Miriam Muñoz Godoy
Noelia Calvo Sanz	María Jose Muñoz Catedra
Maria Nieves Calvo Arrabal	Otilia Nuevo Colinas
Leyre Carrillo Del Pozo	Alberto Núñez Bermejo
Encarnación Cerezo Ugena	Joana Ortega Orbaneja
Begoña Colmena Martin	Margarita Ortiz Sanchez
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Veronica Cortes Delgado	Maria Palomo Garcia
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Maria Angeles De Las Heras Martin	Maria Beatriz Perez Vallejo
Julia De Las Pozas Abril	Esther Pérez Portilla
Marta De Marco García	Sandra Rey Rodríguez
Virginia Del Barrio Fernández	Carlos Rodelas Manzano
Beatriz Del Rey Buitrago	Monica Rodriguez Vegue
Veronica Delgado Sancho	Ana Rodriguez Martinez
Maria Isabel Delgado Gonzalez	Eva Rodriguez Rey Zapata
Miriam Delgado Fernandez	Diana Roig Valor
Gema Diaz Gomez	Carmen Roman Jimenez
Josefa Diaz Serrano	Maria Piedad Romero Maroto
Ana Isabel Diez Medina	Yolanda Ruiz San Julian
Eduardo Dominguez Vicente	Celia Ruiz Perez
Tamara Fernandez Alvarez	Pilar Salguero Fran
Isabel Fernandez Pasquier	Monica Sanchez Ferreira
Nazaret Fernandez Delgado	David Sanchez Roncero
Carmen Margarita Fernández Cardena	Cristian Sanchez Roncero
Rosa Galindo Vinagre	Laura Sanchez Alcaide
Cristina Gama Rubio	Paula Sánchez García
Antonio Javier Garcia Martinez	Maria Esther Sanchez Rodriguez
Sandra Garcia Alfonso	Cristina Sanchez Andreo
Maria Garcia Mesa	Beatriz Sánchez Paulete Romero
Ana Garcia Martin	Raul Sandoval Barahona

Francisca Garcia Mayoral	Andra Maria Sarac
Ana Garcia Calvillo Ramirez	Enrique Solano Baeza
Rebeca Gomez Fernandez Maria	María Victoria Soriano Rodriguez
Maria Del Carmen Gomez Ortiz	Eva Tkaczyk Morteczka
Laura Gonzalez Montoya Raquel	Torres Hernández
Begoña Gonzalez Fernandez	Guillermo Trevijano Garicano
Maria Esther Gonzalez Lopez	Francisco Jesus Trillo Escoz
Ana González Prado	Alejandra Trujillo Ferri
Sandra Maria Grandes Velasco	Tamara Vadillo Perez
Maria Luisa Herrera Garcia	Laura Vaquero Garcia
Raquel Huete Gonzalez	M. Jesús Vinagre González
Eduardo Jose Iglesias Solis	Diego Yergo Doblare
Blanca Jimenez Abad	

C. Calling and scheduling team

(18 collaborators)

Ahinoa Ramos Cagigal	Mar Barrio Garcia
Ana Cuns Moreno	Maria Del Mar De La Cruz Gomez Del Pulgar
Ana Mestre Ortega	Maria Del Pilar Carebrizo Sanz
Barbara Roldan Ibáñez	Maria Nieves Palomero Alonso
Belen Fernandez Muñoz	Patricia De La Torre Mendiola
Elisabeth Sanz Zarzuela	Raquel Calles Espada
Gemma Perreyra Cortes	Silvia Dominguez Herranz
Laura Caro Serrano	Vanesa Machuca Romero
M. Mercedes Ortega Gonzalez	Vanessa Garcia Carballal

D. Other collaborators

(3 collaborators)

