

Clinical Findings and Pain Symptoms as Potential Risk Factors for Chronic TMJD: Descriptive Data and Empirically Identified Domains
from the OPPERA Case-Control Study

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Appendix B. Age, gender, and race/ethnic group variation in study measures among controls who do not have TMD.

Supplementary e-Table 1: Demographic group variation in etiologic conditions among controls who do not have TMD.

Putative risk factor	Category	Age = 18-24 yrs		Age = 25-34 yrs		Age = 35-44 yrs		P-value ¹
		n	column %	n	column %	n	column %	
Lifetime Hx of external injury to jaw	yes	75	9.5	37	8.6	14	4.5	0.0227
	no [ref]	717	90.5	392	91.4	299	95.5	
Jaw injury due to yawning	yes	16	1.9	15	3.3	13	3.8	0.1190
	no [ref]	818	98.1	434	96.7	327	96.2	
Jaw injury due to prolonged opening	yes	17	2.0	10	2.2	9	2.6	0.8134
	no [ref]	817	98.0	439	97.8	331	97.4	
Ever had orthodontic procedures	yes	439	52.8	178	39.7	77	22.6	<0.0001
	no [ref]	392	47.2	270	60.3	263	77.4	
Oral Behaviors Checklist: sum score	25-62	263	32.2	118	27.1	77	25.2	0.0068
	17-24	268	32.8	157	36.0	89	29.2	
	0-16 [ref]	285	34.9	161	36.9	139	45.6	

1 – P-values are from Chi-square test of association between putative risk factor and age.

Supplementary e-Table 2: Gender variation in etiologic conditions among controls who do not have TMD.

Putative risk factor	Category	Female		Male		P-value ¹
		n	column %	n	column %	
Lifetime Hx of external injury to jaw	yes	64	7.3	62	9.4	0.1478
	no [ref]	809	92.7	599	90.6	
Jaw injury due to yawning	yes	24	2.6	20	2.8	0.7779
	no [ref]	895	97.4	684	97.2	
Jaw injury due to prolonged opening	yes	18	2.0	18	2.6	0.4174
	no [ref]	901	98.0	686	97.4	
Ever had orthodontic procedures	yes	419	45.6	275	39.2	0.0097
	no [ref]	499	54.4	426	60.8	
Oral Behaviors Checklist: sum score	25-62	288	32.5	170	25.3	<0.0001
	17-24	319	36.0	195	29.1	
	0-16 [ref]	279	31.5	306	45.6	

1 – P-values are from Chi-square test of association between putative risk factor and gender.

Supplementary e-Table 3: Racial/ethnic group variation in etiologic conditions among controls who do not have TMD.

Putative risk factor	Category	Non-Hispanic White		Other		P-value ¹
		n	column %	n	column %	
Lifetime Hx of external injury to jaw	yes	84	10.6	42	5.7	0.0003
	no [ref]	707	89.4	701	94.3	
Jaw injury due to yawning	yes	17	2.0	27	3.4	0.0847
	no [ref]	818	98.0	761	96.6	
Jaw injury due to prolonged opening	yes	12	1.4	24	3.0	0.0278
	no [ref]	823	98.6	764	97.0	
Ever had orthodontic procedures	yes	499	60.0	195	24.8	<0.0001
	no [ref]	333	40.0	592	75.2	
Oral Behaviors Checklist: sum score	25-62	246	30.0	212	28.8	<0.0001
	17-24	306	37.3	208	28.3	
	0-16 [ref]	269	32.8	316	42.9	

1 – P-values are from Chi-square test of association between putative risk factor and racial/ethnic group.

Supplementary e-Table 4: Demographic group variation in overlapping conditions among controls who do not have TMD..

Putative risk factor	Category	Age = 18-24 yrs		Age = 25-34 yrs		Age = 35-44 yrs		P-value ¹
		n	column %	n	column %	n	column %	
Any headaches in last year	yes	626	75.3	323	71.9	229	67.0	0.0129
	no [ref]	205	24.7	126	28.1	113	33.0	
Number of different types of headache in last year	4	60	7.3	47	10.5	44	13.1	<0.0001
	3	74	8.9	42	9.4	31	9.2	
	2	200	24.2	114	25.6	78	23.1	
	1	288	34.8	117	26.2	71	21.1	
	0 [ref]	205	24.8	126	28.3	113	33.5	
Chronic pain other than face	yes	83	10.1	67	15.1	51	15.7	0.0066
	no [ref]	741	89.9	378	84.9	274	84.3	
Current low back pain	yes	84	10.1	62	13.8	58	17.1	0.0032
	no [ref]	747	89.9	386	86.2	282	82.9	
Episodes of low back pain in last year	11 or more	64	7.7	45	10.1	38	11.3	0.1091
	5-10	81	9.8	56	12.6	30	8.9	
	2-4	178	21.4	78	17.5	69	20.5	
	1	61	7.3	45	10.1	30	8.9	
	0 [ref]	446	53.7	222	49.8	170	50.4	
ROME IBS classification	yes	22	2.7	15	3.4	6	1.8	0.4292
	no [ref]	806	97.3	431	96.6	321	98.2	
Count of 10 abdominal symptoms	6 or more	47	5.7	28	6.3	32	9.5	0.0988
	3-5	128	15.4	78	17.4	63	18.8	
	1-2	163	19.7	97	21.7	68	20.2	
	0 [ref]	491	59.2	245	54.7	173	51.5	
Genital symptoms	yes	16	2.0	20	4.6	12	3.7	0.0284
	no [ref]	798	98.0	418	95.4	312	96.3	
Count of 20 comorbidities	2 or more	77	9.3	84	18.8	84	24.9	<0.0001
	1	156	18.9	91	20.4	51	15.1	
	0 [ref]	591	71.7	271	60.8	203	60.1	

1 – P-values are from Chi-square test of association between putative risk factor and age.

