

Supplementary Table 8.1: Mean differences for the covariates included in the analysis of the influence of colchicine prescription in COVID-19 related hospital admissions before and after using propensity score-based methods

Covariates	Unadj	GLM			GBM			CBPS			NPCBPS			MLPS		
		Adj	Trim	Stab	Adj	Trim	Stab	Adj	Trim	Stab	Adj	Trim	Stab	Adj	Trim	Stab
Women	-0.226	0.009	-0.075	0.009	0.004	-0.101	0.004	-0.002	-0.073	-0.002	0.020	-0.072	0.020	-0.084	-0.112	-0.084
Age	0.331	0.199	0.228	0.199	0.042	0.281	0.042	0.176	0.238	0.176	0.097	0.166	0.097	0.156	0.293	0.156
Other inflammatory diseases	-0.102	0.131	0.094	0.131	0.158	0.009	0.158	0.129	0.083	0.129	0.022	0.079	0.022	0.032	-0.032	0.032
Rheumatoid Arthritis	-0.068	0.023	0.013	0.023	-0.018	-0.023	-0.018	0.033	0.012	0.033	-0.008	0.032	-0.008	-0.046	-0.039	-0.046
Osteoarthritis of Knee	0.067	0.047	0.075	0.047	0.023	0.061	0.023	0.048	0.074	0.048	0.001	0.048	0.001	0.049	0.061	0.049
Osteoarthritis of Hand	0.157	0.008	0.064	0.008	0.008	0.170	0.008	0.026	0.086	0.026	-0.012	0.041	-0.012	0.150	0.195	0.150
Monoarthritis	0.049	0.008	0.025	0.008	0.003	0.032	0.003	0.007	0.021	0.007	-0.003	0.010	-0.003	0.028	0.037	0.028
Behçet's Disease	0.055	0.001	0.005	0.001	0.003	0.018	0.003	0.002	0.007	0.002	-0.001	0.004	-0.001	0.024	0.031	0.024
Gout	0.458	0.004	0.045	0.004	0.022	0.182	0.022	0.018	0.062	0.018	-0.010	0.029	-0.010	0.191	0.250	0.191
Analgesic	-0.071	0.010	-0.031	0.010	-0.074	-0.059	-0.074	-0.021	-0.040	-0.021	0.052	-0.046	0.052	-0.081	-0.063	-0.081
NSAIDs	-0.061	-0.080	-0.080	-0.080	-0.085	-0.079	-0.085	-0.078	-0.080	-0.078	-0.005	-0.083	-0.005	-0.085	-0.073	-0.085
DMARDs	-0.033	0.039	0.023	0.039	0.024	-0.008	0.024	0.054	0.021	0.054	-0.011	0.029	-0.011	-0.011	-0.019	-0.011
Corticosteroid oral	0.096	0.057	0.077	0.057	0.024	0.061	0.024	0.054	0.074	0.054	-0.002	0.058	-0.002	0.045	0.067	0.045
Hypertension	0.083	0.038	0.042	0.038	0.000	0.039	0.000	0.041	0.046	0.041	-0.003	0.029	-0.003	-0.002	0.041	-0.002
Dyslipidemia	0.025	0.012	0.012	0.012	-0.009	0.007	-0.009	0.004	0.012	0.004	0.057	-0.017	0.057	-0.014	0.011	-0.014
Thyroid disease	-0.009	-0.004	0.007	-0.004	-0.013	-0.002	-0.013	-0.003	0.008	-0.003	-0.011	0.002	-0.011	-0.011	-0.003	-0.011
Diabetes Mellitus	0.007	0.013	-0.002	0.013	-0.021	0.005	-0.021	0.003	-0.005	0.003	-0.012	-0.005	-0.012	-0.015	-0.001	-0.015
Cancer	0.015	-0.013	-0.004	-0.013	-0.004	0.011	-0.004	-0.012	-0.002	-0.012	-0.028	-0.009	-0.028	-0.002	0.008	-0.002
Vascular disease	0.032	0.017	0.021	0.017	0.035	0.028	0.035	0.020	0.024	0.020	-0.015	0.003	-0.015	0.010	0.021	0.010
Lung disease	0.018	0.027	0.042	0.027	-0.004	0.025	-0.004	0.026	0.040	0.026	-0.002	0.040	-0.002	0.006	0.020	0.006
Cardiovascular disease	0.057	0.021	0.047	0.021	0.016	0.052	0.016	0.030	0.050	0.030	-0.004	0.048	-0.004	0.022	0.040	0.022
Days from visit until the start of the study	-0.132	-0.013	-0.178	-0.013	-0.030	-0.032	-0.030	-0.044	-0.162	-0.044	0.065	-0.185	0.065	-0.080	-0.048	-0.080
Number of unbalanced covariates	14	4	8	4	3	9	3	5	10	5	4	6	4	7	8	7
Coefficient of variation	-	4.151	2.284	0.417	3.903	0.775	0.296	3.499	1.982	0.324	0.834	0.225	0.256	0.792	0.484	0.202

