

Results

Descriptives

Descriptives								
	relapse_endpoint	conventional_mri_endpoint	disability_endpoint	pira_smoldering_endpoint	atrophy_endpoint	advanced_mri_endpoint	fluid_biomarker_endpoint	cognition_end
N	2077	2077	2077	2077	2077	2077	2077	2
Missing	0	0	0	0	0	0	0	
Mean	0.171	0.177	0.355	0.00722	0.0982	0.0429	0.0713	0.
Median	0	0	0	0	0	0	0	
Standard deviation	0.377	0.382	0.479	0.0847	0.298	0.203	0.257	0.
Minimum	0	0	0	0	0	0	0	
Maximum	1	1	1	1	1	1	1	

Frequencies

Frequencies of relapse_endpoint			
relapse_endpoint	Counts	% of Total	Cumulative %
0	1721	82.9%	82.9%
1	356	17.1%	100.0%

Frequencies of conventional_mri_endpoint			
conventional_mri_endpoint	Counts	% of Total	Cumulative %
0	1709	82.3%	82.3%
1	368	17.7%	100.0%

Frequencies of disability_endpoint			
disability_endpoint	Counts	% of Total	Cumulative %
0	1340	64.5%	64.5%
1	737	35.5%	100.0%

Frequencies of pira_smoldering_endpoint			
pira_smoldering_endpoint	Counts	% of Total	Cumulative %
0	2062.0	99.3%	99.3%
1	15.0	0.7%	100.0%

Frequencies of atrophy_endpoint			
atrophy_endpoint	Counts	% of Total	Cumulative %
0	1873	90.2%	90.2%
1	204	9.8%	100.0%

Frequencies of advanced_mri_endpoint			
advanced_mri_endpoint	Counts	% of Total	Cumulative %
0	1988.0	95.7%	95.7%
1	89.0	4.3%	100.0%

Frequencies of fluid_biomarker_endpoint			
fluid_biomarker_endpoint	Counts	% of Total	Cumulative %
0	1929	92.9%	92.9%
1	148	7.1%	100.0%

Frequencies of cognition_endpoint			
cognition_endpoint	Counts	% of Total	Cumulative %
0	1456	70.1%	70.1%
1	621	29.9%	100.0%

Frequencies of patient_reported_endpoint			
patient_reported_endpoint	Counts	% of Total	Cumulative %
0	836	40.3%	40.3%
1	1241	59.7%	100.0%

Frequencies of digital_endpoint			
digital_endpoint	Counts	% of Total	Cumulative %
0	1942	93.5%	93.5%
1	135	6.5%	100.0%

Frequencies of broad_modern_endpoint			
broad_modern_endpoint	Counts	% of Total	Cumulative %
0	572	27.5%	27.5%
1	1505	72.5%	100.0%

Frequencies of strict_progression_sensitive			
strict_progression_sensitive	Counts	% of Total	Cumulative %
0	1736	83.6%	83.6%
1	341	16.4%	100.0%

Contingency Tables

Contingency Tables				
		broad_modern_endpoint		
era		0	1	Total
2010-2014	Observed	166	301	467
	% within row	35.5%	64.5%	100.0%
2015-2019	Observed	178	464	642
	% within row	27.7%	72.3%	100.0%
2020-2026	Observed	228	740	968
	% within row	23.6%	76.4%	100.0%
Total	Observed	572	1505	2077
	% within row	27.5%	72.5%	100.0%

χ^2 Tests			
	Value	df	p
χ^2	22.7	2	<.001
N	2077		

Contingency Tables

Contingency Tables

era		strict_progression_sensitive		Total
		0	1	
2010-2014	Observed	388	79	467
	% within row	83.1%	16.9%	100.0%
2015-2019	Observed	545	97	642
	% within row	84.9%	15.1%	100.0%
2020-2026	Observed	803	165	968
	% within row	83.0%	17.0%	100.0%
Total	Observed	1736	341	2077
	% within row	83.6%	16.4%	100.0%

χ² Tests

	Value	df	p
χ²	1.16	2	.559
N	2077		

Contingency Tables

Contingency Tables

era		fluid_biomarker_endpoint		Total
		0	1	
2010-2014	Observed	454	13	467
	% within row	97.2%	2.8%	100.0%
2015-2019	Observed	604	38	642
	% within row	94.1%	5.9%	100.0%
2020-2026	Observed	871	97	968
	% within row	90.0%	10.0%	100.0%
Total	Observed	1929	148	2077
	% within row	92.9%	7.1%	100.0%

χ² Tests

	Value	df	p
χ²	27.0	2	<.001
N	2077		

Contingency Tables

Contingency Tables

era		digital_endpoint		Total
		0	1	
2010-2014	Observed	459	8	467
	% within row	98.3%	1.7%	100.0%
2015-2019	Observed	597	45	642
	% within row	93.0%	7.0%	100.0%
2020-2026	Observed	886	82	968
	% within row	91.5%	8.5%	100.0%
Total	Observed	1942	135	2077
	% within row	93.5%	6.5%	100.0%