Ana Pastor Rodríguez-Moñino

Cristina Sanz Merinero

Andrés Borisenko

Table S1. Complete sociodemographic characteristics of the study population

The study population comprised 3545 adults aged 50 to 75 years screened through the pilot program in primary care centers of the regional public health service, Spain (January-March 2023). Education categories: no formal/primary includes P5 categories 1 to 2 (no formal education, incomplete primary); secondary includes P5 categories 3 to 4 (complete primary/compulsory secondary education, vocational training); university includes P5 categories 5 to 7 (preuniversity, diploma, degree). Education data available for 3500 participants (98.7%); country-of-origin data for 3493 (98.5%); household income for 2978 (84.0%). Percentages for each variable are calculated in participants with valid data for that variable. The 70- to 77-year age group (n = 641) includes 65 participants aged 76 to 77 years retained owing to the temporal lag between cohort generation (when these participants were within the 50- to 75-year sample frame) and the clinical visit.

Variable	Total (N = 3545)	Men (n = 1535; 43.3%)	Women (n = 2010; 56.7%)
Age	61.2 ± 7.3	60.9 ± 7.3	61.4 ± 7.4
Age group, y			
50-54	861 (24.3)	390 (25.4)	471 (23.4)
55-59	871 (24.6)	393 (25.6)	478 (23.8)
60-64	607 (17.1)	258 (16.8)	349 (17.4)
65-69	565 (15.9)	230 (15.0)	335 (16.7)
70-77	641 (18.1)	264 (17.2)	377 (18.8)
Educational attainment			
No formal/primary	366 (10.5)	130 (8.5)	236 (11.7)
Secondary	2201 (62.9)	955 (62.2)	1246 (62.0)
University	933 (26.7)	427 (27.8)	506 (25.2)
Monthly income			
< €1100	288 (9.7)	89 (6.7)	199 (12.0)
€1100-1800	883 (29.7)	337 (25.5)	546 (32.9)
€1801-2700	845 (28.4)	382 (29.0)	463 (27.9)
€2701-3900	583 (19.6)	305 (23.1)	278 (16.8)
> €3900	379 (12.7)	206 (15.6)	173 (10.4)
Missing	567 (16.0)	216 (14.1)	351 (17.5)
Country of origin			
Spain	3023 (86.5)	1354 (89.8)	1669 (84.1)
Latin America	297 (8.5)	92 (6.1)	205 (10.3)
Other	173 (5.0)	62 (4.1)	111 (5.6)
Missing	52 (1.5)	27 (1.8)	25 (1.2)

The data are expressed as No. (%) or mean ± standard deviation.

Table S2. Comparison of participants and nonparticipants by age and sex

	Nonparticipants (n = 4946)	%	Participants (n = 3545)	%	*P*
Sex					**< .001**
Women	2567	51.9	2010	56.7	
Men	2379	48.1	1535	43.3	
Age group, y					**< .001**
50-54	1403	28.4	1042	29.4	
55-59	1126	22.8	843	23.8	
60-64	854	17.3	620	17.5	
65-69	708	14.3	559	15.8	
70-75	855	17.3	481	13.6	
Participation rate					
Overall			3545/8491	41.8	
Women			2010/4577	43.9	
Men			1535/3914	39.2	

Age groups reflect age at cohort generation (sample frame); the distribution at the clinical visit (table S1) differs owing to the temporal lag between invitation and visit (January-March, 2023). *P*-values are from chi-square tests comparing the distributions of sex and age group between participants and nonparticipants.

Table S3. SCORE2/SCORE2-OP risk classification: detailed results by sex and age group

Ten-year cardiovascular risk calculated using the SCORE2 (Hageman et al. 2021) and SCORE2-OP (de Vries et al. 2021) algorithms recalibrated for low-risk countries (Spain), applying the published formulas with total cholesterol and HDL cholesterol as separate predictors. Participants with missing systolic blood pressure, total cholesterol, or HDL cholesterol values were excluded from risk estimation (30 of 3545; 0.8%). Risk categories use ESC 2021 thresholds: ages 50 to 69 years: < 5% low, 5 to <10% moderate, ≥ 10% high; ages ≥ 70: < 7.5% low, 7.5 to < 15% moderate, ≥ 15% high. *The 70- to 77-year age band includes 65 participants retained owing to the temporal lag between cohort generation and the clinical visit.

