

# Davies Adeloye et al. Prevalence of dementia in Nigeria: a systematic review of the evidence

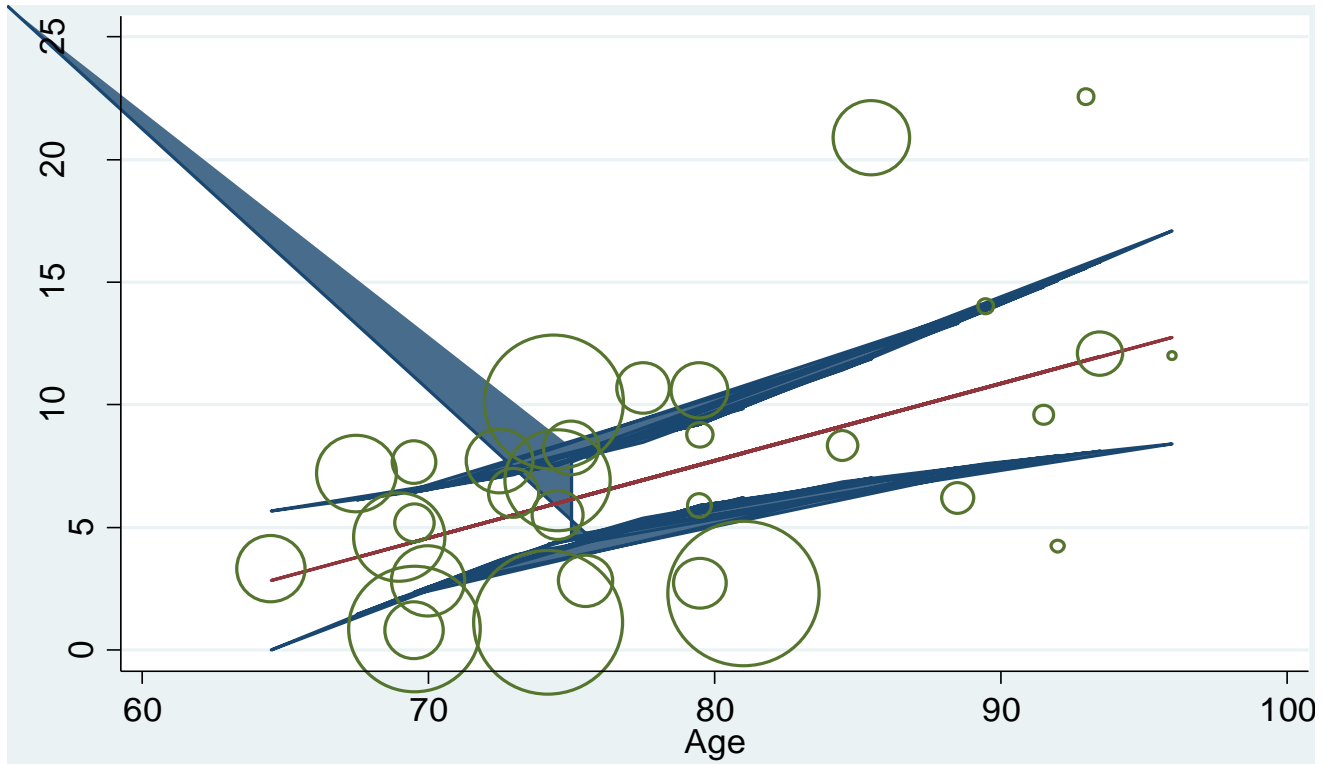
## Supplementary material

**TABLE S1. All datapoints on dementia risk factors in Nigeria**

Author	Year	Risk factor	Odds ratio	Lower CI	Upper CI
Yusuf et al	2011	Age 80+	6.83	0.37	14.33
Gureje et al	2004	Age 80+	3.4	2.9	5.06
Hendrie et al	1994	Age 80+	1.07	1.04	1.11
Hendrie et al	1992	Age 80+	1.15	1.12	1.18
Ogunniyi et al	2013	Age 80+	6.2	3.2	11.9
Ochayi & Thatcher	2002	Age 80+	3	0.85	10.4
Yusuf et al	2011	Female	1.36	0.85	1.54
Adebayo et al	2011	Female	0.71	0.42	1.76
Gureje et al	2004	Female	2.78	1.61	3.22
Gureje et al	2007	Female	2.12	1.32	3.41
Hendrie et al	1994	Female	2.93	1.48	6.38
Hendrie et al	1992	Female	13.9	3.85	50.28
Ogunniyi et al	2013	Female	1.4	0.8	2.4
Ochayi & Thatcher	2002	Female	8.4	1.9	39
Ochayi & Thatcher	2002	BMI <=18.5	3.5	1.2	9.9
Adebayo et al	2011	Widowed	1.19	0.61	1.92
Hendrie et al	1992	Widowed	2.56	0.69	9.42
Ochayi & Thatcher	2002	Widowed	2	0.75	5.2
Adebayo et al	2011	Tertiary Education	2.31	0.7	2.97
Gureje et al	2004	Tertiary Education	0.89	0.32	2.48
Gureje et al	2007	Tertiary Education	0.7	0.1	3.7
Hendrie et al	1994	Tertiary Education	0.81	0.53	1.07
Hendrie et al	1992	No education	2.15	0.37	12.36
Ogunniyi et al	2013	No education	1.5	0.8	2.7
Ochayi & Thatcher	2002	No education	5.8	1	12.4
Adebayo et al	2011	Unemployment	1.29	0.57	2.17
Ochayi & Thatcher	2002	Unemployment	0.83	0.51	1.66
Adebayo et al	2011	Living alone	0.84	0.45	1.92
Hendrie et al	1994	Living alone	1.16	0.6	2.27
Hendrie et al	1992	Living alone	0.48	0.1	9.73
Adebayo et al	2011	Low SES	1.01	0.52	1.95
Gureje et al	2004	Low SES	1.62	0.7	3.78
Gureje et al	2007	Low SES	3.7	1	14
