

## **Online only supplementary material**

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### *Supplementary references*

**Supplementary table 1: Characteristics of men and women identified as prevalent and incident PD cases in 2010.**

Characteristics	Prevalent cases						Incident cases					
	Men (n=88,944)			Women (n=88,895)			Men (n=15,254)			Women (n=14,686)		
	No.	%	Mean (SD)	No.	%	Mean (SD)	No.	%	Mean (SD)	No.	%	Mean (SD)
Age, years			74.7 (10.8)			77.0 (10.8)			73.4 (12.5)			75.0 (12.7)
Neurologist visits												
≥ 1 visit	34,155	38.4		30,834	34.7		7,385	48.4		6,938	47.2	
No. of visits			2.4 (1.5)			2.3 (1.6)			1.8 (1.1)			1.7 (1.0)
General practitioner visits												
≥ 1 visit	78,372	88.1		80,333	90.4		11,587	76.0		11,337	77.2	
No. of visits			5.8 (3.3)			6.3 (3.5)			3.5 (2.6)			3.9 (2.7)
Proportion of time treated												
100%	75,627	85.0		75,629	85.1		12,381	81.2		11,143	82.7	
Mean			98.4 (6.5)			98.7 (5.6)			97.2 (9.2)			97.8 (7.8)
Antiparkinsonian drug or class												
Type 1 dopamine agonists	24,418	27.5		20,936	23.6		3,182	20.9		3,225	22.0	
Mean daily dose <sup>b</sup>			221.0 (160.6)			192.4 (154.0)			128.9 (129.3)			116.0 (135.1)
Cumulative LEDs <sup>b</sup>			70,691.1 (57,871.0)			60,741.2 (54,670.1)			23,065.5 (29,443.3)			20,541.9 (28,706.0)
Type 2 dopamine agonists	2,105	2.4		1,715	1.9		86	0.6		59	0.4	
Amantadine (≥ 1 claim)	3,657	4.0		3,493	3.9		199	1.3		247	1.7	
Anticholinergic agents <sup>a</sup>	2,200	2.5		1,782	2.0		238	1.6		232	1.6	
COMT inhibitors	17,829	20.1		13,849	15.6		817	5.4		739	5.0	
Selegiline/Rasagiline	4,236	4.8		3,099	3.5		241	1.6		214	1.5	
Levodopa	79,028	88.9		80,127	90.1		12,268	80.4		11,804	80.4	
Mean daily dose <sup>b</sup>			474.3 (335.5)			410.1 (283.7)			290.4 (209.5)			281.8 (185.0)
Cumulative LEDs <sup>b</sup>			159,757.0 (126,683.8)			137,897.4 (106,233.2)			51,594.0 (48,248.3)			51,110.9 (47,625.7)
Piribedil	12,029	13.5		10,254	11.5		986	6.5		720	4.9	
Mean daily dose <sup>b</sup>			124.8 (67.4)			119.3 (67.5)			93.7 (57.0)			94.6 (67.0)
Cumulative LEDs <sup>b</sup>			38,604.0 (25,994.7)			37,035.9 (25,201.1)			16,385.3 (17,788.1)			16,028.8 (17,133.6)

COMT, catechol-O-methyl transferase; LED, levodopa equivalent dose; PD, Parkinson's disease; SD, standard deviation.

<sup>a</sup>No LED data were available for these classes of antiparkinsonian drugs.

<sup>b</sup>Doses were computed among treated subjects and are expressed in milligrams of LED.