Supplementary e-Table 5: Gender variation in overlapping conditions among controls who do not have TMD.

Putative risk factor	Category	Female		Male		P-value ¹
		n	column %	n	column %	
Any headaches in last year	yes	723	78.7	455	64.7	<0.0001
	no [ref]	196	21.3	248	35.3	
Number of different types of headache in last year	4	108	11.8	43	6.2	<0.0001
	3	102	11.1	45	6.5	
	2	268	29.3	124	17.8	
	1	241	26.3	235	33.8	
	0 [ref]	196	21.4	248	35.7	
Chronic pain other than face	yes	127	14.1	74	10.7	0.0435
	no [ref]	775	85.9	618	89.3	
Current low back pain	yes	120	13.0	84	12.0	0.5376
	no [ref]	800	87.0	615	88.0	
Episodes of low back pain in last year	11 or more	88	9.6	59	8.5	0.1507
	5-10	102	11.1	65	9.4	
	2-4	199	21.6	126	18.2	
	1	77	8.4	59	8.5	
	0 [ref]	454	49.3	384	55.4	
ROME IBS classification	yes	36	3.9	7	1.0	0.0003
	no [ref]	877	96.1	681	99.0	
Count of 10 abdominal symptoms	6 or more	70	7.6	37	5.3	0.1233
	3-5	161	17.6	108	15.5	
	1-2	187	20.4	141	20.2	
	0 [ref]	498	54.4	411	59.0	
Genital symptoms	yes	41	4.6	7	1.0	<0.0001
	no [ref]	855	95.4	673	99.0	
Count of 20 comorbidities	2 or more	155	16.9	90	13.0	0.0029
	1	186	20.3	112	16.2	
	0 [ref]	574	62.7	491	70.9	

1 – P-values are from Chi-square test of association between putative risk factor and gender.

Supplementary e-Table 6: Racial/ethnic group variation in overlapping conditions among controls who do not have TMD.

Putative risk factor	Category	Non-Hispanic White		Other		P-value ¹
		n	column %	n	column %	
Any headaches in last year	yes	638	76.6	540	68.4	0.0002
	no [ref]	195	23.4	249	31.6	
Number of different type of headache in last year	4	67	8.1	84	10.7	0.0004
	3	82	9.9	65	8.3	
	2	214	25.9	178	22.7	
	1	268	32.4	208	26.5	
	0 [ref]	195	23.6	249	31.8	
Chronic pain other than face	yes	125	15.1	76	9.9	0.0017
	no [ref]	702	84.9	691	90.1	
Current low back pain	yes	100	12.0	104	13.2	0.4804
	no [ref]	731	88.0	684	86.8	
Episodes of low back pain in last year	11 or more	88	10.6	59	7.5	0.0013
	5-10	96	11.6	71	9.1	
	2-4	172	20.7	153	19.5	
	1	81	9.8	55	7.0	
	0 [ref]	392	47.3	446	56.9	
ROME IBS classification	yes	25	3.0	18	2.3	0.4210
	no [ref]	809	97.0	749	97.7	
Count of 10 abdominal symptoms	6 or more	44	5.3	63	8.1	<0.0001
	3-5	114	13.7	155	19.8	
	1-2	152	18.3	176	22.5	
	0 [ref]	521	62.7	388	49.6	
Genital symptoms	yes	26	3.2	22	2.9	0.7703
	no [ref]	795	96.8	733	97.1	
Count of 20 comorbidities	2 or more	155	16.9	90	13.0	0.0029
	1	186	20.3	112	16.2	
	0 [ref]	574	62.7	491	70.9	

1 – P-values are from Chi-square test of association between putative risk factor and racial/ethnic group.

Supplementary e-Table 7: Age group variation in self-reported pain and functional limitation of the jaw among controls who do not have TMD.

Putative risk factor	Units and potential range	Age = 18-24 yrs			Age = 25-34 yrs			Age = 35-44 yrs			Site-adjusted P-value ¹
		n	mean	se	n	mean	se	n	mean	se	
Facial characteristic pain intensity ²	0-100	103	15.18	1.42	78	13.21	1.72	66	19.49	2.81	0.2257
Facial pain interference ²	0-10	103	2.30	0.78	77	4.07	1.34	66	10.35	2.31	0.0329
Number days efficiency <50% ²	0-180	100	3.02	1.92	74	0.86	0.42	58	6.47	3.33	0.3101
JFLS Chewing Limitation	0-10	798	0.20	0.02	425	0.24	0.03	302	0.44	0.06	0.1127
JFLS Opening Limitation	0-10	811	0.13	0.02	437	0.16	0.03	317	0.20	0.04	0.9621
JFLS Verbal & Emotional Expression Limitation	0-10	802	0.07	0.02	431	0.08	0.02	317	0.25	0.06	0.0469
JFLS Combined Global Measure	0-10	782	0.11	0.01	418	0.13	0.02	291	0.24	0.04	0.1438

1 – P-values are from analysis of variance model comparing mean values of putative risk factor across categories of age.