Adebayo et al	2011	Past Psychiatry Hx	0.26	0.27	1.15
Gureje et al	2007	Past Psychiatry Hx	1.43	0.22	6.14
Ochayi & Thatcher	2002	Family Hx Dementia	0.85	0.11	6.8
Adebayo et al	2011	Hx Stroke	1.41	0.56	2.4
Gureje et al	2007	Hx Stroke	1.25	0.21	5.79

Hendrie et al	1994	Hx Stroke	1.35	0.1	8.34
Ochayi & Thatcher	2002	Hx Stroke	1.2	0.1	10
Gureje et al	2004	Rural	1.08	0.68	1.71
Gureje et al	2007	Rural	2.6	1.3	5.2
Hendrie et al	1994	Rural	1.25	0.66	2.66
Hendrie et al	1992	Rural	1.57	0.35	7.08
Gureje et al	2004	Urban	1.27	0.81	1.99
Ochayi & Thatcher	2002	Urban	1.4	0.5	3.9
Gureje et al	2004	Smoking Hx	1.1	0.74	1.63
Gureje et al	2007	Smoking Hx	1.8	0.6	5.6
Hendrie et al	1994	Smoking Hx	1.08	0.48	2.28
Hendrie et al	1992	Smoking Hx	1.06	0.98	1.15
Ochayi & Thatcher	2002	Smoking Hx	1.4	0.54	3.8
Gureje et al	2004	Alcohol Hx	1.92	1.38	2.79
Gureje et al	2007	Alcohol Hx	1.43	0.22	6.14
Hendrie et al	1994	Alcohol Hx	0.82	0.35	1.78
Ochayi & Thatcher	2002	Alcohol Hx	1.3	0.27	6.3

**FIGURE S1. Meta-regression epidemiologic modelling showing relationship between prevalence of dementia and mean age of sample population.**



**TABLE S2. Meta-regression baseline data (number of observations=43)**

REML estimate of between-study variance	tau2	13.94
% residual variation due to heterogeneity	I-squared_res	95.70%
Proportion of between-study variance explained	Adj R-squared	21.76%
Joint test for all covariates	Model F(2,40)	7.19
With Knapp-Hartung modification	Prob > F	0.0022

**TABLE S3. Meta-regression results**

Prevalence	Coef.	Std. Err.	t	P>t	95% CI
Age	.3630848	.0968028	3.75	0.001	0.1674389-0.5587306
Year	.135105	.081384	1.66	0.105	-.0293782-0.2995882
_cons	-293.5896	165.6111	-1.77	0.084	-628.3022-41.12297