χ² Tests

	Value	df	p
χ²	24.1	2	<.001
N	2077		

Contingency Tables

Contingency Tables				
era		cognition_endpoint		Total
		0	1	
2010-2014	Observed	359	108	467
	% within row	76.9%	23.1%	100.0%
2015-2019	Observed	467	175	642
	% within row	72.7%	27.3%	100.0%
2020-2026	Observed	630	338	968
	% within row	65.1%	34.9%	100.0%
Total	Observed	1456	621	2077
	% within row	70.1%	29.9%	100.0%

χ^2 Tests			
	Value	df	p
χ^2	24.0	2	<.001
N	2077		

Contingency Tables

Contingency Tables				
era		patient_reported_endpoint		Total
		0	1	
2010-2014	Observed	232	235	467
	% within row	49.7%	50.3%	100.0%
2015-2019	Observed	262	380	642
	% within row	40.8%	59.2%	100.0%
2020-2026	Observed	342	626	968
	% within row	35.3%	64.7%	100.0%
Total	Observed	836	1241	2077
	% within row	40.3%	59.7%	100.0%

χ^2 Tests			
	Value	df	p
χ^2	27.1	2	<.001
N	2077		

Contingency Tables

Contingency Tables				
era		pira_smoldering_endpoint		Total
		0	1	
2010-2014	Observed	467	0	467
	% within row	100.0%	0.0%	100.0%
2015-2019	Observed	640	2	642
	% within row	99.7%	0.3%	100.0%
2020-2026	Observed	955	13	968
	% within row	98.7%	1.3%	100.0%
Total	Observed	2062	15	2077
	% within row	99.3%	0.7%	100.0%

χ^2 Tests			
	Value	df	p
χ^2	10.1	2	.006
Fisher's exact test			.005
N	2077		

Binomial Logistic Regression

Model Fit Measures			
Model	Deviance	AIC	R ² _{McF}
1	2412	2416	0.0135

Note. Models estimated using sample size of N=2077

Model Coefficients - broad_modern_endpoint							
Predictor	Estimate	95% Confidence Interval		SE	Z	p	Odds ratio
		Lower	Upper				
Intercept	0.450	0.253	0.647	0.1007	4.47	<.001	1.57
year_per_5	0.307	0.201	0.412	0.0538	5.71	<.001	1.36

Note. Estimates represent the log odds of "broad_modern_endpoint = 1" vs. "broad_modern_endpoint = 0"

Binomial Logistic Regression

Model Fit Measures			
Model	Deviance	AIC	R ² _{McF}
1	1855	1859	4.90e-6

Note. Models estimated using sample size of N=2077

Model Coefficients - strict_progression_sensitive							
Predictor	Estimate	95% Confidence Interval		SE	Z	p	Odds ratio
		Lower	Upper				
Intercept	-1.63819	-1.888	-1.389	0.1273	-12.8718	<.001	0.194
year_per_5	0.00615	-0.120	0.132	0.0644	0.0954	.924	1.006

Note. Estimates represent the log odds of "strict_progression_sensitive = 1" vs. "strict_progression_sensitive = 0"

Binomial Logistic Regression

Model Fit Measures			
Model	Deviance	AIC	R ² _{McF}
1	1045	1049	0.0206

Note. Models estimated using sample size of N=2077

Model Coefficients - fluid_biomarker_endpoint							
Predictor	Estimate	95% Confidence Interval		SE	Z	p	Odds ratio
		Lower	Upper				
Intercept	-3.436	-3.875	-2.997	0.224	-15.34	<.001	0.0322
year_per_5	0.456	0.259	0.653	0.101	4.53	<.001	1.5779

Note. Estimates represent the log odds of "fluid_biomarker_endpoint = 1" vs. "fluid_biomarker_endpoint = 0"

Binomial Logistic Regression

Model Fit Measures			
Model	Deviance	AIC	R ² _{MCF}
1	977	981	0.0218

Note. Models estimated using sample size of N=2077

Model Coefficients - digital_endpoint							
Predictor	Estimate	95% Confidence Interval		SE	Z	p	Odds ratio
		Lower	Upper				
Intercept	-3.576	-4.040	-3.112	0.237	-15.12	<.001	0.0280
year_per_5	0.476	0.269	0.683	0.106	4.50	<.001	1.6090

Note. Estimates represent the log odds of "digital_endpoint = 1" vs. "digital_endpoint = 0"