Subgroup	N	Low risk	Moderate risk	High risk	Mean risk, %
Overall (50-77 y)	3515	2106 (59.9)	1264 (36.0)	145 (4.1)	5.4
SCORE2 (age 50-69 y)	2879	1895 (65.8)	892 (31.0)	92 (3.2)	4.5
50-54 y	857	767 (89.5)	88 (10.3)	2 (0.2)	3.0
Men	388	310 (79.9)	76 (19.6)	2 (0.5)	4.0
Women	469	457 (97.4)	12 (2.6)	0 (0.0)	2.2
55-59 y	864	675 (78.1)	184 (21.3)	5 (0.6)	3.9
Men	392	241 (61.5)	147 (37.5)	4 (1.0)	5.0
Women	472	434 (91.9)	37 (7.8)	1 (0.2)	3.0
60-64 y	600	330 (55.0)	247 (41.2)	23 (3.8)	5.2
Men	254	55 (21.7)	178 (70.1)	21 (8.3)	6.7
Women	346	275 (79.5)	69 (19.9)	2 (0.6)	4.1
65-69 y	558	123 (22.0)	373 (66.8)	62 (11.1)	7.0
Men	226	4 (1.8)	168 (74.3)	54 (23.9)	8.6
Women	332	119 (35.8)	205 (61.7)	8 (2.4)	5.8
SCORE2-OP (age 70-77 y)*	636	211 (33.2)	372 (58.5)	53 (8.3)	9.4
70-74 y	485	199 (41.0)	256 (52.8)	30 (6.2)	8.8
Men	198	24 (12.1)	147 (74.2)	27 (13.6)	10.8
Women	287	175 (61.0)	109 (38.0)	3 (1.0)	7.4
75-77 y	151	12 (7.9)	116 (76.8)	23 (15.2)	11.2
Men	64	0 (0.0)	44 (68.8)	20 (31.2)	13.4
Women	87	12 (13.8)	72 (82.8)	3 (3.4)	9.5
By sex (all ages)					
Men (total)	1522	634 (41.7)	760 (49.9)	128 (8.4)	6.7
Women (total)	1993	1472 (73.9)	504 (25.3)	17 (0.9)	4.4

The data are expressed as absolute numbers or No. (%).

Table S4. Distribution of accumulated cardiovascular risk factors by household income level

N of CVRF	< 1100 (n = 288)	1100-1800 (n = 883)	1801-2700 (n = 845)	2701-3900 (n = 583)	> 3900 (n = 379)	Total (n = 2978)
0	8.0	7.8	7.8	9.4	14.2	9.0
1	15.3	19.7	22.4	25.0	31.1	22.5
2	25.7	28.0	27.0	25.7	21.4	26.2
3	24.7	23.9	23.4	21.8	18.5	22.7
≥4	26.4	20.6	19.4	18.0	14.8	19.6
Mean (SD)	2.57	2.38	2.30	2.19	1.93	2.28

The data are expressed as percentages.

Seven CVRF were counted: elevated blood pressure (≥140/90 mmHg), obesity (BMI ≥30 kg/m²), nonoptimal LDL cholesterol (≥ 55 mg/dL if known ACVD, ≥ 116 mg/dL otherwise), dysglycemia (HbA1c ≥ 5.7%), active smoking, physical inactivity, and risky alcohol intake. Income categories in €/mo. N = 2978 participants with valid income data. The proportion with ≥ 2 CVRF reported in table S8 (67.8%) refers to the full cohort (N = 3545), not to this income-valid subset.