**TABLE S4. Quality assessment**

Author	Year	Study design	Sampling	Case ascertainment	Score	Quality grading
Adebayo et al. 2016 [1]	2007-2011	0	0	2	2	Medium
Gureje et al. 2006 [2]	2003-2004	0	1	2	3	Medium
Gureje et al. 2011 [3]	2007	1	1	3	5	High
Hendrie et al. 1995 [4,5]	1992-1993	1	1	3	5	High
Hendrie et al. 2001 [6]	1997-1998	1	1	3	5	High
Ochayi & Thatcher 2006 [7]	2002	0	1	2	3	Medium
Ogunniyi et al. 2016 [8]	2013	1	1	3	5	High
Yusuf et al. 2011 [9]	2011	0	1	2	3	Medium
Yusuf et al. 2018 [10]	2017	0	0	2	2	Medium

Note:

- Study design (was there a protocol, Yes-1, No-0)
- Sampling method (was it representative of a target subnational population, Yes-1, No-0)
- Case ascertainment (was it based on standard diagnostic criteria, Yes-3, No-0; measurement of cognition or other clinical criteria, Yes-2, No-0; informant interviews, Yes-1, No-0; or not reported, 0).
- Quality grading: high (4-5), moderate (2-3), or low quality (0-1)

- 1 Adebayo RA, Olagunju AT, Olutoki MO, Fadipe B, Oduguwa TO, Lawal RA: A four-year review of geriatric mental health services in a Lagos-based hospital, Nigeria. *Ethiopian medical journal* 2016;54:125-135.
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- 3 Gureje O, Ogunniyi A, Kola L, Abiona T: Incidence of and risk factors for dementia in the Ibadan study of aging. *Journal of the American Geriatrics Society* 2011;59:869-874.
- 4 Hendrie HC, Osuntokun BO, Hall KS, Ogunniyi AO, Hui SL, Unverzagt FW, Gureje O, Rodenberg CA, Baiyewu O, Musick BS: Prevalence of Alzheimer's disease and dementia in two communities: Nigerian Africans and African Americans. *The American journal of psychiatry* 1995;152:1485-1492.
- 5 Ogunniyi A, Baiyewu O, Gureje O, Hall KS, Unverzagt F, Siu SH, Gao S, Farlow M, Oluwole OS, Komolafe O, Hendrie HC: Epidemiology of dementia in Nigeria: results from the Indianapolis-Ibadan study. *European journal of neurology* 2000;7:485-490.
- 6 Hendrie HC, Ogunniyi A, Hall KS, Baiyewu O, Unverzagt FW, Gureje O, Gao S, Evans RM, Ogunseyinde AO, Adeyinka AO, Musick B, Hui SL: Incidence of dementia and Alzheimer disease in 2 communities: Yoruba residing in Ibadan, Nigeria, and African Americans residing in Indianapolis, Indiana. *Jama* 2001;285:739-747.
- 7 Ochayi B, Thacher TD: Risk factors for dementia in central Nigeria. *Aging & mental health* 2006;10:616-620.
- 8 Ogunniyi A, Adebisi AO, Adediran AB, Olakehinde OO, Siwoku AA: Prevalence estimates of major neurocognitive disorders in a rural Nigerian community. *Brain and behavior* 2016;6:e00481.
- 9 Yusuf AJ, Baiyewu O, Sheikh TL, Shehu AU: Prevalence of dementia and dementia subtypes among community-dwelling elderly people in northern Nigeria. *International psychogeriatrics* 2011;23:379-386.
- 10 Yusuf AJ, Baiyewu O, Bakari AG, Garko SB, Jibril ME, Suleiman AM, Muktar HM, Amedu MA: Low education and lack of spousal relationship are associated with dementia in older adults with diabetes mellitus in Nigeria. *Psychogeriatrics* : the official journal of the Japanese Psychogeriatric Society 2018