Adj: Adjusted; CBPS: Covariate balancing method; DMARDs: Disease modifying antirheumatic drugs; GBM: Generalized boosted models; GLM: Generalized linear models; MLPS: machine learning-based PS methods; NPCBPS: Non-parametric covariate balancing method; NSAIDs: Non-steroidal antiinflammatory drugs; Stab: Stabilized; Trim: Trimmed; Unadj: Unadjusted

Supplementary Table 8.2: Mean differences for the covariates included in the analysis of the influence of colchicine prescription in COVID-19 related hospital admissions before and after using non-propensity score-based methods

Covariates	Unadj	EBAL			EBCW			OBW		
		Adj	Trim	Stab	Adj	Trim	Stab	Adj	Trim	Stab
Women	-0.226	-3.25E-05	-0.097	-3.25E-05	4.28E-10	-0.097	4.28E-10	-1.03E-07	-0.056	-1.03E-07
Age	0.331	7.89E-06	0.149	7.89E-06	1.42E-09	0.149	1.42E-09	1.52E-07	0.031	1.52E-07
Other inflammatory diseases	-0.102	-1.66E-05	0.043	-1.66E-05	-5.78E-10	0.043	-5.78E-10	-5.69E-08	0.063	-5.69E-08
Rheumatoid Arthritis	-0.068	-1.06E-05	2.13E-04	-1.06E-05	-3.48E-10	2.43E-04	-3.48E-10	-3.35E-08	0.031	-3.35E-08
Osteoarthritis of Knee	0.067	-1.02E-07	0.042	-1.02E-07	-1.89E-10	0.042	-1.89E-10	4.02E-08	0.023	4.02E-08
Osteoarthritis of Hand	0.157	-1.31E-06	0.080	-1.31E-06	-1.58E-10	0.080	-1.58E-10	3.80E-08	0.017	3.80E-08
Monoarthritis	0.049	6.56E-06	0.012	6.56E-06	3.42E-12	0.012	3.42E-12	4.24E-08	0.006	4.24E-08
Behçet's Disease	0.055	6.04E-06	0.012	6.04E-06	-1.43E-11	0.012	-1.43E-11	2.22E-08	0.004	2.22E-08
Gout	0.458	5.89E-05	0.113	5.89E-05	-5.34E-11	0.113	-5.34E-11	2.32E-07	0.034	2.32E-07
Analgesic	-0.071	-2.69E-07	-0.041	-2.69E-07	1.85E-09	-0.041	1.85E-09	-2.51E-08	-0.023	-2.51E-08
NSAIDs	-0.061	1.35E-05	-0.001	1.35E-05	-4.37E-10	-0.001	-4.37E-10	-3.68E-08	0.031	-3.68E-08
DMARDs	-0.033	-5.79E-06	0.016	-5.79E-06	-2.69E-10	0.016	-2.69E-10	-1.88E-08	0.025	-1.88E-08
Corticosteroid oral	0.096	-1.49E-06	0.037	-1.49E-06	-2.10E-11	0.037	-2.10E-11	6.50E-08	0.011	6.50E-08
Hypertension	0.083	8.20E-06	0.023	8.20E-06	-2.51E-11	0.023	-2.51E-11	5.51E-08	0.008	5.51E-08
Dyslipidemia	0.025	1.49E-06	0.002	1.49E-06	-5.79E-10	0.002	-5.79E-10	1.59E-08	0.001	1.59E-08
Thyroid disease	-0.009	-5.77E-06	0.001	-5.77E-06	-2.94E-10	0.001	-2.94E-10	-9.36E-09	-0.011	-9.36E-09
Diabetes Mellitus	0.007	7.33E-06	0.009	7.33E-06	-2.02E-10	0.009	-2.02E-10	-4.79E-09	0.010	-4.79E-09
Cancer	0.015	1.13E-06	-0.002	1.13E-06	-2.11E-10	-0.002	-2.11E-10	3.25E-09	-0.017	3.25E-09
Vascular disease	0.032	1.08E-07	1.27E-04	1.08E-07	2.95E-09	1.26E-04	2.95E-09	1.47E-08	-0.007	1.47E-08
Lung disease	0.018	-3.22E-06	0.025	-3.22E-06	-8.29E-12	0.025	-8.29E-12	7.04E-09	0.009	7.04E-09
Cardiovascular disease	0.057	-1.85E-06	0.040	-1.85E-06	1.63E-10	0.040	1.63E-10	2.63E-08	0.022	2.63E-08
Days from visit until the start of the study	-0.132	-1.09E-05	-0.209	-1.09E-05	2.24E-09	-0.209	2.24E-09	-2.41E-08	-0.167	-2.41E-08
Number of unbalanced covariates	14	0	5	0	0	5	0	0	3	0
Coefficient of variation	-	5.706	1.475	0.476	5.706	1.475	0.476	0.442	0.255	0.255