Table S5. Multivariable logistic regression: association of socioeconomic factors with cardiovascular risk factors (full model results)

Models adjusted for age (continuous), sex, health area (4 categories), education (3 categories: no formal/primary, secondary, university), household income (5 categories, reference: > €3900/mo), and country of origin (Spain, Latin America, Other). p_BH, Benjamini-Hochberg corrected p-values.

Risk factor/predictor	aOR (95%CI)	*P* (raw)	*P* (BH-corrected)
Elevated blood pressure			
Education: no formal/primary vs university	1.45 (1.05-1.99)	.02	.06
Education: secondary vs university	1.39 (1.14-1.69)	.001	.004
Income: < €1100 vs > €3900	1.30 (0.91-1.85)	.15	-
Income: €1100-1800 vs >€3900	1.20 (0.90-1.60)	.21	-
Income: €1801-2700 vs >€3900	1.16 (0.87-1.53)	.31	-
Income: €2701-3900 vs >€3900	0.97 (0.73-1.30)	.85	-
Origin: Latin America vs Spain	0.76 (0.56-1.03)	.08	.18
Origin: Other vs Spain	1.09 (0.75-1.57)	.65	.85
Income trend (ordinal)	0.93 (0.86-1.00)	.04	.11
Obesity (BMI ≥ 30)			
Education: no formal/primary vs university	2.08 (1.49-2.90)	< .001	< .001
Education: secondary vs university	1.64 (1.32-2.03)	< .001	< .001
Income: < €1100 vs > €3900	1.32 (0.90-1.92)	.15	-
Income: €1100-1800 vs > €3900	1.17 (0.86-1.60)	.31	-
Income: €1801-2700 vs > €3900	1.18 (0.88-1.60)	.27	-
Income: €2701-3900 vs > €3900	0.92 (0.67-1.26)	.59	-

Origin: Latin America vs Spain	1.02 (0.75-1.40)	.89	.89
Origin: other vs Spain	1.05 (0.72-1.54)	.80	.85
Income trend (ordinal)	0.92 (0.85-0.99)	.04	.11
Smoking (current)			
Education: no formal/primary vs university	1.25 (0.82-1.88)	.30	.40
Education: secondary vs university	1.36 (1.07-1.74)	.01	.04
Income: < €1100 vs > €3900	3.25 (2.09-5.03)	< .001	-
Income: €1100-1800 vs > €3900	1.98 (1.37-2.86)	< .001	-
Income: €1801-2700 vs > €3900	1.78 (1.24-2.54)	.002	-
Income: €2701-3900 vs > €3900	1.44 (0.99-2.09)	.05	-
Origin: Latin America vs Spain	0.21 (0.13-0.35)	< .001	< .001
Origin: other vs Spain	0.84 (0.55-1.29)	.43	.57
Income trend (ordinal)	0.78 (0.72-0.86)	< .001	< .001
Elevated LDL-C (≥ 116 mg/dL)			
Education: no formal/primary vs university	0.87 (0.63-1.20)	.39	.47
Education: secondary vs university	0.90 (0.75-1.09)	.30	.34
Income: < €1100 vs > €3900	1.14 (0.80-1.63)	.46	-
Income: €1100-1800 vs > €3900	0.97 (0.73-1.28)	.81	-
Income: €1801-2700 vs > €3900	1.02 (0.78-1.34)	.89	-
Income: €2701-3900 vs > €3900	1.11 (0.84-1.46)	.47	-
Origin: Latin America vs Spain	1.03 (0.77-1.39)	.83	.89