**Supplementary table 2: Systematic review of eligible incidence studies of Parkinson’s disease.**

Study	Study period		Men			Women			Overall age-adjusted M-F ratio				
			PD cases	Person-years	Inc. /10 <sup>5</sup>	PD cases	Person-years	Inc. /10 <sup>5</sup>	Age	Ratio (95% CI)			
Allyson-Jones, 2012	Canada	North America	1992	2001	5,947	1,893,300.00	314.11	4,963	2,433,800.00	203.92	65+	1.82	1.69 to 1.96
Alves, 2009	Norway	Europe	2004	2006	151	415,662.50	36.33	114	443,448.50	25.71	40+	1.56	1.42 to 1.71
Baldereschi, 2000	Italy	Europe	1992	1996	29	6,289.75	461.07	13	5,860.21	221.83	65+	2.12	1.26 to 3.57
Bauso, 2012	Argentina	South America	2003	2008	116	156,083.20	74.32	118	256,116.40	46.07	40+	1.92	1.61 to 2.30
Benito-Leon, 2004	Spain	Europe	1994	1998	19	5,284.00	359.58	11	7,435.00	147.95	65+	2.55	0.93 to 6.98
Bower, 1999	USA	North America	1976	1990	85	131,382.00	64.70	64	170,257.00	37.59	50+	2.02	1.59 to 2.57
Caslake, 2013	UK	Europe	2002	2009	125	269,500.00	46.38	85	280,900.00	30.26	40+	1.97	1.39 to 2.78
Chen, 2001	Taiwan	Asia	1993	1995	8	17,540.05	45.61	7	17,308.55	40.44	40+	1.10	0.71 to 1.70
Das, 2010	India	Asia	2003	2007	10	82,925.00	12.06	11	74,005.00	14.86	40+	0.88	0.37 to 2.08
Duncan, 2014	UK	Europe	2009	2011	86	221,993.44	38.74	67	230,930.48	29.01	40+	1.58	1.00 to 2.50
Foltynie, 2004	UK	Europe	2001	2002	49	154,815.00	31.65	46	169,201.00	27.19	40+	1.36	0.97 to 1.91
Foltynie, 2006	UK	Europe	--	--	19	7,132.09	266.40	16	10,360.81	154.43	65+	1.87	1.29 to 2.70
Granieri, 1991	Italy	Europe	1967	1987	173	898,342.07	19.26	218	1,114,726.54	19.56	40+	1.00	0.83 to 1.22
de Lau, 2004	Netherlands	Europe	1990	1999	31	15,447.00	200.69	36	22,973.00	156.71	55+	1.47	0.61 to 3.53
Linder, 2010	Sweden	Europe	2004	2009	59	125,024.00	47.19	52	134,272.00	38.73	40+	1.36	1.25 to 1.47
Marttila, 1976	Finland	Europe	1968	1970	66	216,891.96	30.43	112	284,760.60	39.33	40+	0.91	0.69 to 1.20
Mayeux, 1995	USA	North America	1988	1991	36	72,807.00	49.45	47	110,127.00	42.68	45+	1.56	0.98 to 2.47
Morioka, 2002	Japan	Asia	1997	1997	75	266,745.63	28.12	108	313,752.14	34.42	40+	1.00	0.67 to 1.50
Tan, 2007	Singapore	Asia	2001	2003	6	14,132.00	42.46	6	17,295.00	34.69	50+	1.19	0.49 to 2.90
Taylor, 2006	UK	Europe	--	--	30	48,402.00	61.98	20	50,211.00	39.83	40+	2.31	1.41 to 3.80
Van Den Eeden, 2003	USA	North America	1994	1995	356	989,778.00	35.97	228	1,100,822.00	20.71	40+	1.84	1.52 to 2.23
Winter, 2010	Russia	Europe	2006	2008	140	566,200.00	24.73	168	771,475.00	21.78	45+	1.57	1.31 to 1.89

Data were extracted for subjects 40 years and older only.