Adj: Adjusted; DMARDs: Disease modifying antirheumatic drugs; EBAL: Entropy balancing; EBCW: Empirical balancing calibration weighting; NSAIDs: Non-steroidal anti-inflammatory drugs; OBW: Optimization-based weighting; Stab: Stabilized; Trim: Trimmed; Unadj: Unadjusted

Supplementary Table 8.3: Cox models showing the association of colchicine prescription and unbalanced covariates in the hazard of COVID-19 related hospital admission after balancing covariates using several PS and non-PS based methods

Method	Adj				Trim				Stab			
	HR	95% CI	pvalue	pvalue*	HR	95% CI	pvalue	pvalue*	HR	95% CI	pvalue	pvalue*
GLM												
Colchicine Prescription	3.324	1.101-10.035	0.033	0.869	2.587	0.946-7.081	0.064	0.868	2.67	0.944-7.55	0.064	0.84
Knee Osteoarthritis	-	-	-	-	0.975	0.25-3.797	0.971	0.029	-	-	-	-
Hand Osteoarthritis	-	-	-	-	0.096	0.022-0.411	0.002	0.949	-	-	-	-
Oral Corticosteroids	0.278	0.095-0.818	0.02	0.206	0.584	0.268-1.274	0.176	0.332	1.039	0.618-1.745	0.885	0.523
Age	1.017	0.968-1.068	0.504	0.203	1.025	0.995-1.057	0.104	0.211	1.031	1.017-1.046	0	0.19
Other inflammatory diseases	0.23	0.078-0.684	0.008	0.068	0.581	0.263-1.283	0.179	0.205	1.535	1.001-2.354	0.05	0.334
AINEs	0.274	0.091-0.825	0.021	0.131	0.488	0.204-1.167	0.107	0.197	0.869	0.452-1.67	0.673	0.276
Women	-	-	-	-	0.58	0.238-1.416	0.232	0.517	-	-	-	-
Days from visit until the start of the study	-	-	-	-	1.011	0.999-1.023	0.067	0.217	-	-	-	-
GLOBAL MODEL	NA	NA	NA	0.139	NA	NA	NA	0.315	NA	NA	NA	0.562
GBM												
Colchicine Prescription	2.77	0.755-10.159	0.124	0.854	2.152	0.887-5.222	0.09	0.834	2.368	0.642-8.728	0.195	0.82
Knee Osteoarthritis	-	-	-	-	1.178	0.505-2.746	0.705	0.031	-	-	-	-
Hand Osteoarthritis	-	-	-	-	0.167	0.046-0.609	0.007	0.958	-	-	-	-
Cardiovascular disease	-	-	-	-	1.567	0.736-3.336	0.244	0.892	-	-	-	-
Oral Corticosteroids	-	-	-	-	0.922	0.526-1.618	0.778	0.486	-	-	-	-
Age	-	-	-	-	1.032	1.014-1.05	0	0.197	-	-	-	-
Other inflammatory diseases	0.277	0.084-0.912	0.035	0.122	-	-	-	-	1.512	0.983-2.325	0.06	0.338
Gout	-	-	-	-	0.789	0.33-1.891	0.596	0.139	-	-	-	-
AINEs	0.348	0.14-0.867	0.023	0.158	0.816	0.416-1.601	0.555	0.25	0.614	0.325-1.159	0.133	0.277
Analgesic	0.428	0.168-1.089	0.075	0.041	0.683	0.407-1.144	0.148	0.099	0.994	0.612-1.615	0.981	0.116
Women	-	-	-	-	0.65	0.383-1.101	0.109	0.506	-	-	-	-
GLOBAL MODEL	NA	NA	NA	0.052	NA	NA	NA	0.222	NA	NA	NA	0.26

