Appendix A

A.1 Analysis of unweighted centrality measures versus weighted centrality measures

As mentioned in Section 3.2.2, in addition to models that used the weighted network measures (i.e. z_i in model (9)), we also estimated model (9) on the survey responses for each of the five survey questions and using unweighted centrality measures derived from the patient-sharing network at various thresholds (1-3). The reduced definitions of binary measures used, including *degree*, *betweenness* and *eigenvector*, corresponding to the weighted measures described in Section 3.2.2 are specified in Table A2.

Among the models in Table A1, only strength was significantly associated with the responses for the fifth survey question ($est = 1.538$, $p = 0.060$) at the border line. By incorporating tie weights, weighted measures of prominence can explain more variation in relation to the outcomes compared with the binary measures.

Table A1 Comparison between fitted models with network measures derived from the unweighted networks with thresholds from 1 to 3 and original weighted network

Question 1 (Inward Influence)	Threshold 1[a]			Threshold 2[a]		
	Estimate	SE	p value	Estimate	SE	p value
Nominated	1.673	1.102	0.129	1.764	1.107	0.111
NominationSum	0.067	0.065	0.299	0.067	0.067	0.318
Degree	-0.217	0.354	0.541	-0.328	0.363	0.366
Eigenvector(unweighted)	-0.058	0.257	0.822	0.253	0.341	0.457
Betweenness(unweighted)	0.546	0.735	0.457	1.300	1.491	0.383
Fellowship	-0.115	1.222	0.925	-0.501	1.295	0.699
StartPractice35	0.724	0.893	0.417	0.761	0.884	0.389
Age	-0.019	0.042	0.647	-0.014	0.041	0.728
Sex	-0.091	0.618	0.883	-0.186	0.622	0.765
RaceWhite	-0.208	0.675	0.758	-0.255	0.685	0.710
RaceOthers	0.100	0.941	0.915	0.079	0.913	0.931

[a]For all the models, the variance of the hospital affiliation random effects was estimated to be 0.

[b]The sample size of the dataset on which all the models were estimated is 108.

Table A1 (Continued) Comparison between fitted models with network measures derived from the unweighted networks with thresholds from 1 to 3 and original weighted network

Question 1 (Inward Influence)	Threshold 3[a]			Original Weighted Network[a]		
	Estimate	SE	p value	Estimate	SE	p value
Nominated	1.721	1.104	0.119	1.558	1.117	0.163
NominationSum	0.064	0.067	0.336	0.064	0.065	0.328
Degree/Strength	-0.326	0.387	0.400	-0.007	0.368	0.986
Eigenvector(unweighted/weighted)	0.290	0.349	0.406	-0.439	0.321	0.172
Betweenness(unweighted/weighted)	2.133	2.115	0.313	0.471	0.562	0.402
Fellowship	-0.389	1.275	0.760	-0.067	1.227	0.956
StartPractice35	0.665	0.889	0.454	0.813	0.966	0.400
Age	-0.017	0.042	0.681	-0.019	0.044	0.668
Sex	-0.165	0.620	0.790	-0.013	0.640	0.984
RaceWhite	-0.280	0.684	0.683	-0.291	0.676	0.667
RaceOthers	0.061	0.911	0.947	-0.155	0.921	0.866

Question 2 (Inward Influence)	Threshold 1[a]			Threshold 2[a]		
	Estimate	SE	p value	Estimate	SE	p value
Nominated	1.489	0.657	0.024	1.495	0.657	0.023
NominationSum	0.028	0.046	0.543	0.029	0.046	0.531
Degree	-0.272	0.269	0.312	0.017	0.270	0.950
Eigenvector(unweighted)	0.250	0.230	0.278	-0.234	0.223	0.295
Betweenness(unweighted)	0.427	0.496	0.389	0.132	0.494	0.789
Fellowship	-0.346	0.843	0.681	-0.340	0.881	0.699
StartPractice35	0.088	0.615	0.886	-0.045	0.604	0.941
Age	-0.051	0.031	0.104	-0.055	0.031	0.082
Sex	0.780	0.465	0.093	0.800	0.466	0.086
RaceWhite	-0.416	0.509	0.413	-0.300	0.510	0.556
RaceOthers	0.117	0.727	0.872	0.220	0.702	0.754