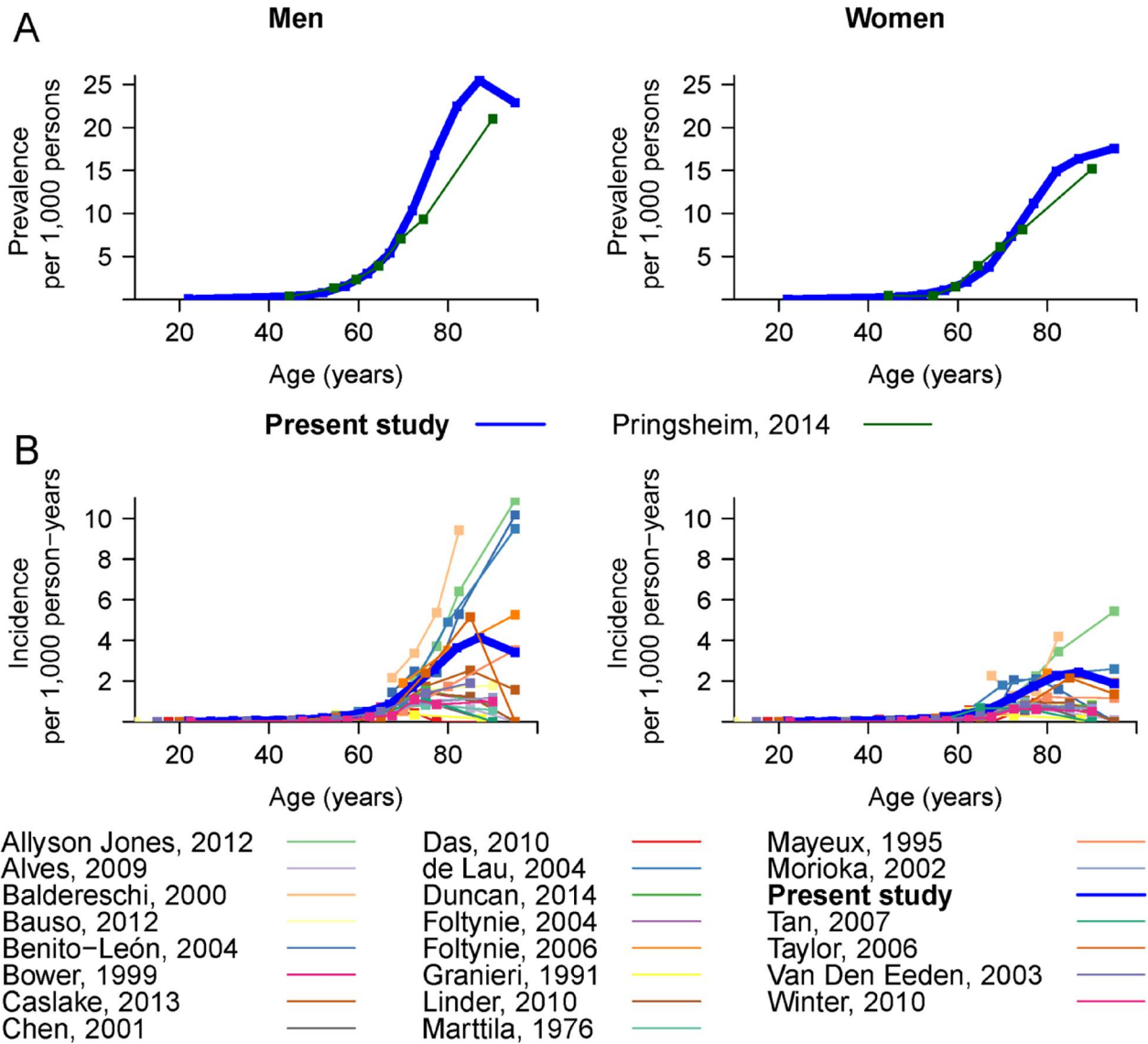
Inc., incidence (per 100,000 person-years).

Please see the Supplementary references list for complete references.

**Supplementary figure 1: Age- and sex-specific incidence and prevalence of Parkinson’s disease in France, 2010, and comparison to other studies.**

**A- Prevalence:** we present for comparison age- and sex-specific prevalence rates of Parkinson’s disease from a meta-analysis of prevalence studies.<sup>S23</sup>

**B- Incidence:** we present for comparison age- and sex-specific incidence rates of Parkinson’s disease from the studies included in our systematic review of incidence studies that also reported age- and sex-specific rates (Supplementary table 2; Supplementary references).