CBPS												
Colchicine Prescription	3.272	1.084-9.874	0.035	0.867	2.496	0.858-7.258	0.093	0.858	2.608	0.957-7.109	0.061	0.838
Knee Osteoarthritis	-	-	-	-	1	0.263-3.805	1	0.03	-	-	-	-
Hand Osteoarthritis	-	-	-	-	0.099	0.022-0.44	0.002	0.95	-	-	-	-
Cardiovascular disease	-	-	-	-	1.595	0.467-5.454	0.457	0.877	-	-	-	-
Oral Corticosteroids	0.351	0.126-0.974	0.044	0.23	0.683	0.326-1.434	0.314	0.364	1.105	0.654-1.868	0.709	0.528
Age	1.017	0.972-1.065	0.467	0.204	1.025	0.997-1.053	0.083	0.213	1.031	1.018-1.045	0	0.189
Other inflammatory diseases	0.32	0.117-0.871	0.026	0.097	0.638	0.286-1.42	0.271	0.227	1.658	1.11-2.477	0.014	0.338
Gout	-	-	-	-	0.667	0.235-1.892	0.447	0.128	-	-	-	-
AINEs	0.322	0.116-0.888	0.029	0.159	0.551	0.239-1.268	0.161	0.215	0.888	0.465-1.698	0.721	0.277
Analgesic	-	-	-	-	-	-	-	-	-	-	-	-
DMARDs	0.287	0.098-0.842	0.023	0.013	-	-	-	-	0.698	0.385-1.264	0.236	0.179
Women	-	-	-	-	0.593	0.271-1.3	0.192	0.516	-	-	-	-
Days from visit until the start of the study	-	-	-	-	1.01	0.999-1.021	0.066	0.225	-	-	-	-
GLOBAL MODEL	NA	NA	NA	0.02	NA	NA	NA	0.329	NA	NA	NA	0.338
NPCBPS												
Colchicine Prescription	1.975	0.679-5.747	0.212	0.826	2.706	1.06-6.908	0.037	0.848	1.968	0.672-5.764	0.217	0.825
Oral Corticosteroids	-	-	-	-	1.113	0.657-1.884	0.691	0.537	-	-	-	-
Dyslipidemia	0.747	0.44-1.27	0.282	0.942	-	-	-	-	0.685	0.434-1.082	0.105	0.942
Age	1.035	1.021-1.05	0	0.189	1.034	1.021-1.046	0	0.188	1.037	1.024-1.05	0	0.186
Other inflammatory diseases	-	-	-	-	1.684	1.135-2.499	0.01	0.343	-	-	-	-
AINEs	-	-	-	-	0.918	0.484-1.743	0.794	0.277	-	-	-	-
Analgesic	0.677	0.408-1.122	0.13	0.1	-	-	-	-	0.789	0.498-1.251	0.314	0.118
DMARDs	-	-	-	-	-	-	-	-	-	-	-	-
Women	-	-	-	-	0.684	0.466-1.003	0.052	0.503	-	-	-	-
Days from visit until the start of the study	1.002	0.997-1.006	0.502	0.227	1.002	0.998-1.006	0.389	0.228	1	0.996-1.004	0.979	0.224
GLOBAL MODEL	NA	NA	NA	0.345	NA	NA	NA	0.599	NA	NA	NA	0.369
MLPS												