Question 2 (Inward Influence)	Threshold 3[a]			Original Weighted Network[a]		
	Estimate	SE	p value	Estimate	SE	p value
Nominated	1.452	0.654	0.026	1.491	0.680	0.028
NominationSum	0.028	0.046	0.547	0.033	0.047	0.484
Degree/Strength	0.039	0.278	0.889	-0.214	0.270	0.429
Eigenvector(unweighted/weighted)	-0.252	0.233	0.279	-0.991	0.830	0.233
Betweenness(unweighted/weighted)	-0.103	0.484	0.832	0.431	0.389	0.268
Fellowship	-0.242	0.871	0.781	-0.519	0.868	0.550
StartPractice35	-0.013	0.610	0.983	0.246	0.668	0.713
Age	-0.057	0.032	0.072	-0.057	0.032	0.075
Sex	0.830	0.466	0.075	0.846	0.474	0.074
RaceWhite	-0.263	0.513	0.608	-0.419	0.512	0.414
RaceOthers	0.191	0.700	0.785	0.092	0.711	0.897

[a]For all the models, the variance of the hospital affiliation random effects was estimated to be 0.

[b]The sample size on which all the models were estimated is 108.

Table A1 (Continued) Comparison between fitted models with network measures derived from the unweighted networks with thresholds from 1 to 3 and original weighted network

Question 3 (Mutual Influence)	Threshold 1[a]			Threshold 2[a]		
	Estimate	SE	p value	Estimate	SE	p value
Nominated	0.750	0.982	0.445	0.676	0.966	0.484
NominationSum	0.221	0.102	0.031	0.216	0.099	0.028
Degree	-0.066	0.466	0.887	-0.019	0.465	0.968
Eigenvector(unweighted)	0.846	1.078	0.433	-0.021	0.366	0.953
Betweenness(unweighted)	-0.663	0.664	0.318	0.111	0.722	0.878
Fellowship	-1.357	1.153	0.239	-1.527	1.222	0.211
StartPractice35	1.205	1.073	0.262	0.706	1.003	0.481
Age	-0.057	0.051	0.263	-0.046	0.051	0.360
Sex	0.054	0.823	0.947	-0.126	0.795	0.874
RaceWhite	-0.996	0.884	0.260	-0.963	0.853	0.259
RaceOthers	-0.214	1.269	0.866	0.041	1.268	0.974

Question 3 (Mutual Influence)	Threshold 3[a]			Original Weighted Network[a]		
	Estimate	SE	p value	Estimate	SE	p value
Nominated	0.674	0.963	0.484	0.856	1.027	0.404
NominationSum	0.215	0.098	0.029	0.209	0.105	0.046
Degree/Strength	0.020	0.481	0.967	0.123	0.469	0.793
Eigenvector(unweighted/weighted)	-0.039	0.384	0.918	-0.258	0.311	0.407
Betweenness(unweighted/weighted)	0.047	0.717	0.947	-0.559	0.471	0.236
Fellowship	-1.493	1.216	0.220	-1.626	1.170	0.164
StartPractice35	0.699	1.028	0.497	1.169	1.196	0.328
Age	-0.047	0.050	0.357	-0.061	0.051	0.230
Sex	-0.122	0.795	0.878	0.114	0.810	0.889
RaceWhite	-0.968	0.855	0.258	-1.015	0.888	0.253
RaceOthers	0.031	1.265	0.981	-0.259	1.267	0.838

Question 4 (Outward Influence)	Threshold 1[a]			Threshold 2[a]		
	Estimate	SE	p value	Estimate	SE	p value
Nominated	0.561	0.662	0.397	0.572	0.676	0.397
NominationSum	0.030	0.060	0.624	0.050	0.063	0.428
Degree	-0.106	0.307	0.730	-0.408	0.347	0.239
Eigenvector(unweighted)	0.339	0.354	0.339	0.100	0.258	0.698
Betweenness(unweighted)	-0.221	0.543	0.685	1.762	1.466	0.229
Fellowship	-0.909	0.997	0.362	-1.464	1.101	0.183
StartPractice35	1.883	1.178	0.110	1.449	1.139	0.203
Age	0.043	0.043	0.316	0.053	0.044	0.223
Sex	0.366	0.562	0.515	0.250	0.553	0.652
RaceWhite	-0.431	0.597	0.471	-0.305	0.607	0.616
RaceOthers	0.755	1.163	0.516	1.185	1.152	0.304

[a]For all the models, the variance of the hospital affiliation random effects was estimated to be 0.