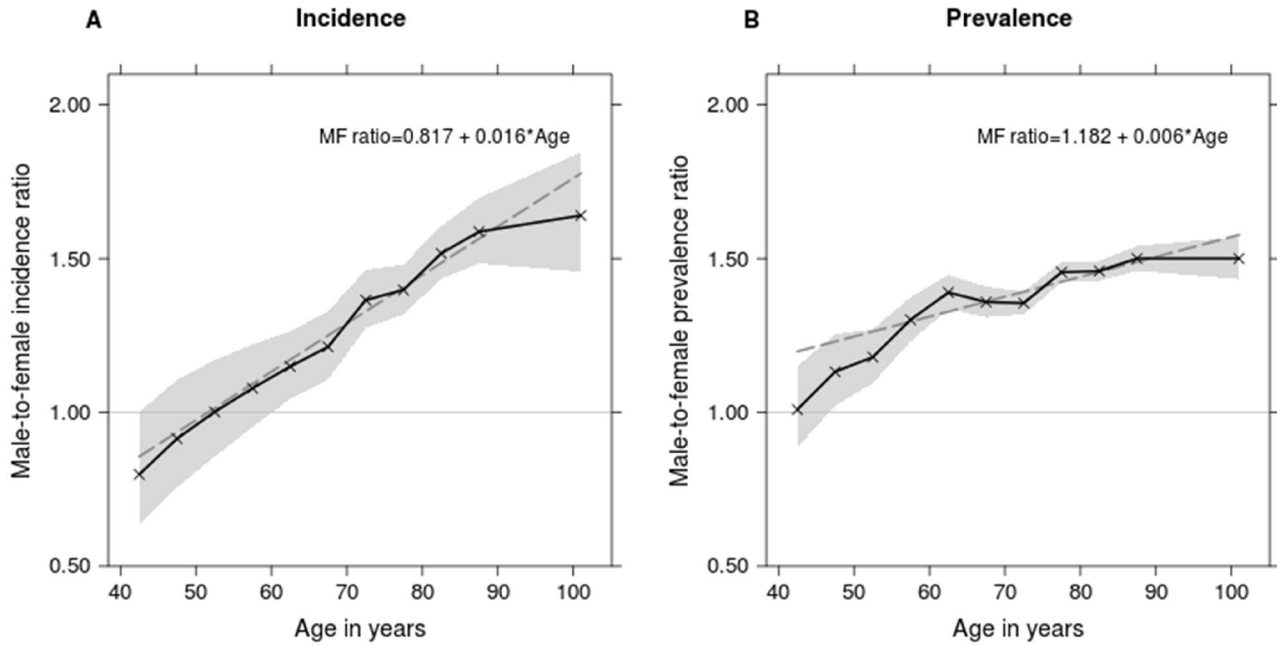


**Supplementary figure 2: Age-specific male-to-female incidence (A) and prevalence (B) ratios of Parkinson's disease when sex was not included in the prediction model to define cases.**

Solid line, observed age-specific male-to-female ratios estimated by modeling prevalence and incidence through Poisson regression.

Grey area, 95% confidence intervals of observed male-to-female ratios.

Dashed line, linear regression of male-to-female ratios weighted by the inverse of their variance on age (in years, centered at 40 years).