Origin: other vs Spain	1.15 (0.79-1.66)	.46	.61
Income trend (ordinal)	1.00 (0.93-1.08)	.90	.90
Sedentary lifestyle			
Education: no formal/primary vs university	1.71 (1.24-2.36)	.001	.004
Education: secondary vs university	1.49 (1.22-1.82)	< .001	< .001
Income: < €1100 vs > €3900	1.26 (0.88-1.81)	.21	-
Income: €1100-1800 vs > €3900	1.15 (0.86-1.54)	.35	-
Income: €1801-2700 vs > €3900	1.29 (0.97-1.71)	.08	-
Income: €2701-3900 vs > €3900	1.19 (0.89-1.60)	.24	-
Origin: Latin America vs Spain	1.45 (1.08-1.93)	.01	.03
Origin: other vs Spain	1.27 (0.89-1.82)	.19	.31
Income trend (ordinal)	0.97 (0.90-1.05)	.46	.53
Prediabetes (HbA1c 5.7%-6.4%)			
Education: no formal/primary vs university	1.21 (0.87-1.68)	.26	.38
Education: secondary vs university	1.23 (1.00-1.52)	.05	.10
Income: < €1100 vs > €3900	1.05 (0.72-1.52)	.81	-
Income: €1100-1800 vs > €3900	0.99 (0.73-1.34)	.96	-
Income: €1801-2700 vs > €3900	0.82 (0.61-1.10)	.18	-
Income: €2701-3900 vs > €3900	1.11 (0.82-1.51)	.48	-
Origin: Latin America vs Spain	1.54 (1.14-2.07)	.005	.02
Origin: other vs Spain	1.65 (1.14-2.39)	.008	.03

Income trend (ordinal)	1.01 (0.93-1.09)	.86	.86
Risky alcohol use			
Education: no formal/primary vs university	1.18 (0.77-1.81)	.45	.51
Education: secondary vs university	1.21 (0.92-1.59)	.16	.29
Income: < €1100 vs > €3900	1.58 (0.98-2.56)	.06	-
Income: €1100-1800 vs > €3900	1.26 (0.85-1.85)	.25	-
Income: €1801-2700 vs > €3900	1.13 (0.78-1.65)	.52	-
Income: €2701-3900 vs > €3900	1.16 (0.80-1.70)	.43	-
Origin: Latin America vs Spain	0.44 (0.26-0.74)	.002	.02
Origin: other vs Spain	0.69 (0.39-1.19)	.18	.31
Income trend (ordinal)	0.92 (0.83-1.01)	.09	.18
Elevated triglycerides (≥ 150 mg/dL)			
Education: no formal/primary vs university	1.09 (0.80-1.48)	.59	.63
Education: secondary vs university	0.93 (0.77-1.12)	.45	.51
Income: < €1100 vs > €3900	1.20 (0.85-1.69)	.30	-
Income: €1100-1800 vs > €3900	1.23 (0.94-1.62)	.14	-
Income: €1801-2700 vs > €3900	1.17 (0.90-1.53)	.25	-
Income: €2701-3900 vs > €3900	1.08 (0.82-1.42)	.57	-
Origin: Latin America vs Spain	1.53 (1.15-2.04)	.003	.02
Origin: other vs Spain	1.29 (0.91-1.84)	.16	.31
Income trend (ordinal)	0.95 (0.88-1.02)	.14	.23

BMI, body mass index; LDL-C, low-density cholesterol.

Table S6. Multivariable logistic regression with age × household income interaction term for 8 cardiovascular risk factors (Benjamini-Hochberg corrected), with age-stratified analysis of active smoking

Logistic regression models extending those of table 3 with an interaction term between age (continuous, centered at the sample median of 60 years) and household income (ordinal, 1-5). Significance assessed via likelihood-ratio tests (1 df) with Benjamini-Hochberg (BH) correction across the 8 outcomes. Stratified income gradients (< 60 and ≥ 60 years) reported only for outcomes with significant interaction after BH correction.