[b]The sample size on which all the models were estimated is 108.

Table A1 (Continued) Comparison between fitted models with network measures derived from the unweighted networks with thresholds from 1 to 3 and original weighted network

Question 4 (Outward Influence)	Threshold 3[a]			Original Weighted Network[a]		
	Estimate	SE	p value	Estimate	SE	p value
Nominated	0.469	0.675	0.487	0.701	0.681	0.303
NominationSum	0.045	0.062	0.473	0.031	0.062	0.617
Degree/Strength	-0.451	0.356	0.204	-0.175	0.317	0.580
Eigenvector(unweighted/weighted)	0.196	0.265	0.459	0.300	0.531	0.572
Betweenness(unweighted/weighted)	1.323	1.342	0.324	-0.231	0.384	0.548
Fellowship	-1.396	1.072	0.193	-0.961	1.002	0.337
StartPractice35	1.484	1.142	0.194	1.860	1.184	0.116
Age	0.048	0.043	0.262	0.039	0.044	0.370
Sex	0.285	0.551	0.605	0.216	0.554	0.697
RaceWhite	-0.392	0.597	0.511	-0.359	0.587	0.540
RaceOthers	1.064	1.145	0.353	0.907	1.138	0.425

Question 5 (Inward Influence)[c]	Threshold 1[a]			Threshold 2[a]		
	Estimate	SE	p value	Estimate	SE	p value
Nominated	-0.569	1.025	0.579	-0.301	1.022	0.768
NominationSum	0.064	0.115	0.580	0.065	0.114	0.569
Degree	0.725	0.706	0.304	0.488	0.608	0.422
Eigenvector(unweighted)[d]	0.598	1.072	0.577			
Betweenness(unweighted)	-1.063	0.880	0.227	4.616	5.779	0.424
StartPractice35	-0.078	1.362	0.954	-0.685	1.349	0.612
Age	0.111	0.077	0.149	0.126	0.077	0.103
Sex	-0.089	1.031	0.931	-0.325	1.012	0.748
RaceWhite[e]	-1.793	1.056	0.090	-1.821	0.999	0.068

Question 5 (Inward Influence)[c]	Threshold 3[a]			Original weighted network[a]		
	Estimate	SE	p value	Estimate	SE	p value
Nominated	-0.503	1.048	0.631	-0.972	1.177	0.409
NominationSum	0.041	0.106	0.696	-0.028	0.122	0.817
Degree/Strength	0.607	0.674	0.367	1.538	0.817	0.060
Eigenvector(unweighted/weighted)[d]				-0.409	0.667	0.540
Betweenness(unweighted/weighted)	9.515	6.992	0.174	-0.977	0.639	0.126
StartPractice35	-1.289	1.407	0.360	-0.494	1.631	0.762
Age	0.133	0.079	0.094	0.144	0.087	0.097
Sex	-0.065	1.019	0.949	0.206	1.058	0.846
RaceWhite[e]	-1.899	1.022	0.063	-2.002	1.184	0.091

[a]For all the models, the variance of the hospital affiliation random effects was estimated to be 0.

[b]The sample size on which all the models were estimated is 108.

[c]Because 0 out of 12 physicians who completed a fellowship chose either Neutral/Disagree/Completely Disagree in the dataset on which the models for Question 5 was estimated, we excluded the $Fellowship$ variable from these models.

[d]Because big coefficients of *Eigenvector* centrality in models using network measures from unweighted networks with thresholds of 2 and 3 were observed, we excluded this variable and this suggests that weighted network measures produced more stable results.

[e]Because 0 out of 16 physicians in the Other Race group chose either Neutral/Disagree/Completely Disagree in the dataset on which the models for Question 5 were estimated, we combined Asian Race group with the Other Race group in these models.