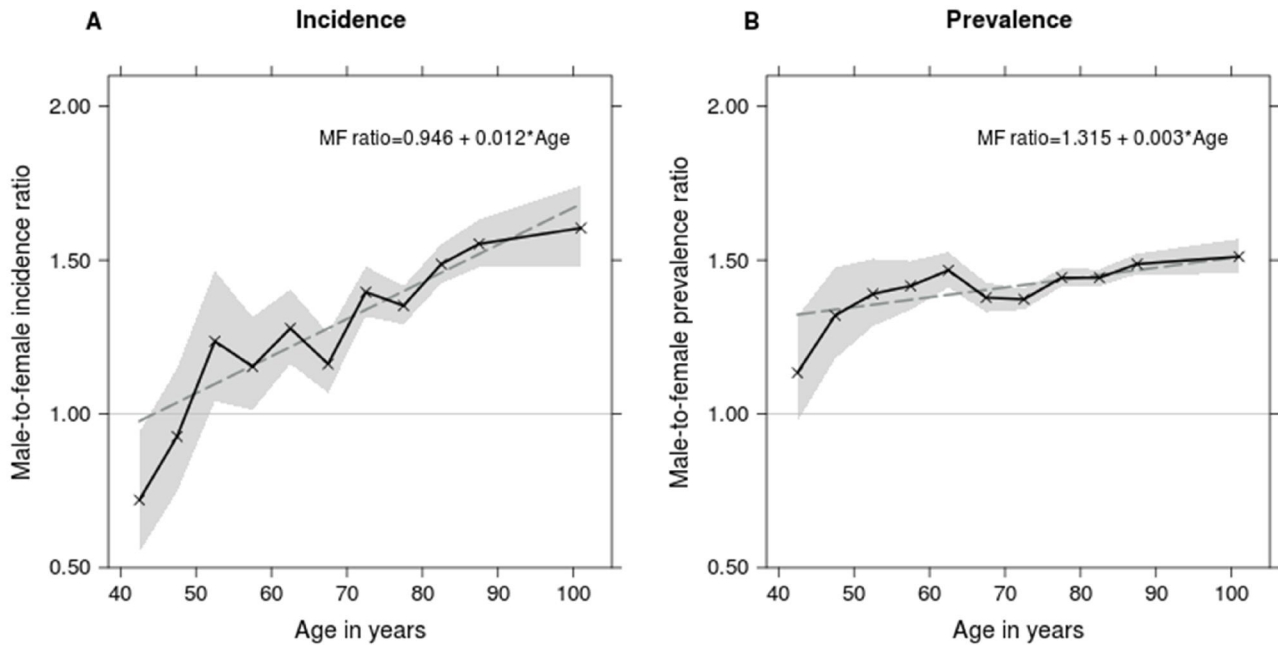


**Supplementary figure 3. Age-specific male-to-female incidence (A) and prevalence (B) ratios of Parkinson's disease when levodopa was used at the only tracer to define cases.**

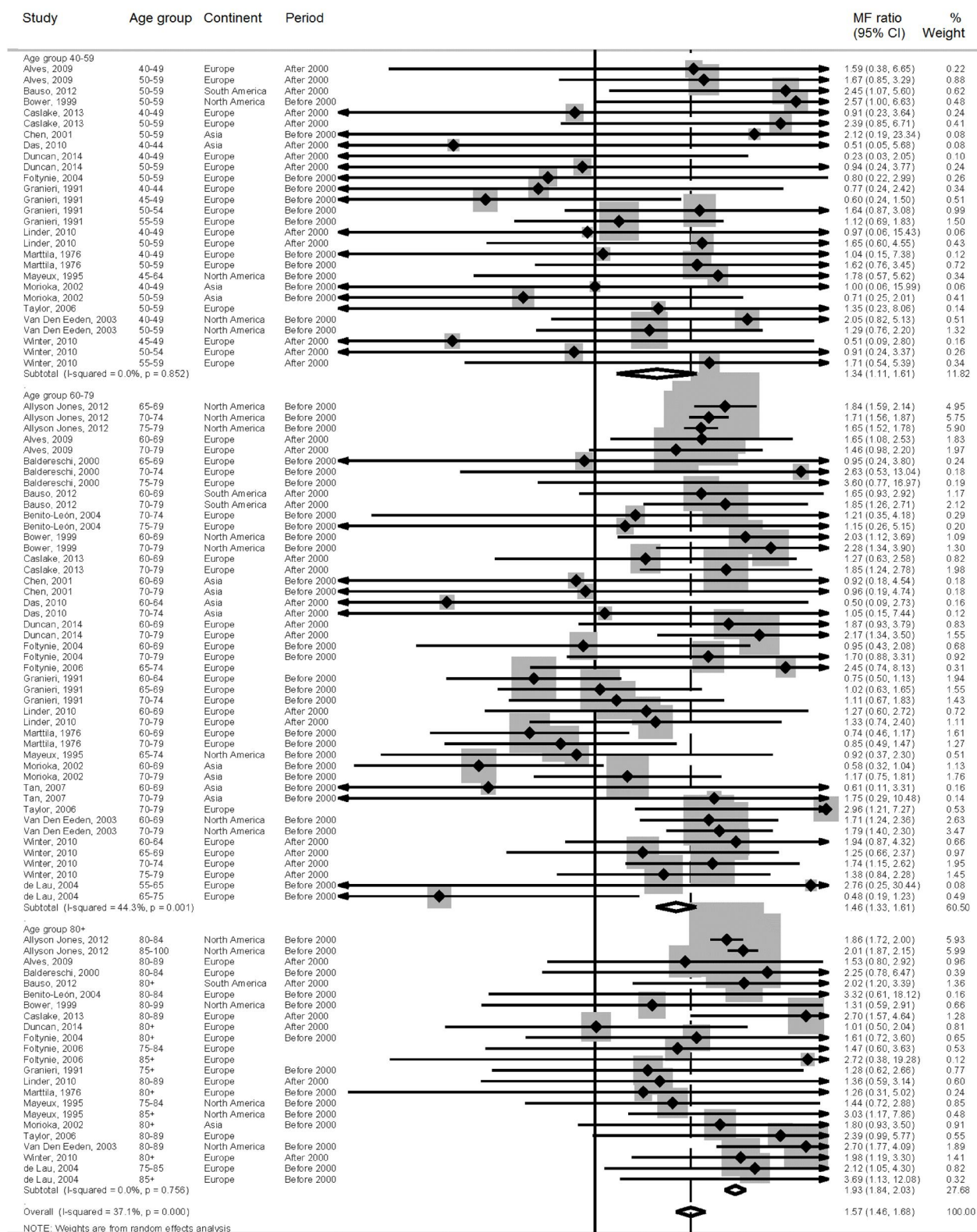
Solid line, observed age-specific male-to-female ratios estimated by modeling prevalence and incidence through Poisson regression.