2 – Computed only for subjects who reported pain.

Supplementary e-Table 8: Gender variation in self-reported pain and functional limitation of the jaw among controls who do not have TMD.

Putative risk factor	Units and potential range	Female			Male			Site-adjusted
		n	mean	se	n	mean	se	P-value ¹
Facial characteristic pain intensity ²	0-100	152	16.60	1.43	95	14.28	1.74	0.1701
Facial pain interference ²	0-10	152	5.11	1.13	94	4.86	1.23	0.4879
Number days efficiency <50% ²	0-180	146	3.18	1.41	86	3.22	2.14	0.8780
JFLS Chewing Limitation	0-10	870	0.25	0.03	655	0.27	0.03	0.5766
JFLS Opening Limitation	0-10	895	0.15	0.02	670	0.15	0.03	0.7022
JFLS Verbal & Emotional Expression Limitation	0-10	889	0.09	0.02	661	0.13	0.03	0.5559
JFLS Combined Global Measure	0-10	854	0.13	0.01	637	0.16	0.02	0.4603

1 – P-values are from analysis of variance model comparing mean values of putative risk factor across categories of gender.

2 – Computed only for subjects who reported pain.

Supplementary e-Table 9: Racial/ethnic group variation in self-reported pain and functional limitation of the jaw among controls who do not have TMD.

Putative risk factor	Units and potential range	White non-Hispanic			Other			Site-adjusted P-value ²
		n	mean	se	n	mean	se	
Facial characteristic pain intensity ²	0-100	138	13.57	1.15	109	18.41	2.02	0.1821
Facial pain interference ²	0-100	138	2.49	0.53	108	8.24	1.74	0.0574
Number days efficiency <50% ²	0-180	137	2.46	1.42	95	4.25	2.05	0.7086
JFLS Chewing Limitation	0-10	817	0.15	0.02	708	0.38	0.04	0.0001
JFLS Opening Limitation	0-10	823	0.08	0.01	742	0.23	0.03	0.0015
JFLS Verbal & Emotional Expression Limitation	0-10	813	0.04	0.01	737	0.19	0.03	0.0031
JFLS Combined Global Measure	0-10	803	0.09	0.01	688	0.21	0.02	0.0009

1 – P-values are from analysis of variance model comparing mean values of putative risk factor across categories of race/ethnicity.

2 – Computed only for subjects who reported pain.

Supplementary e-Table 10: Age group variation in self-reported pain-related disability, factors that modify pain, and non-pain characteristics among controls who do not have TMD.

Putative risk factor	Category	Age = 18-24 yrs		Age = 25-34 yrs		Age = 35-44 yrs		P-value ¹
		n	column %	n	column %	n	column %	
Facial Graded Chronic Pain Status ²	2.5-4	2	2.7	1	2.1	8	20.5	0.0007
	2	0	0.0	1	2.1	2	5.1	
	1 [ref]	72	97.3	45	95.7	29	74.4	
Number of activities that modified facial pain last month ²	4-5	2	8.7	3	27.3	2	10.0	0.5697
	2-3	10	43.5	4	36.4	7	35.0	
	0-1 [ref]	11	47.8	4	36.4	11	55.0	
Number of face/jaw symptoms	3 or more	32	3.8	16	3.6	30	8.8	0.0005
	0-2 [ref]	800	96.2	434	96.4	312	91.2	

1 – P-values are from Chi-square test of association between putative risk factor and age.

2 – Computed only for subjects who reported pain.

Supplementary e-Table 11: Gender variation in self-reported pain-related disability, factors that modify pain, and non-pain characteristics among controls who do not have TMD.

Putative risk factor	Category	Female		Male		P-value ¹
		n	column %	n	column %	
Facial Graded Chronic Pain Status ²	2.5-4	8	7.9	3	5.1	0.7820
	2	2	2.0	1	1.7	
	1 [ref]	91	90.1	55	93.2	
Number of activities that modified facial pain last month ²	4-5	3	8.1	4	23.5	0.2207
	2-3	14	37.8	7	41.2	
	0-1 [ref]	20	54.1	6	35.3	
Number of face/jaw symptoms	3 or more	48	5.2	30	4.3	0.3660
	0-2 [ref]	871	94.8	675	95.7	

1 – P-values are from Chi-square test of association between putative risk factor and gender.

2 – Computed only for subjects who reported pain.

Supplementary e-Table 12: Racial/ethnic group variation in self-reported pain-related disability, factors that modify pain, and non-pain characteristics among controls who do not have TMD.

Putative risk factor	Category	Non-Hispanic White		Other		P-value ¹
		n	column %	n	column %	
Facial Graded Chronic Pain Status ²	2.5-4	2	2.1	9	13.8	0.0013
	2	0	0.0	3	4.6	
	1 [ref]	93	97.9	53	81.5	
Number of activities that modified facial pain last month ²	4-5	3	10.0	4	16.7	0.6600
	2-3	13	43.3	8	33.3	
	0-1 [ref]	14	46.7	12	50.0	
Number of face/jaw symptoms	3 or more	37	4.4	41	5.2	0.4778
	0-2 [ref]	797	95.6	749	94.8	

1 – P-values are from Chi-square test of association between putative risk factor and racial/ethnic group.

2 – Computed only for subjects who reported pain.