Table A2 Unweighted Centrality Measures

Centrality Measures	Mathematical Notation
Degree centrality	$D_i = \sum_{j=1}^{n} A_{ij}$, where A_{ij} is the ijth element of the adjacency matrix. Here, the degree centrality is the special case of strength centrality obtained by setting all the tie weights to 1.
Betweenness centrality	$B_i = \sum_{jk} \frac{g^i_{jk}}{g_{jk}}$, where g_{jk} is the number of geodesic paths between node j and node k, and g^i_{jk} is the number of geodesic paths between node j and node k that intersect node i.
Eigenvector centrality	$E_i = \frac{1}{\lambda_1} \sum_{j=1}^{n} A_{ij} E_j$, where A_{ij} is the ijth element of the adjacency matrix, E_j is the eigenvector centrality of neighbors of node i, and λ_1 is the leading eigenvalue of the adjacency matrix and that satisfies the eigenvector equation $Ae = \lambda_1 e$.

Table A3 Comparison between fitted GLMMs and LMMs for modeling the association between *Nominated* and claims-based centrality measures without singleton hospitals

	GLMM[a] ($n = 110$)			LMM[b] ($n = 110$)		
	Estimate	SE	p value	Estimate	SE	p value
Strength	0.500	0.448	0.264	0.080	0.045	0.077
Fellowship	-1.264	1.429	0.376	-0.088	0.142	0.535
StartPractice35[c]				-0.272	0.116	0.019
Age	0.008	0.050	0.871	0.005	0.005	0.385
Sex	1.275	0.862	0.139	0.118	0.079	0.137
RaceWhite	1.546	0.856	0.071	0.126	0.092	0.169
RaceOthers[d]				-0.107	0.127	0.401

[a]The variance of the hospital affiliation random effects was estimated to be 6.142.

[b]The variance of the hospital affiliation random effects was estimated to be 0.037.

[c]Because 1 out of 19 physicians who started his/her career as a physician after 35 years old was nominated by any of the respondents in the dataset on which the Nominated model was estimated, leading to quasi-separation, we excluded the $StartPractice35$ variable from this model.

[d]Because 0 out of 13 physicians in the Other Race group were nominated by any of the respondents in the dataset on which the Nominated model was estimated, we combined Asian Race group with the Other Race group in this model.

Table A3 (Continued) Comparison between fitted GLMMs and LMMs for modeling the association between *Nominated* and claims-based centrality measures without singleton hospitals

	GLMM[a] ($n = 110$)			LMM[b] ($n = 110$)		
	Estimate	SE	p value	Estimate	SE	p value
Betweenness	0.105	0.440	0.812	0.018	0.042	0.672
Fellowship	-1.126	1.416	0.426	-0.064	0.147	0.665
StartPractice35[c]				-0.217	0.113	0.055
Age	0.002	0.050	0.969	0.003	0.005	0.584
Sex	1.231	0.854	0.149	0.108	0.080	0.180
RaceWhite	1.451	0.839	0.084	0.119	0.093	0.201
RaceOthers[d]				-0.118	0.130	0.361

[a]The variance of the hospital affiliation random effects was estimated to be 5.688.

[b]The variance of the hospital affiliation random effects was estimated to be 0.038.

[c]Because 1 out of 19 physicians who started his/her career as a physician after 35 years old was nominated by any of the respondents in the dataset on which the Nominated model was estimated, leading to quasi-separation, we excluded the *StartPractice*35 variable from this model.

[d]Because 0 out of 13 physicians in the Other Race group were nominated by any of the respondents in the dataset on which the Nominated model was estimated, we combined Asian Race group with the Other Race group in this model.

Table A3 (Continued) Comparison between fitted GLMMs and LMMs for modeling the association between *Nominated* and claims-based centrality measures without singleton hospitals

	GLMM[a] ($n = 110$)			LMM[b] ($n = 110$)		
	Estimate	SE	p value	Estimate	SE	p value
Eigenvector	-0.146	0.595	0.806	-0.018	0.045	0.685
Fellowship	-1.013	1.396	0.468	-0.041	0.143	0.775
StartPractice35[c]				-0.216	0.113	0.056
Age	0.002	0.050	0.964	0.003	0.005	0.592
Sex	1.223	0.849	0.149	0.108	0.080	0.176
RaceWhite	1.420	0.838	0.090	0.112	0.093	0.232
RaceOthers[d]				-0.129	0.129	0.319

[a]The variance of the hospital affiliation random effects was estimated to be 5.589.