Grey area, 95% confidence intervals of observed male-to-female ratios.

Dashed line, linear regression of male-to-female ratios weighted by the inverse of their variance on age (in years, centered at 40 years).



**Supplementary figure 4. Random effects meta-analysis of male-to-female incidence ratios of Parkinson's disease by age groups (40-59, 60-79, 80+ years).**

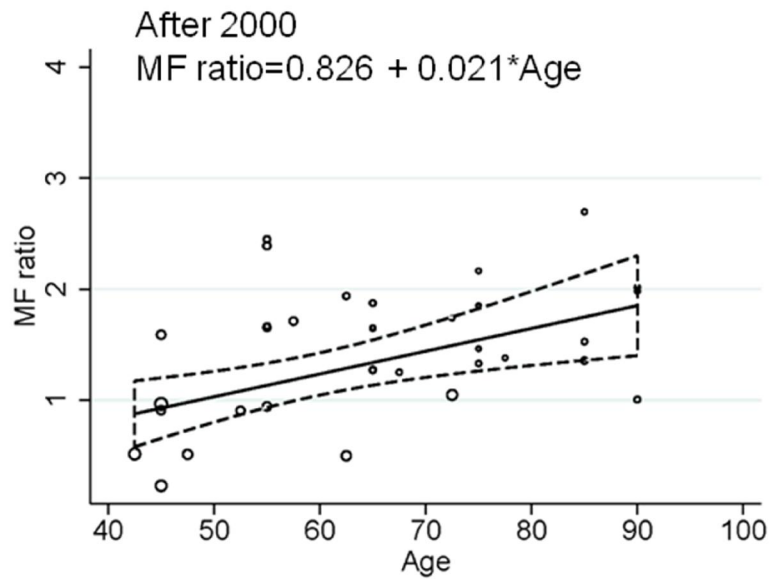
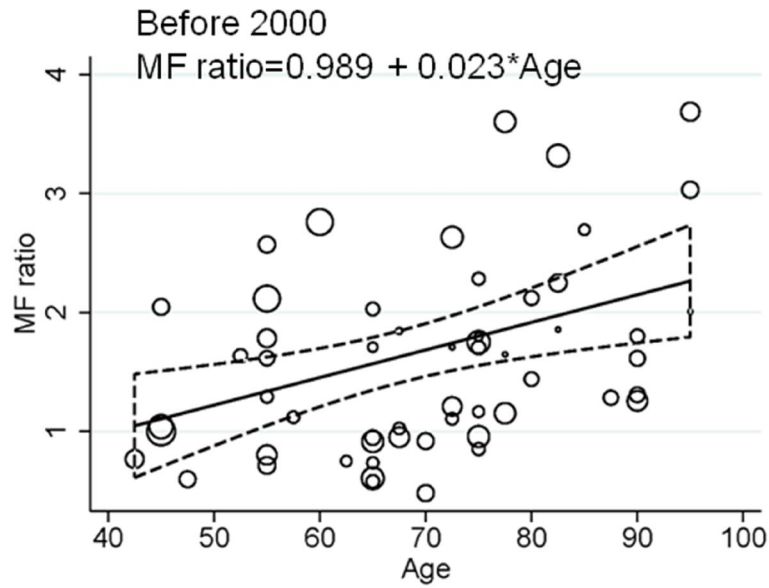


**Supplementary figure 5: Systematic review of age-specific male-to-female incidence ratios of Parkinson's disease, by study time period (before/after 2000).**

Circles represent observed male-to-female incidence ratios for each study by age by sex strata, estimated by modeling incidence through Poisson regression; their size is proportional to the variance of the male-to-female incidence ratios: more precise estimates are represented by larger circles.