**TABLE S5. All datapoints on dementia prevalence in Nigeria**

Author	Year	Location	Zone	Settings	Age	Dementia type	Both sexes			Men			Women		
							Cases	Sample	Prev %	Cases	Sample	Prev %	Cases	Sample	Prev %
Yusuf et al	2011	Zaria	North-west	Urban	75.5	Dementia	9	322	2.80	3	128	2.34	6	190	3.09
Yusuf et al	2011	Zaria	North-west	Urban	75.5	Alzheimers	6	322	1.86						
Yusuf et al	2011	Zaria	North-west	Urban	88.5	Dementia	7	113	6.20						
Adebayo et al	2011	Lagos	South-west	Urban	69	Dementia	22	938	4.60	9	324	2.72	13	614	2.10
Adebayo et al	2011	Lagos	South-west	Urban	64.5	Dementia	9	518	3.32						
Adebayo et al	2011	Lagos	South-west	Urban	74.5	Dementia	8	293	5.52						
Adebayo et al	2011	Lagos	South-west	Urban	84.5	Dementia	5	108	8.34						
Adebayo et al	2011	Lagos	South-west	Urban	92	Dementia	4	19	4.22						
Adebayo et al	2011	Lagos	South-west	Urban	69	Alzheimers	5	938	1.10						
Adebayo et al	2011	Lagos	South-west	Urban	69	Mixed Dementia	16	938	1.50						
Gureje et al	2004	Ibadan	South-west	Peri-urban	74.4	Dementia	217	2149	10.10	70	1001	7	168	1148	14.60
Gureje et al	2004	Ibadan	South-west	Peri-urban	67.5	Dementia	51	702	7.20						
Gureje et al	2004	Ibadan	South-west	Peri-urban	72.5	Dementia	38	495	7.70						
Gureje et al	2004	Ibadan	South-west	Peri-urban	77.5	Dementia	32	295	10.70						
Gureje et al	2004	Ibadan	South-west	Peri-urban	85.5	Dementia	137	657	20.90						
Gureje et al	2007	Ibadan	South-west	Peri-urban	74.5	Dementia	85	1225	6.94	24	587	4.09	61	638	9.56
Gureje et al	2007	Ibadan	South-west	Peri-urban	69.5	Dementia	16	209	7.66						
Gureje et al	2007	Ibadan	South-west	Peri-urban	79.5	Dementia	38	358	10.61						
Gureje et al	2007	Ibadan	South-west	Peri-urban	93.5	Dementia	29	240	12.08						
Hendrie et al	1994	Ibadan	South-west	Peri-urban	74.2	Dementia	28	2459	1.14						
Hendrie et al	1992	Ibadan	South-west	Peri-urban	81	Dementia	28	2494	2.29	8	1558	0.51	20	936	2.14
Hendrie et al	1992	Ibadan	South-west	Peri-urban	69.5	Dementia	16	1900	0.86						
Hendrie et al	1992	Ibadan	South-west	Peri-urban	79.5	Dementia	8	300	2.72						
Hendrie et al	1992	Ibadan	South-west	Peri-urban	91.5	Dementia	4	40	9.59						
Hendrie et al	1992	Ibadan	South-west	Peri-urban	81	Alzheimers	18	2494	1.41						

Hendrie et al	1992	Ibadan	South-west	Peri-urban	81	Vasc. Dementia	8	2494	0.32						
Hendrie et al	1992	Ibadan	South-west	Peri-urban	81	Parkinsons	1	2494	0.04						
Ogunniyi et al	2013	Lalupon	South-west	rural	70	Dementia	17	613	2.80	3	186	1.61	14	427	3.28
Ogunniyi et al	2013	Lalupon	South-west	rural	70	Alzheimers	10	613	1.63						
Ogunniyi et al	2013	Lalupon	South-west	rural	70	Mixed Dementia	3	613	0.49						
Ogunniyi et al	2013	Lalupon	South-west	rural	70	Vasc. Dementia	2	613	0.33						
Ogunniyi et al	2013	Lalupon	South-west	rural	70	Parkinsons	2	613	0.33						
Ogunniyi et al	2013	Lalupon	South-west	rural	69.5	Dementia	3	374	0.80						
Ogunniyi et al	2013	Lalupon	South-west	rural	79.5	Dementia	7	80	8.75						
Ogunniyi et al	2013	Lalupon	South-west	rural	93	Dementia	7	31	22.58						
Ochayi & Thatcher	2002	Jos	North-central	Peri-urban	73	Dementia	18	280	6.40	2	136	1.5	16	144	11
Ochayi & Thatcher	2002	Jos	North-central	Peri-urban	69.5	Dementia	9	173	5.20						
Ochayi & Thatcher	2002	Jos	North-central	Peri-urban	79.5	Dementia	4	68	5.90						
Ochayi & Thatcher	2002	Jos	North-central	Peri-urban	89.5	Dementia	4	29	14.00						
Ochayi & Thatcher	2002	Jos	North-central	Peri-urban	96	Dementia	1	8	12.00						
Yusuf et al. 2018	2017	Zaria	North-west	Urban	75	Dementia	28	340	8.24	8	140	5.71	20	200	10.00
Yusuf et al. 2018	2017	Zaria	North-west	Urban	75	Alzheimers	26	340	7.65						
Yusuf et al. 2018	2017	Zaria	North-west	Urban	75	Mixed Dementia	2	340	0.59						