[b]The variance of the hospital affiliation random effects was estimated to be 0.038.

[c]Because 1 out of 19 physicians who started his/her career as a physician after 35 years old was nominated by any of the respondents in the dataset on which the Nominated model was estimated, leading to quasi-separation, we excluded the *StartPractice*35 variable from this model.

[d]Because 0 out of 13 physicians in the Other Race group were nominated by any of the respondents in the dataset on which the Nominated model was estimated, we combined Asian Race group with the Other Race group in this model.

Table A4 Comparison between fitted LMMs and Poisson GLMMs for modeling the association between *Nomination Sum* and claims-based centrality measures

	LMM[a] ($n = 137$)			Poisson GLMM[b] ($n = 137$)		
	Estimate	SE	p value	Estimate	SE	p value
Strength	0.462	0.433	0.286	0.056	0.036	0.118
Fellowship	1.023	1.487	0.492	0.055	0.110	0.618
StartPractice35	-1.129	1.173	0.336	-0.075	0.094	0.421
Age	0.148	0.054	0.007	0.011	0.004	0.011
Sex	0.951	0.893	0.287	0.042	0.069	0.543
RaceWhite	-0.592	0.937	0.528	-0.045	0.078	0.566
RaceOthers	-0.785	1.357	0.563	-0.165	0.113	0.145

[a]The variance of the hospital affiliation random effects was estimated to be 0.871.

[b]The variance of the hospital affiliation random effects was estimated to be 0.051.

Table A4 (Continued) Comparison between fitted LMMs and Poisson GLMMs for modeling the association between *Nomination Sum* and claims-based centrality measures

	LMM[a] ($n = 137$)			Poisson GLMM[b] ($n = 137$)		
	Estimate	SE	p value	Estimate	SE	p value
Betweenness	-0.246	0.439	0.574	-0.035	0.040	0.383
Fellowship	1.287	1.526	0.399	0.090	0.111	0.417
StartPractice35	-0.769	1.147	0.503	-0.042	0.092	0.643
Age	0.138	0.054	0.012	0.010	0.004	0.018
Sex	0.891	0.896	0.320	0.042	0.069	0.542
RaceWhite	-0.716	0.945	0.449	-0.062	0.077	0.426
RaceOthers	-1.024	1.367	0.454	-0.179	0.113	0.113

[a]The variance of the hospital affiliation random effects was estimated to be 1.203.

[b]The variance of the hospital affiliation random effects was estimated to be 0.050.

Table A4 (Continued) Comparison between fitted LMMs and Poisson GLMMs for modeling the association between *Nomination Sum* and claims-based centrality measures

	LMM[a] ($n = 137$)			Poisson GLMM[b] ($n = 137$)		
	Estimate	SE	p value	Estimate	SE	p value
Eigenvector	-0.136	0.461	0.768	-0.005	0.046	0.914
Fellowship	1.162	1.499	0.438	0.071	0.109	0.513
StartPractice35	-0.814	1.146	0.477	-0.048	0.091	0.602
Age	0.140	0.054	0.010	0.010	0.004	0.016
Sex	0.944	0.896	0.292	0.044	0.069	0.518
RaceWhite	-0.699	0.946	0.460	-0.057	0.078	0.458
RaceOthers	-0.956	1.365	0.484	-0.171	0.113	0.129

[a]The variance of the hospital affiliation random effects was estimated to be 1.079.

[b]The variance of the hospital affiliation random effects was estimated to be 0.050.