Supplementary e-Table 13: Age group variation in self-reported jaw clicking and jaw locking among controls who do not have TMD.

Putative risk factor	Category	Age = 18-24 yrs		Age = 25-34 yrs		Age = 35-44 yrs		P-value ¹
		n	column %	n	column %	n	column %	
TMJ noises in last month	1 or more	161	19.5	82	18.4	54	16.3	0.4465
	0 [ref]	664	80.5	364	81.6	277	83.7	
Pain with TMJ noises in last month	no [ref]	814	98.9	438	99.1	318	96.7	0.0086
	yes	9	1.1	4	0.9	11	3.3	
TMJ noises before last month	1 or more	177	21.4	98	21.9	63	18.8	0.5266
	0 [ref]	650	78.6	349	78.1	272	81.2	
In last month, could not open mouth wide	yes	13	1.6	12	2.7	10	2.9	0.2302
	no [ref]	816	98.4	436	97.3	329	97.1	
Prior to one month ago, could not open mouth wide	yes	52	6.3	30	6.7	27	8.1	0.5295
	no [ref]	774	93.7	418	93.3	305	91.9	
In the last month, could not close jaw from wide-open position	yes	15	1.8	10	2.2	10	3.0	0.4429
	no [ref]	810	98.2	439	97.8	320	97.0	
Prior to one month ago, could not close jaw from wide-open position	yes	35	4.2	22	4.9	17	5.1	0.7607
	no [ref]	793	95.8	424	95.1	318	94.9	

1 – P-values are from Chi-square test of association between putative risk factor and age.

Supplementary e-Table 14: Gender variation in self-reported jaw clicking and jaw locking among controls who do not have TMD.

Putative risk factor	Category	Female		Male		P-value ¹
		n	column %	n	column %	
TMJ noises in last month	1 or more	182	20.0	115	16.7	0.0934
	0 [ref]	730	80.0	575	83.3	
Pain with TMJ noises in last month	no [ref]	895	98.7	675	98.3	0.4915
	yes	12	1.3	12	1.7	
TMJ noises before last month	1 or more	209	22.9	129	18.5	0.0294
	0 [ref]	702	77.1	569	81.5	
In last month, could not open mouth wide	yes	22	2.4	13	1.9	0.4561
	no [ref]	894	97.6	687	98.1	
Prior to one month ago, could not open mouth wide	yes	72	7.9	37	5.3	0.0430
	no [ref]	840	92.1	657	94.7	
In the last month, could not close jaw from wide-open position	yes	24	2.6	11	1.6	0.1550
	no [ref]	887	97.4	682	98.4	
Prior to one month ago, could not close jaw from wide-open position	yes	45	4.9	29	4.2	0.4696
	no [ref]	868	95.1	667	95.8	

1 – P-values are from Chi-square test of association between putative risk factor and gender.

Supplementary e-Table 15: Racial/ethnic group variation in self-reported jaw clicking and jaw locking among controls who do not have TMD.

Putative risk factor	Category	Non-Hispanic White		Other		P-value ¹
		n	column %	n	column %	
TMJ noises in last month	1 or more	193	23.3	104	13.4	<0.0001
	0 [ref]	635	76.7	670	86.6	
Pain with TMJ noises in last month	no [ref]	817	99.2	753	97.8	0.0260
	yes	7	0.8	17	2.2	
TMJ noises before last month	1 or more	231	27.8	107	13.7	<0.0001
	0 [ref]	599	72.2	672	86.3	
In last month, could not open mouth wide	yes	14	1.7	21	2.7	0.1692
	no [ref]	818	98.3	763	97.3	
Prior to one month ago, could not open mouth wide	yes	69	8.3	40	5.2	0.0123
	no [ref]	762	91.7	735	94.8	
In the last month, could not close jaw from wide-open position	yes	19	2.3	16	2.1	0.7724
	no [ref]	813	97.7	756	97.9	
Prior to one month ago, could not close jaw from wide-open position	yes	47	5.7	27	3.5	0.0336
	no [ref]	781	94.3	754	96.5	

1 – P-values are from Chi-square test of association between putative risk factor and racial/ethnic group.

Supplementary e-Table 16: Age group variation in clinical jaw mobility and body palpation scores among controls who do not have TMD.

Putative risk factor	Units and potential range	Age = 18-24 yrs			Age = 25-34 yrs			Age = 35-44 yrs			Site-adjusted P-value ¹
		n	mean	se	n	mean	se	n	mean	se	
Pain-free jaw opening	mm	838	48.37	0.26	450	47.35	0.35	329	46.85	0.41	0.0009
Max. unassisted jaw opening	mm	838	53.98	0.24	450	52.94	0.33	329	52.09	0.39	<0.0001
Max. assisted jaw opening (unterminated)	mm	613	56.64	0.30	375	55.43	0.35	272	55.03	0.43	<0.0001
Max. assisted jaw opening (terminated)	mm	223	56.91	0.50	73	56.19	0.94	51	52.14	0.86	0.0003
Number of neck sites tender to palpation	0-14	838	1.43	0.10	451	0.94	0.10	344	0.89	0.13	0.0984
Number of body sites tender to palpation	0-14	838	2.51	0.10	451	1.96	0.14	344	1.44	0.15	0.7252

1 – P-values are from analysis of variance model comparing mean values of putative risk factor across categories of age.