Colchicine Prescription	1.964	0.808-4.776	0.137	0.828	1.982	0.842-4.666	0.117	0.827	1.945	0.882-4.286	0.099	0.818
Knee Osteoarthritis	-	-	-	-	1.009	0.517-1.969	0.979	0.023	-	-	-	-
Hand Osteoarthritis	0.179	0.049-0.647	0.009	0.959	0.185	0.051-0.663	0.01	0.959	0.412	0.131-1.294	0.129	0.968
Oral Corticosteroids	-	-	-	-	1.026	0.607-1.735	0.924	0.503	-	-	-	-
Age	1.034	1.018-1.05	0	0.195	1.035	1.02-1.05	0	0.191	1.035	1.022-1.049	0	0.19
Gout	0.954	0.4-2.279	0.916	0.155	0.946	0.409-2.186	0.897	0.155	0.786	0.273-2.264	0.655	0.121
AINEs	0.83	0.43-1.605	0.581	0.257	0.838	0.436-1.61	0.595	0.258	0.93	0.481-1.798	0.83	0.287
Analgesic	0.755	0.464-1.227	0.256	0.108	0.751	0.458-1.231	0.256	0.11	0.813	0.503-1.314	0.398	0.121
Women	0.674	0.421-1.079	0.1	0.505	0.697	0.45-1.081	0.107	0.502	0.676	0.467-0.978	0.038	0.501
Days from visit until the start of the study	1.003	0.997-1.01	0.256	0.231	-	-	-	-	1	0.996-1.004	0.966	0.224
GLOBAL MODEL	NA	NA	NA	0.307	NA	NA	NA	0.172	NA	NA	NA	0.3
EBAL												
Colchicine Prescription	3.11	0.956-10.117	0.059	0.844	2.558	0.974-6.722	0.057	0.842	3.102	0.959-10.035	0.059	0.843
Hand Osteoarthritis	-	-	-	-	0.154	0.04-0.585	0.006	0.958	-	-	-	-
Gout	-	-	-	-	0.628	0.233-1.692	0.358	0.116	-	-	-	-
Women	-	-	-	-	0.554	0.265-1.161	0.118	0.514	-	-	-	-
Age	-	-	-	-	1.033	1.009-1.058	0.007	0.201	-	-	-	-
Days from visit until the start of the study	-	-	-	-	1.009	1-1.019	0.054	0.229	-	-	-	-
GLOBAL MODEL	NA	NA	NA	0.844	NA	NA	NA	0.403	NA	NA	NA	0.843
EBCW												
Colchicine Prescription	3.11	0.956-10.118	0.059	0.844	2.558	0.974-6.722	0.057	0.842	3.102	0.959-10.035	0.059	0.843
Hand Osteoarthritis	-	-	-	-	0.154	0.04-0.586	0.006	0.958	-	-	-	-
Gout	-	-	-	-	0.628	0.233-1.692	0.357	0.116	-	-	-	-
Women	-	-	-	-	0.554	0.265-1.161	0.118	0.514	-	-	-	-
Age	-	-	-	-	1.033	1.009-1.058	0.007	0.201	-	-	-	-
Days from visit until the start of the study	-	-	-	-	1.009	1-1.019	0.054	0.229	-	-	-	-
GLOBAL MODEL	NA	NA	NA	0.844	NA	NA	NA	0.403	NA	NA	NA	0.843

OBW												
Colchicine Prescription	3.296	1.06-10.247	0.039	0.848	2.677	0.961-7.463	0.06	0.832	3.294	1.061-10.222	0.039	0.848
Women	-	-	-	-	0.718	0.49-1.052	0.089	0.499	-	-	-	-
Days from visit until the start of the study	-	-	-	-	1.002	0.998-1.007	0.244	0.23	-	-	-	-
Other inflammatory diseases	-	-	-	-	1.679	1.152-2.448	0.007	0.342	-	-	-	-
GLOBAL MODEL	NA	NA	NA	0.848	NA	NA	NA	0.614	NA	NA	NA	0.848

Adj: Adjusted; DMARDs: Disease modifying antirheumatic drugs; EBAL: Entropy balancing; EBCW: Empirical balancing calibration weighting; CBPS: Covariate balancing method; GBM: Generalized boosted models; CI: Confidence interval; GLM: Generalized linear models; HR: Hazzard ration; MLPS: machine learning-based PS methods; NPCBPS: Non-parametric covariate balancing method; NSAIDs: Non-steroidal antiinflammatory drugs; OBW: Optimization-based weighting; Stab: Stabilized; Trim: Trimmed; Unadj: Unadjusted. \* Schoenfeld test p value

Supplementary Table 8.4: Mean differences for the covariates included in the analysis of the influence of colchicine prescription in COVID-19 related mortality before and after using propensity score-based methods (in orange, unbalanced covariates)