Table A5 Comparison between fitted LMMs for modeling the association between *Nomination Sum* and claims-based centrality measures with and without singletons hospitals

	LMM with singletons[a] ($n = 137$)			LMM without singletons[b] ($n = 110$)		
	Estimate	SE	p value	Estimate	SE	p value
Strength	0.462	0.433	0.286	0.386	0.518	0.457
Fellowship	1.023	1.487	0.492	2.159	1.726	0.211
StartPractice35	-1.129	1.173	0.336	-1.050	1.368	0.443
Age	0.148	0.054	0.007	0.132	0.066	0.045
Sex	0.951	0.893	0.287	0.622	0.975	0.524
RaceWhite	-0.592	0.937	0.528	-0.660	1.050	0.530
RaceOthers	-0.785	1.357	0.563	-0.653	1.534	0.670

[a]The variance of the hospital affiliation random effects was estimated to be 0.871.

[b]The variance of the hospital affiliation random effects was estimated to be 0.576.

Table A5 (Continued) Comparison between fitted LMMs for modeling the association between *Nomination Sum* and claims-based centrality measures with and without singleton hospitals

	LMM with singletons[a] ($n = 137$)			LMM without singletons[b] ($n = 110$)		
	Estimate	SE	p value	Estimate	SE	p value
Betweenness	-0.246	0.439	0.574	-0.404	0.447	0.367
Fellowship	1.287	1.526	0.399	2.767	1.778	0.120
StartPractice35	-0.769	1.147	0.503	-0.681	1.310	0.603
Age	0.138	0.054	0.012	0.117	0.064	0.069
Sex	0.891	0.896	0.320	0.491	0.971	0.613
RaceWhite	-0.716	0.945	0.449	-0.769	1.057	0.467
RaceOthers	-1.024	1.367	0.454	-0.941	1.536	0.540

[a]The variance of the hospital affiliation random effects was estimated to be 1.203.

[b]The variance of the hospital affiliation random effects was estimated to be 0.848.

Table A5 (Continued) Comparison between fitted LMMs for modeling the association between *Nomination Sum* and claims-based centrality measures with and without singleton hospitals

	LMM with singletons[a] ($n = 137$)			LMM without singletons[b] ($n = 110$)		
	Estimate	SE	p value	Estimate	SE	p value
Eigenvector	-0.136	0.461	0.768	-0.167	0.457	0.715
Fellowship	1.162	1.499	0.438	2.425	1.734	0.162
StartPractice35	-0.814	1.146	0.477	-0.711	1.314	0.589
Age	0.140	0.054	0.010	0.120	0.064	0.062
Sex	0.944	0.896	0.292	0.546	0.974	0.575
RaceWhite	-0.699	0.946	0.460	-0.736	1.064	0.489
RaceOthers	-0.956	1.365	0.484	-0.837	1.539	0.586

[a]The variance of the hospital affiliation random effects was estimated to be 1.079.

[b]The variance of the hospital affiliation random effects was estimated to be 0.785.

Table A6 Association between pooled survey responses and measures of prominence

	Estimate[a]	SE	p value
Question 2 indicator (*Ques*)	-0.423	0.751	0.573
Nominated	1.688	1.080	0.118
NominationSum	0.091	0.054	0.093
Strength	-0.068	0.273	0.802
Eigenvector	-0.481	0.323	0.136
Betweenness	0.912	0.571	0.110
Fellowship	0.006	0.588	0.992
StartPractice35	0.405	0.465	0.384
Age	-0.036	0.021	0.093
Sex	0.280	0.344	0.415
RaceOthers	-0.315	0.511	0.538
RaceWhite	-0.425	0.361	0.239
Ques:Nominated	-0.294	1.230	0.811
Ques:NominationSum	-0.079	0.066	0.233
Ques:Strength	-0.038	0.334	0.909
Ques:Eigenvector	-0.489	0.832	0.556
Ques:Betweenness	-0.614	0.655	0.349

[a]The variance of the hospital affiliation random effects was estimated to be 0.000000028.

[b]The sample size of the dataset on which this model was estimated is $n = 270$.