Supplementary e-Table 17: Gender variation in clinical jaw mobility and body palpation scores among controls who do not have TMD.

Putative risk factor	Units and potential range	Female			Male			Site-adjusted P-value ¹
		n	mean	se	n	mean	se	
Pain-free jaw opening	mm	913	46.40	0.23	704	49.56	0.30	<0.0001
Max. unassisted jaw opening	mm	913	51.74	0.21	704	55.34	0.28	<0.0001
Max. assisted jaw opening (unterminated)	mm	691	54.50	0.26	569	57.67	0.31	<0.0001
Max. assisted jaw opening (terminated)	mm	216	54.76	0.45	131	58.18	0.75	<0.0001
Number of neck sites tender to palpation	0-14	925	1.45	0.10	708	0.84	0.08	<0.0001
Number of body sites tender to palpation	0-14	925	2.59	0.11	708	1.53	0.09	<0.0001

1 – P-values are from analysis of variance model comparing mean values of putative risk factor across categories of gender.

Supplementary e-Table 18: Racial/ethnic group variation in clinical jaw mobility and body palpation scores among controls who do not have TMD.

Putative risk factor	Units and potential range	White non-Hispanic			Other			Fully-adjusted
		n	mean	se	n	mean	se	P-value ¹
Pain-free jaw opening	mm	839	47.09	0.24	778	48.52	0.29	<0.0001
Max. unassisted jaw opening	mm	839	52.45	0.24	778	54.24	0.26	<0.0001
Max. assisted jaw opening (unterminated)	mm	651	54.79	0.28	609	57.15	0.29	<0.0001
Max. assisted jaw opening (terminated)	mm	183	55.73	0.55	164	56.41	0.61	0.2639
Number of neck sites tender to palpation	0-14	839	1.30	0.09	794	1.06	0.09	0.8134
Number of body sites tender to palpation	0-14	839	2.32	0.10	794	1.94	0.10	0.3514

1 – P-values are from analysis of variance model comparing mean values of putative risk factor across categories of race/ethnicity.

Supplementary e-Table 19: Age group variation in clinical pain with opening, TMJ sounds, and bruxofacets among controls who do not have TMD.

Putative risk factor	Category	Age = 18-24 yrs		Age = 25-34 yrs		Age = 35-44 yrs		P-value ¹
		n	column %	n	column %	n	column %	
Pain on unassisted opening	1 or more	385	46.4	146	32.7	80	24.9	<0.0001
	0 [ref]	445	53.6	300	67.3	241	75.1	
Pain on assisted opening (unterminated)	1 or more	231	38.3	100	27.0	58	21.9	<0.0001
	0 [ref]	372	61.7	270	73.0	207	78.1	
Pain on assisted opening (terminated)	1 or more	181	81.9	49	69.0	32	62.7	0.0038
	0 [ref]	40	18.1	22	31.0	19	37.3	
TMJ palpation sounds: right	1 or more	271	32.5	122	27.3	95	28.2	0.1007
	0 [ref]	562	67.5	325	72.7	242	71.8	
TMJ palpation sounds: left	1 or more	297	35.7	151	33.8	77	22.8	<0.0001
	0 [ref]	536	64.3	296	66.2	260	77.2	
Number of locations with bruxo-facets	2-3	613	73.4	343	76.4	277	85.0	0.0001
	0-1 [ref]	222	26.6	106	23.6	49	15.0	

1 – P-values are from Chi-square test of association between putative risk factor and age.

Supplementary e-Table 20: Gender variation in clinical pain with opening, TMJ sounds, and bruxofacets among controls who do not have TMD.

Putative risk factor	Category	Female		Male		P-value ¹
		n	column %	n	column %	
Pain on unassisted opening	1 or more	339	37.6	272	39.1	0.5265
	0 [ref]	563	62.4	423	60.9	
Pain on assisted opening (unterminated)	1 or more	191	28.2	198	35.3	0.0075
	0 [ref]	486	71.8	363	64.7	
Pain on assisted opening (terminated)	1 or more	163	76.2	99	76.7	0.9031
	0 [ref]	51	23.8	30	23.3	
TMJ palpation sounds: right	1 or more	287	31.3	201	28.8	0.2763
	0 [ref]	631	68.7	498	71.2	
TMJ palpation sounds: left	1 or more	335	36.5	190	27.2	<0.0001
	0 [ref]	583	63.5	509	72.8	
Number of locations with bruxo-facets	2-3	680	75.1	553	78.4	0.1206
	0-1 [ref]	225	24.9	152	21.6	

1 – P-values are from Chi-square test of association between putative risk factor and gender.

Supplementary e-Table 21: Racial/ethnic group variation in clinical pain with opening, TMJ sounds, and bruxofacets among controls who do not have TMD.

Putative risk factor	Category	Non-Hispanic White		Other		P-value ¹
		n	column %	n	column %	
Pain on unassisted opening	1 or more	361	43.4	250	32.7	<0.0001
	0 [ref]	471	56.6	515	67.3	
Pain on assisted opening (unterminated)	1 or more	223	34.6	166	27.9	0.0114
	0 [ref]	421	65.4	428	72.1	
Pain on assisted opening (terminated)	1 or more	145	80.1	117	72.2	0.0859
	0 [ref]	36	19.9	45	27.8	
TMJ palpation sounds: right	1 or more	284	34.1	204	26.1	0.0004
	0 [ref]	550	65.9	579	73.9	
TMJ palpation sounds: left	1 or more	309	37.1	216	27.6	<0.0001
	0 [ref]	525	62.9	567	72.4	
Number of locations with bruxo-facets	2-3	630	75.4	603	77.8	0.2644
	0-1 [ref]	205	24.6	172	22.2	

1 – P-values are from Chi-square test of association between putative risk factor and racial/ethnic group.