Solid line, linear regression of male-to-female incidence ratios weighted by the inverse of their variance on age (in years, centered at 40 years).

Dashed line, 95% confidence intervals of the linear regression.

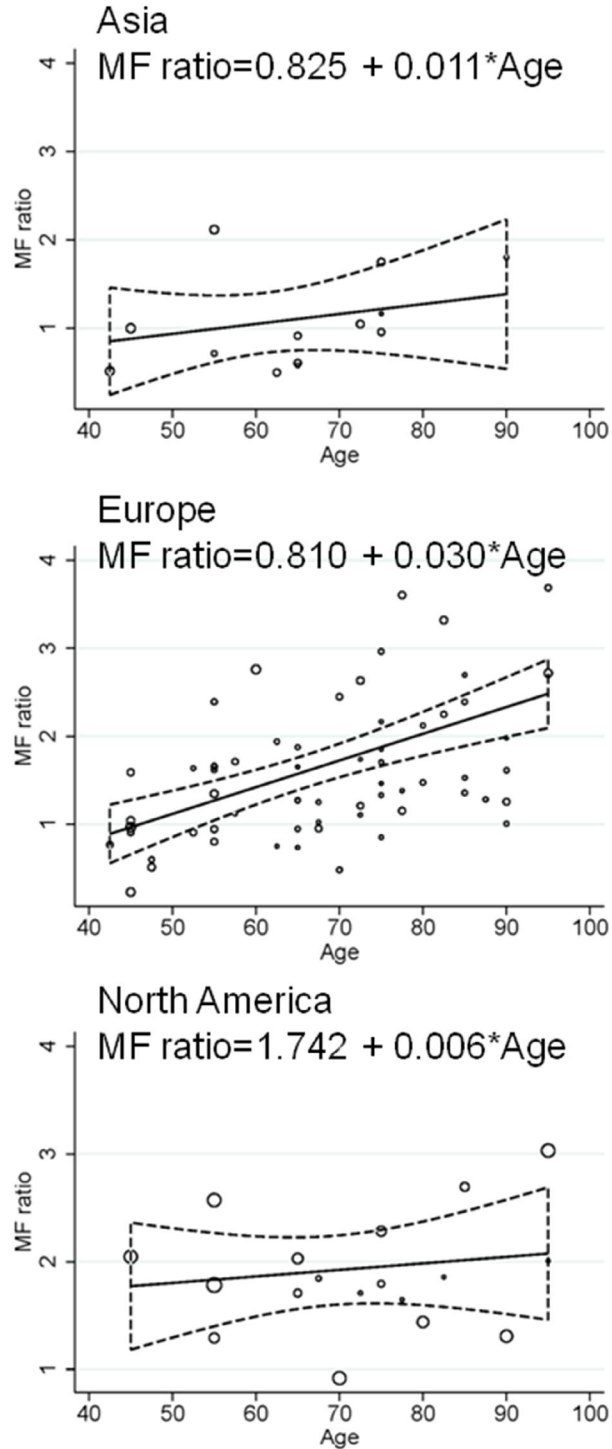


**Supplementary figure 6: Systematic review of age-specific male-to-female incidence ratios of Parkinson's disease, by continent (Asia, Europe, North America).**

Circles represent observed male-to-female incidence ratios for each study by age by sex strata, estimated by modeling incidence through Poisson regression; their size is proportional to the variance of the male-to-female incidence ratios: more precise estimates are represented by larger circles.

Solid line, linear regression of male-to-female incidence ratios weighted by the inverse of their variance on age (in years, centered at 40 years).

Dashed line, 95% confidence intervals of the linear regression.





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