Table A7 Association between claims-based betweenness centrality and survey-based measures of physician prominence

	Nominated[a] ($n = 110$)[e]			Nomination Sum[b] ($n = 137$)[e]		
	Estimate	SE	p value	Estimate	SE	p value
Betweenness	0.105	0.440	0.812	-0.246	0.439	0.574
Fellowship	-1.126	1.416	0.426	1.287	1.526	0.399
StartPractice35[f]				-0.769	1.147	0.503
Age	0.002	0.050	0.969	0.138	0.054	0.012
Sex	1.231	0.854	0.149	0.891	0.896	0.320
RaceWhite	1.451	0.839	0.084	-0.716	0.945	0.449
RaceOthers[g]				-1.024	1.367	0.454

	Advice Nomination Sum[c] ($n = 137$)			Referral Nomination Sum[d] ($n = 126$)		
	Estimate	SE	p value	Estimate	SE	p value
Betweenness	0.028	0.232	0.904	-0.072	0.245	0.770
Fellowship	0.973	0.863	0.260	-0.479	0.821	0.559
StartPractice35	-0.721	0.643	0.262	1.059	0.673	0.116
Age	0.035	0.031	0.253	0.101	0.030	0.001
Sex	0.464	0.509	0.363	0.618	0.490	0.207
RaceWhite	-0.580	0.524	0.269	-0.210	0.525	0.689
RaceOthers	-0.255	0.770	0.740	-0.678	0.767	0.377

[a]The variance of the hospital affiliation random effects was estimated to be 5.688.

[b]The variance of the hospital affiliation random effects was estimated to be 1.203.

[c]The variance of the hospital affiliation random effects was estimated to be 0.

[d]The variance of the hospital affiliation random effects was estimated to be 0.357.

[e]Because the singleton hospitals were dropped from the *Nominated* models, they were estimated on a smaller sample size compared with the *NominationSum* models.

[f]Because 1 out of 19 physicians who started his/her career as a physician after 35 years old was nominated by any of the respondents in the dataset on which the Nominated model was estimated, leading to quasi-separation, we excluded the *StartPractice*35 variable from this model.

[g]Because 0 out of 13 physicians in the Other Race group were nominated by any of the respondents in the dataset on which the Nominated model was estimated, we combined Asian Race group with the Other Race group in this model.

Table A8 Association between claims-based eigenvector centrality and survey-based measures of physician prominence

	Nominated[a] ($n = 110$)[e]			Nomination Sum[b] ($n = 137$)[e]		
	Estimate	SE	p value	Estimate	SE	p value
Eigenvector	-0.146	0.595	0.806	-0.136	0.461	0.768
Fellowship	-1.013	1.396	0.468	1.162	1.499	0.438
StartPractice35[f]				-0.814	1.146	0.477
Age	0.002	0.050	0.964	0.140	0.054	0.010
Sex	1.223	0.849	0.149	0.944	0.896	0.292
RaceWhite	1.420	0.838	0.090	-0.699	0.946	0.460
RaceOthers[g]				-0.956	1.365	0.484

	Advice Nomination Sum[c] ($n = 137$)			Referral Nomination Sum[d] ($n = 126$)		
	Estimate	SE	p value	Estimate	SE	p value
Eigenvector	-0.013	0.245	0.957	-0.166	0.244	0.497
Fellowship	1.005	0.846	0.235	-0.481	0.798	0.547
StartPractice35	-0.717	0.643	0.264	1.066	0.672	0.113
Age	0.035	0.031	0.256	0.101	0.030	0.001
Sex	0.459	0.507	0.366	0.638	0.489	0.192
RaceWhite	-0.589	0.525	0.262	-0.233	0.524	0.656
RaceOthers	-0.269	0.769	0.726	-0.702	0.766	0.359

[a]The variance of the hospital affiliation random effects was estimated to be 5.589.

[b]The variance of the hospital affiliation random effects was estimated to be 1.079.

[c]The variance of the hospital affiliation random effects was estimated to be 0.

[d]The variance of the hospital affiliation random effects was estimated to be 0.341.

[e]Because the singleton hospitals were dropped from the *Nominated* models, they were estimated on a smaller sample size compared with the *NominationSum* models.

[f]Because 1 out of 19 physicians who started his/her career as a physician after 35 years old was nominated by any of the respondents in the dataset on which the Nominated model was estimated, leading to quasi-separation, we excluded the *StartPractice*35 variable from this model.

[g]Because 0 out of 13 physicians in the Other Race group were nominated by any of the respondents in the dataset on which the Nominated model was estimated, we combined Asian Race group with the Other Race group in this model.