Supplementary e-Table 22: Age group variation in clinical palpation characteristics of masticatory muscles among controls who do not have TMD.

Putative risk factor	Category	Age = 18-24 yrs		Age = 25-34 yrs		Age = 35-44 yrs		P-value ¹
		n	column %	n	column %	n	column %	
RIGHT SIDE								
Temporalis	1 or more	225	26.8	110	24.4	77	22.4	0.2452
	0 [ref]	613	73.2	341	75.6	267	77.6	
Masseter	1 or more	260	31.0	127	28.2	87	25.3	0.1273
	0 [ref]	578	69.0	324	71.8	257	74.7	
Posterior and inferior mandibular	1 or more	128	15.3	70	15.5	38	11.0	0.1285
	0 [ref]	710	84.7	381	84.5	306	89.0	
Lateral pterygoid	1 or more	169	20.2	79	17.5	55	16.0	0.2016
	0 [ref]	669	79.8	372	82.5	288	84.0	
TM joint	1 or more	112	13.4	36	8.0	22	6.4	0.0002
	0 [ref]	726	86.6	415	92.0	322	93.6	
LEFT SIDE								
Temporalis	1 or more	197	23.5	84	18.6	66	19.2	0.0711
	0 [ref]	641	76.5	367	81.4	278	80.8	
Masseter	1 or more	234	27.9	111	24.6	72	20.9	0.0377
	0 [ref]	604	72.1	340	75.4	272	79.1	
Posterior and inferior mandibular	1 or more	113	13.5	71	15.7	38	11.0	0.1586
	0 [ref]	725	86.5	380	84.3	306	89.0	
Lateral pterygoid	1 or more	175	20.9	73	16.2	51	14.9	0.0209
	0 [ref]	663	79.1	377	83.8	292	85.1	
TM joint	1 or more	131	15.6	41	9.1	22	6.4	<0.0001
	0 [ref]	707	84.4	410	90.9	322	93.6	

1 – P-values are from Chi-square test of association between putative risk factor and age.

Supplementary e-Table 23: Gender variation in clinical palpation characteristics of masticatory muscles among controls who do not have TMD.

Putative risk factor	Category	Female		Male		P-value ¹
		n	column %	n	column %	
RIGHT SIDE						
Temporalis	1 or more	261	28.2	151	21.3	0.0014
	0 [ref]	664	71.8	557	78.7	
Masseter	1 or more	293	31.7	181	25.6	0.0070
	0 [ref]	632	68.3	527	74.4	
Posterior and inferior mandibular	1 or more	144	15.6	92	13.0	0.1427
	0 [ref]	781	84.4	616	87.0	
Lateral pterygoid	1 or more	186	20.1	117	16.5	0.0668
	0 [ref]	739	79.9	590	83.5	
TM joint	1 or more	106	11.5	64	9.0	0.1125
	0 [ref]	819	88.5	644	91.0	
LEFT SIDE						
Temporalis	1 or more	227	24.5	120	16.9	0.0002
	0 [ref]	698	75.5	588	83.1	
Masseter	1 or more	260	28.1	157	22.2	0.0064
	0 [ref]	665	71.9	551	77.8	
Posterior and inferior mandibular	1 or more	130	14.1	92	13.0	0.5357
	0 [ref]	795	85.9	616	87.0	
Lateral pterygoid	1 or more	180	19.5	119	16.8	0.1706
	0 [ref]	744	80.5	588	83.2	
TM joint	1 or more	114	12.3	80	11.3	0.5258
	0 [ref]	811	87.7	628	88.7	

1 – P-values are from Chi-square test of association between putative risk factor and gender.

Supplementary e-Table 24: Racial/ethnic group variation in clinical palpation characteristics of masticatory muscles among controls who do not have TMD.

Putative risk factor	Category	Non-Hispanic White		Other		P-value ¹
		n	column %	n	column %	
RIGHT SIDE						
Temporalis	1 or more	224	26.7	188	23.7	0.1600
	0 [ref]	615	73.3	606	76.3	
Masseter	1 or more	268	31.9	206	25.9	0.0076
	0 [ref]	571	68.1	588	74.1	
Posterior and inferior mandibular	1 or more	141	16.8	95	12.0	0.0054
	0 [ref]	698	83.2	699	88.0	
Lateral pterygoid	1 or more	154	18.4	149	18.8	0.8400
	0 [ref]	684	81.6	645	81.2	
TM joint	1 or more	97	11.6	73	9.2	0.1174
	0 [ref]	742	88.4	721	90.8	
LEFT SIDE						
Temporalis	1 or more	180	21.5	167	21.0	0.8351
	0 [ref]	659	78.5	627	79.0	
Masseter	1 or more	228	27.2	189	23.8	0.1183
	0 [ref]	611	72.8	605	76.2	
Posterior and inferior mandibular	1 or more	125	14.9	97	12.2	0.1139
	0 [ref]	714	85.1	697	87.8	
Lateral pterygoid	1 or more	151	18.0	148	18.7	0.7368
	0 [ref]	687	82.0	645	81.3	
TM joint	1 or more	108	12.9	86	10.8	0.2025
	0 [ref]	731	87.1	708	89.2	

1 – P-values are from Chi-square test of association between putative risk factor and racial/ethnic group.