Binomial Logistic Regression

Model Fit Measures			
Model	Deviance	AIC	R ² _{MCF}
1	2504	2508	0.0119

Note. Models estimated using sample size of N=2077

Model Coefficients - cognition_endpoint							
Predictor	Estimate	95% Confidence Interval		SE	Z	p	Odds ratio
		Lower	Upper				
Intercept	-1.375	-1.590	-1.159	0.1101	-12.49	<.001	0.253
year_per_5	0.291	0.186	0.396	0.0536	5.43	<.001	1.338

Note. Estimates represent the log odds of "cognition_endpoint = 1" vs. "cognition_endpoint = 0"

Binomial Logistic Regression

Model Fit Measures			
Model	Deviance	AIC	R ² _{MCF}
1	2761	2765	0.0140

Note. Models estimated using sample size of N=2077

Model Coefficients - patient_reported_endpoint							
Predictor	Estimate	95% Confidence Interval		SE	Z	p	Odds ratio
		Lower	Upper				
Intercept	-0.131	-0.318	0.0552	0.0951	-1.38	.168	0.877
year_per_5	0.306	0.209	0.4025	0.0493	6.20	<.001	1.358

Note. Estimates represent the log odds of "patient_reported_endpoint = 1" vs. "patient_reported_endpoint = 0"

Binomial Logistic Regression

Model Fit Measures			
Model	Deviance	AIC	R ² _{Mcf}
1	1326	1330	0.00637

Note. Models estimated using sample size of N=2077

Model Coefficients - atrophy_endpoint							
Predictor	Estimate	95% Confidence Interval		SE	Z	p	Odds ratio
		Lower	Upper				
Intercept	-1.830	-2.117	-1.5434	0.1464	-12.50	<.001	0.160
year_per_5	-0.232	-0.389	-0.0761	0.0797	-2.91	.004	0.793

Note. Estimates represent the log odds of "atrophy_endpoint = 1" vs. "atrophy_endpoint = 0"

Binomial Logistic Regression

Model Fit Measures			
Model	Deviance	AIC	R ² _{Mcf}
1	733	737	0.00196

Note. Models estimated using sample size of N=2077

Model Coefficients - advanced_mri_endpoint							
Predictor	Estimate	95% Confidence Interval		SE	Z	p	Odds ratio
		Lower	Upper				
Intercept	-3.363	-3.8477	-2.879	0.247	-13.60	<.001	0.0346
year_per_5	0.143	-0.0921	0.378	0.120	1.19	.234	1.1535

Note. Estimates represent the log odds of "advanced_mri_endpoint = 1" vs. "advanced_mri_endpoint = 0"

Binomial Logistic Regression

Model Fit Measures			
Model	Deviance	AIC	R ² _{Mcf}
1	1865	1869	0.0202

Note. Models estimated using sample size of N=2077

Model Coefficients - relapse_endpoint							
Predictor	Estimate	95% Confidence Interval		SE	Z	p	Odds ratio
		Lower	Upper				
Intercept	-0.934	-1.157	-0.711	0.1140	-8.20	<.001	0.393
year_per_5	-0.392	-0.517	-0.267	0.0639	-6.14	<.001	0.676

Note. Estimates represent the log odds of "relapse_endpoint = 1" vs. "relapse_endpoint = 0"

Binomial Logistic Regression

Model Fit Measures			
Model	Deviance	AIC	R ² _{Mcf}
1	1910	1914	0.0154

Note. Models estimated using sample size of N=2077

Model Coefficients - conventional_mri_endpoint

Predictor	Estimate	95% Confidence Interval		SE	Z	p	Odds ratio
		Lower	Upper				
Intercept	-0.973	-1.196	-0.750	0.1137	-8.55	<.001	0.378
year_per_5	-0.341	-0.464	-0.218	0.0627	-5.43	<.001	0.711

Note. Estimates represent the log odds of "conventional_mri_endpoint = 1" vs. "conventional_mri_endpoint = 0"

Binomial Logistic Regression

Model Fit Measures

Model	Deviance	AIC	R ² _{Mcf}
1	2701	2705	1.70e-4

Note. Models estimated using sample size of N=2077

Model Coefficients - disability_endpoint

Predictor	Estimate	95% Confidence Interval		SE	Z	p	Odds ratio
		Lower	Upper				
Intercept	-0.5390	-0.731	-0.3471	0.0979	-5.504	<.001	0.583
year_per_5	-0.0338	-0.131	0.0639	0.0498	-0.678	.498	0.967

Note. Estimates represent the log odds of "disability_endpoint = 1" vs. "disability_endpoint = 0"

References

[1] The jamovi project (2025). *jamovi*. (Version 2.7) [Computer Software]. Retrieved from <https://www.jamovi.org>.

[2] R Core Team (2025). *R: A Language and environment for statistical computing*. (Version 4.5) [Computer software]. Retrieved from <https://cran.r-project.org>. (R packages retrieved from CRAN snapshot 2025-05-25).