Outcome	No.	OR interaction (95%CI)	*P* (raw)	*P*_BH
Elevated blood pressure	2953	1.007 (0.997-1.017)	.152	.344
Obesity	2961	0.993 (0.983-1.003)	.172	.344
Active smoking	**2963**	**1.020 (1.008-1.033)**	**.0014**	**.012**
Physical inactivity	2963	1.000 (0.990-1.009)	.955	.955
Nonoptimal LDL cholesterol	2800	1.004 (0.995-1.013)	.405	.648
Elevated triglycerides	2956	0.993 (0.984-1.002)	.149	.344
Prediabetes	2958	1.001 (0.991-1.011)	.825	.943
Risky alcohol intake	2963	1.003 (0.990-1.015)	.676	.901
Smoking—income gradient by age strata:				
< 60 y (n = 1460)		OR income ord 0.746 (0.661-0.841)	< .001	—
≥ 60 y (n = 1503)		OR income ord 0.838 (0.731-0.962)	.012	—

Models adjusted for sex, health area, education, household income, and country of origin. Active smoking was the only outcome with statistically significant interaction after BH correction.

Table S7. Sensitivity analysis: complete-case vs multiple imputation (MICE, m = 5) estimates of the socioeconomic gradient (OR per income category increment) for 8 cardiovascular risk factors

Multivariable logistic regression models with the same covariates as those in table 3 (age, sex, area, education, household income coded as ordinal 1-5, and country of origin). Multiple imputation was implemented with statsmodels (chained equations, predictive mean matching, m=5 imputed datasets, 10 burn-in iterations); pooled estimates and 95% confidence intervals were obtained via Rubin's rules.

Outcome	N (CC)	OR CC (95%CI)	*P* CC	OR MICE (95%CI)	*P* MICE	FMI
Elevated blood pressure	2953	0.93 (0.86-1.00)	.053	0.93 (0.86-1.01)	.069	0.18
Obesity	2961	0.92 (0.85-0.99)	.038	0.91 (0.84-0.99)	.033	0.25
Active smoking	**2963**	**0.78 (0.72-0.86)**	**< .001**	**0.78 (0.71-0.85)**	**< .001**	**0.11**
Physical inactivity	2963	0.97 (0.90-1.05)	.475	0.97 (0.90-1.05)	.452	0.12
Nonoptimal LDL cholesterol	2800	1.00 (0.93-1.08)	.90	1.01 (0.93-1.09)	.87	0.03
Elevated triglycerides	2956	0.95 (0.88-1.02)	.152	0.96 (0.89-1.03)	.207	0.16
Prediabetes	2958	1.00 (0.93-1.09)	.915	1.00 (0.92-1.08)	.977	0.22
Risky alcohol intake	2963	0.92 (0.83-1.02)	.102	0.94 (0.84-1.04)	.221	0.23

CC, complete-case analysis (participants with nonmissing income data); FMI, fraction of missing information; LDL, low-density lipoprotein; MICE, multiple imputation by chained equations. OR were pooled across 5 imputed datasets via Rubin's rules. Active smoking showed the only inverse income gradient that retained statistical significance (*P* < .001) in both approaches; obesity remained significant; all directions of effect agreed between approaches.

Table S8. RE-AIM framework evaluation of the PreveCardio program

Systematic assessment of the pilot program using the RE-AIM framework (Reach, Effectiveness, Adoption, Implementation, Maintenance).

RE-AIM Dimension	Indicator	Result
REACH		
	Target population	Adults aged 50-75 y in the study area primary care
	Annual eligible cohort	463 119 per year (regional projection for ages 40-75 y: 2 315 593 eligible after 47.2% exclusions, divided over a 5-year invitation cycle)
	Screened in study period	3545 participants (January-March, 2023)
	Sex distribution	56.7% women, 43.3% men
	Socioeconomic diversity	Income distribution: see table S1; 13.5% non-Spanish nationality
	Age distribution	Mean 61.2 ± 7.3 years (range 51-77)
EFFECTIVENESS		
	New diagnoses detected	2.0% new diabetes, elevated BP in 40.4%, elevated LDL-C in 48.7%
	Moderate/high CV risk	40.1% classified as moderate or high 10-year risk (SCORE2/SCORE2-OP)
	Risk factor clustering	67.8% had ≥ 2 risk factors simultaneously
	Socioeconomic gradients	Significant educational gradient for obesity (aOR 2.08), sedentarism (aOR 1.71) and hypertension (aOR 1.45); steepest income gradient for smoking (aOR 3.25 lowest vs highest income category)
ADOPTION		
	Setting	Regional public health primary care centers (public health system)
	Delivery model	Nurse-led screening with protocol-based assessment
	Training requirement	Standard nursing competencies; no specialist training required
	Equipment	Standard primary care equipment (sphygmomanometer, scale, point-of-care analyzers)
IMPLEMENTATION		
	Protocol adherence	Standardized assessment protocol with 118 variables collected