Supplementary e-Table 25: Age group variation in clinical anthropometric measures among controls who do not have TMD.

Putative risk factor	Units and potential range	Age = 18-24 yrs			Age = 25-34 yrs			Age = 35-44 yrs			Site-adjusted P-value ¹
		n	mean	se	n	mean	se	n	mean	se	
Height	m	908	1.70	0.00	509	1.70	0.00	390	1.70	0.00	0.1154
Weight	kg	904	71.98	0.59	505	78.66	0.92	391	83.68	1.17	<0.0001
Body mass index	kg/m-squared	903	24.86	0.17	503	27.18	0.30	388	29.06	0.37	<0.0001
Left-hand finger length ratio (Index:Ring)	mm	909	96.36	0.11	508	96.65	0.16	390	96.05	0.20	0.2120
Right-hand finger length ratio (Index:Ring)	mm	909	95.96	0.12	508	96.45	0.16	390	96.07	0.19	0.0516

1 – P-values are from analysis of variance model comparing mean values of putative risk factor across categories of age.

Supplementary e-Table 26: Gender variation in clinical anthropometric measures findings among controls who do not have TMD.

Putative risk factor	Units and potential range	Female			Male			Site-adjusted
		n	mean	se	n	mean	se	P-value ¹
Height	m	733	1.78	0.00	1074	1.64	0.00	<0.0001
Weight	kg	731	83.88	0.71	1069	71.28	0.60	<0.0001
Body mass index	kg/m-squared	728	26.49	0.21	1066	26.37	0.21	0.7618
Left-hand finger length ratio (Index:Ring)	mm	734	95.57	0.13	1073	96.92	0.11	<0.0001
Right-hand finger length ratio (Index:Ring)	mm	734	95.29	0.13	1073	96.69	0.11	<0.0001

1 – P-values are from analysis of variance model comparing mean values of putative risk factor across categories of gender.

Supplementary e-Table 27: Racial/ethnic group variation in clinical anthropometric measures findings among controls who do not have TMD.

Putative risk factor	Units and potential range	White non-Hispanic			Other			Site-adjusted P-value ²
		n	mean	se	n	mean	se	
Height	m	981	1.70	0.00	826	1.69	0.00	<0.0001
Weight	kg	972	73.99	0.59	828	79.22	0.78	0.0121
Body mass index	kg/m-squared	971	25.40	0.18	823	27.62	0.24	<0.0001
Left-hand finger length ratio (Index:Ring)	mm	979	96.83	0.11	828	95.84	0.13	<0.0001
Right-hand finger length ratio (Index:Ring)	mm	979	96.48	0.12	828	95.70	0.12	<0.0001

1 – P-values are from analysis of variance model comparing mean values of putative risk factor across categories of race/ethnicity.

Supplementary e-Table 28: Age group variation in medical conditions among controls who do not have TMD.

Putative risk factor	Category	Age = 18-24 yrs		Age = 25-34 yrs		Age = 35-44 yrs		P-value ¹
		n	column %	n	column %	n	column %	
History of 3 endocrine conditions ²	1 or more	19	2.3	13	2.9	18	5.3	0.0250
	0 [ref]	818	97.7	436	97.1	324	94.7	
History of 7 cardiovascular conditions ²	1 or more	22	2.6	18	4.0	36	10.6	<0.0001
	0 [ref]	813	97.4	428	96.0	304	89.4	
History of 3 hematologic conditions ²	1 or more	57	6.8	40	8.9	29	8.5	0.3429
	0 [ref]	779	93.2	408	91.1	313	91.5	
History of 4 neural/sensory conditions ²	1 or more	197	23.5	108	24.1	69	20.2	0.3755
	0 [ref]	640	76.5	341	75.9	273	79.8	
History of 5 respiratory conditions ²	1 or more	323	38.6	188	42.0	115	33.6	0.0575
	0 [ref]	513	61.4	260	58.0	227	66.4	
History of obstructive sleep apnea	yes	16	1.9	11	2.6	10	3.2	0.4428
	no [ref]	808	98.1	418	97.4	304	96.8	
History of osteoarthritis	yes	0	0.0	3	0.7	8	2.3	<0.0001
	no [ref]	837	100.0	446	99.3	333	97.7	
History of rheumatoid arthritis	yes	0	0.0	1	0.2	6	1.8	0.0001
	no [ref]	836	100.0	448	99.8	336	98.2	
History of Sjogrens syndrome	yes	1	0.1	0	0.0	0	0.0	0.6232
	no [ref]	836	99.9	449	100.0	342	100.0	

1 – P-values are from Chi-square test of association between putative risk factor and age.

2 – See Methods for the particular conditions included in this category.

Supplementary e-Table 29: Gender variation in medical conditions among controls who do not have TMD.