Covariates	GLM				GBM			NPCBPS			MLPS		
	Unadj	Adj	Trim	Stab	Adj	Trim	Stab	Adj	Trim	Stab	Adj	Trim	Stab
Women	-0.242	-0.242	-0.242	-0.242	-0.298	-0.227	-0.298	-0.239	-0.261	-0.239	-0.243	-0.243	-0.243
Age	0.388	0.388	0.388	0.388	-4.49E-04	0.184	-4.49E-04	0.173	0.158	0.173	0.385	0.388	0.385
Rheumatoid Arthritis	-0.100	-0.100	-0.100	-0.100	0.135	-0.007	0.135	-0.158	-0.164	-0.158	-0.097	-0.099	-0.097
Knee Osteoarthritis	0.058	0.058	0.058	0.058	0.075	0.112	0.075	0.003	-0.001	0.003	0.058	0.059	0.058
Osteoarthritis	0.167	0.167	0.167	0.167	0.184	0.240	0.184	0.059	0.055	0.059	0.166	0.166	0.166
Tendinitis (Lower Extremities)	0.042	0.042	0.042	0.042	-0.004	0.004	-0.004	0.057	0.056	0.057	0.041	0.041	0.041
Osteoporosis	0.042	0.042	0.042	0.042	-0.003	0.005	-0.003	0.062	0.061	0.062	0.041	0.041	0.041
Monoarthritis	0.250	0.250	0.250	0.250	0.111	0.134	0.111	0.231	0.231	0.231	0.248	0.249	0.248
Gout	0.633	0.633	0.633	0.633	0.255	0.319	0.255	0.771	0.802	0.771	0.631	0.632	0.631
DMARDs	-0.025	-0.025	-0.025	-0.025	-0.069	-0.062	-0.069	0.035	0.032	0.035	-0.025	-0.025	-0.025
SYSADOA	0.083	0.083	0.083	0.083	0.142	0.171	0.142	0.072	0.072	0.072	0.083	0.083	0.083
Hypertension	0.242	0.242	0.242	0.242	0.347	0.285	0.347	0.202	0.223	0.202	0.243	0.242	0.243
Dyslipidemia	0.133	0.133	0.133	0.133	0.064	0.118	0.064	0.331	0.323	0.331	0.131	0.132	0.131
Lung disease	0.017	0.017	0.017	0.017	-0.024	0.002	-0.024	-0.055	-0.060	-0.055	0.016	0.016	0.016
Diabetes Mellitus	-0.075	-0.075	-0.075	-0.075	-0.020	0.010	-0.020	-0.150	-0.156	-0.150	-0.074	-0.074	-0.074
Vascular disease	0.025	0.025	0.025	0.025	-0.020	-0.013	-0.020	0.019	0.018	0.019	0.024	0.025	0.024
Cancer	-0.117	-0.117	-0.117	-0.117	-0.130	-0.130	-0.130	-0.095	-0.099	-0.095	-0.117	-0.117	-0.117
Thyroid disease	0.017	0.017	0.017	0.017	-0.028	-0.020	-0.028	0.051	0.048	0.051	0.016	0.016	0.016
Cardiovascular disease	0.325	0.325	0.325	0.325	0.198	0.258	0.198	0.233	0.229	0.233	0.324	0.325	0.324
Obesity	0.025	0.025	0.025	0.025	-0.025	-0.018	-0.025	0.014	0.013	0.014	0.025	0.025	0.025
Gastroesophageal reflux disease	0.133	0.133	0.133	0.133	0.097	0.126	0.097	0.268	0.266	0.268	0.133	0.133	0.133
Days from inclusion visit until the start of the study	0.047	0.047	0.047	0.047	-0.082	0.035	-0.082	0.410	0.373	0.410	0.044	0.045	0.044
Number of unbalanced covariates	14	14	14	14	14	13	14	18	17	18	14	14	14

Adj: Adjusted; DMARDs: Disease modifying antirheumatic drugs; GBM: Generalized boosted models; GLM: Generalized linear models; MLPS: machine learning-based PS methods; NPCBPS: Non-parametric covariate balancing method; Stab: Stabilized; SYSADOA: Symptomatic Slow Acting Drug for OsteoArthritis; Trim: Trimmed; Unadj: Unadjusted