	Data completeness	>99% for clinical variables; 84.0% for complete regression data (income)
	Assessment components	Anthropometry, blood pressure, point-of-care blood analysis, lifestyle questionnaires
	Duration per visit	Single visit, approximately 30 min
MAINTENANCE		
	Program status	Ongoing; protocol integrated into routine regional public health services
	Scalability estimate	If 10% annual uptake: ~46 000 screenings/y across the study area
	Cost considerations	Uses existing infrastructure and nursing staff; incremental cost primarily in consumables
	Data infrastructure	Electronic data collection enabling program monitoring and quality improvement

LDL-C, low-density lipoprotein cholesterol.

Supplementary methods: SCORE2/SCORE2-OP calculation

Ten-year cardiovascular risk was estimated using the SCORE2 (ages 50-69 years) and SCORE2-OP (ages 70-77 years) algorithms as recommended by the 2021 ESC Guidelines on cardiovascular disease prevention. Spain is classified as a low-risk country in the ESC framework.

Risk estimation procedure:

1. Input variables: age (continuous), sex, current smoking status (PS_FA), systolic blood pressure (EX_TAS, mmHg), total cholesterol (EX_CHOL) and high-density lipoprotein (HDL) cholesterol (EX_HDL), both converted from mg/dL to mmol/L by dividing by 38.67. Participants with zero values for systolic blood pressure or total cholesterol (measurement failures) were excluded from the analysis.

2. Risk estimation: For each participant, 10-year cardiovascular risk was computed directly from the SCORE2 (Hageman et al. 2021) and SCORE2-OP (de Vries et al. 2021) algorithms applying the published low-risk region recalibration coefficients (Spain). Inputs to the formula were each participant's age (continuous), sex, smoking status, systolic blood pressure, total cholesterol and HDL-cholesterol as separate predictors. History of diabetes was set to 0, as the SCORE2/SCORE2-OP algorithms are not validated in individuals with diabetes (specific SCORE2-Diabetes models exist for that population).

3. Risk classification: participants were classified according to ESC 2021 thresholds for low-risk countries:

• Age 50 to 69 years (SCORE2): < 5% = low risk; 5 to < 10% = moderate risk; ≥ 10% = high risk.

• Age ≥ 70 years (SCORE2-OP): < 7.5% = low risk; 7.5 to < 15% = moderate risk; ≥ 15% = high risk.

4. Complete data for SCORE2/SCORE2-OP calculation (systolic blood pressure, total cholesterol and HDL-lipoprotein cholesterol) were available for 3515 of 3545 participants (> 99%). The 30 excluded participants had missing systolic blood pressure, total cholesterol, or high-density lipoprotein cholesterol values.

Supplementary note: sensitivity analysis of HDL cholesterol

SCORE2/SCORE2-OP include total cholesterol and HDL cholesterol as separate predictors (Hageman et al. 2021; de Vries et al. 2021), not the triglyceride/HDL ratio used in earlier SCORE models.

Missing values in any of the 3 input variables (systolic blood pressure, total cholesterol, or HDL cholesterol) led to exclusion from SCORE2/SCORE2-OP estimation in 30 of 3545 participants (0.8%); the proportion of exclusions was minimal and unlikely to affect aggregated risk estimates.

References of the supplementary data

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