Putative risk factor	Category	Female		Male		P-value ¹
		n	column %	n	column %	
History of 3 endocrine conditions ²	1 or more	40	4.3	10	1.4	0.0007
	0 [ref]	882	95.7	696	98.6	
History of 7 cardiovascular conditions ²	1 or more	52	5.6	24	3.4	0.0374
	0 [ref]	870	94.4	675	96.6	
History of 3 hematologic conditions ²	1 or more	118	12.8	8	1.1	<0.0001
	0 [ref]	805	87.2	695	98.9	
History of 4 neural/sensory conditions ²	1 or more	255	27.7	119	16.9	<0.0001
	0 [ref]	667	72.3	587	83.1	
History of 5 respiratory conditions ²	1 or more	414	45.0	212	30.1	<0.0001
	0 [ref]	507	55.0	493	69.9	
History of obstructive sleep apnea	yes	19	2.1	18	2.7	0.5088
	no [ref]	869	97.9	661	97.3	
History of osteoarthritis	yes	7	0.8	4	0.6	0.6398
	no [ref]	915	99.2	701	99.4	
History of rheumatoid arthritis	yes	5	0.5	2	0.3	0.4278
	no [ref]	916	99.5	704	99.7	
History of Sjogrens syndrome	yes	1	0.1	0	0.0	0.3813
	no [ref]	921	99.9	706	100.0	

1 – P-values are from Chi-square test of association between putative risk factor and gender.

2 – See Methods for the particular conditions included in this category.

Supplementary e-Table 30: Racial/ethnic group variation in medical conditions among controls who do not have TMD.

Putative risk factor	Category	Non-Hispanic White		Other		P-value ¹
		n	column %	n	column %	
History of 3 endocrine conditions ²	1 or more	28	3.3	22	2.8	0.5097
	0 [ref]	809	96.7	769	97.2	
History of 7 cardiovascular conditions ²	1 or more	33	4.0	43	5.5	0.1546
	0 [ref]	800	96.0	745	94.5	
History of 3 hematologic conditions ²	1 or more	64	7.6	62	7.9	0.8732
	0 [ref]	773	92.4	727	92.1	
History of 4 neural/sensory conditions ²	1 or more	221	26.4	153	19.3	0.0006
	0 [ref]	615	73.6	639	80.7	
History of 5 respiratory conditions ²	1 or more	360	43.1	266	33.6	<0.0001
	0 [ref]	475	56.9	525	66.4	
History of obstructive sleep apnea	yes	18	2.2	19	2.5	0.6444
	no [ref]	803	97.8	727	97.5	
History of osteoarthritis	yes	3	0.4	8	1.0	0.1075
	no [ref]	834	99.6	782	99.0	
History of rheumatoid arthritis	yes	3	0.4	4	0.5	0.6487
	no [ref]	834	99.6	786	99.5	
History of Sjogrens syndrome	yes	1	0.1	0	0.0	0.3308
	no [ref]	836	99.9	791	100.0	

1 – P-values are from Chi-square test of association between putative risk factor and racial/ethnic group.

2 – See Methods for the particular conditions included in this category.

Supplementary e-Table 31: Age group variation in health status variables among controls who do not have TMD.

Putative risk factor	Category	Age = 18-24 yrs		Age = 25-34 yrs		Age = 35-44 yrs		P-value ¹
		n	column %	n	column %	n	column %	
Smoking history: current, former or never	never [ref]	725	87.9	302	69.6	148	44.2	<0.0001
	former	26	3.2	56	12.9	43	12.8	
	current	74	9.0	76	17.5	144	43.0	
Self rated general health	fair/poor	23	2.8	24	5.4	30	8.7	<0.0001
	good	413	49.5	235	52.8	202	58.7	
	excellent [ref]	398	47.7	186	41.8	112	32.6	
Ever hospitalized for surgery/serious illness	no [ref]	563	67.6	276	61.7	184	54.0	<0.0001
	yes	270	32.4	171	38.3	157	46.0	
Past use of 11 medications	3 or more	102	12.3	85	19.0	52	15.1	<0.0001
	2	309	37.1	151	33.7	82	23.8	
	1	258	31.0	116	25.9	99	28.8	
	0 [ref]	163	19.6	96	21.4	111	32.3	

1 – P-values are from Chi-square test of association between putative risk factor and age.

Supplementary e-Table 32: Gender variation in health status variables among controls who do not have TMD.

Putative risk factor	Category	Female		Male		P-value ¹
		n	column %	n	column %	
Smoking history: current, former or never	never [ref]	691	76.9	484	69.6	0.0046
	former	64	7.1	61	8.8	
	current	144	16.0	150	21.6	
Self rated general health	fair/poor	41	4.5	36	5.1	0.0016
	good	517	56.3	333	47.3	
	excellent [ref]	361	39.3	335	47.6	
Ever hospitalized for surgery/serious illness	no [ref]	571	62.1	452	64.5	0.3183
	yes	349	37.9	249	35.5	
Past use of 11 medications	3 or more	161	17.5	78	11.1	<0.0001
	2	322	35.0	220	31.2	
	1	255	27.7	218	30.9	
	0 [ref]	181	19.7	189	26.8	

1 – P-values are from Chi-square test of association between putative risk factor and gender.

Supplementary e-Table 33: Racial/ethnic group variation in health status variables among controls who do not have TMD.

Putative risk factor	Category	Non-Hispanic White		Other		P-value ¹
		n	column %	n	column %	
Smoking history: current, former or never	never [ref]	642	77.9	533	69.2	<0.0001
	former	83	10.1	42	5.5	
	current	99	12.0	195	25.3	
Self rated general health	fair/poor	15	1.8	62	7.8	<0.0001
	good	395	47.5	455	57.5	
	excellent [ref]	422	50.7	274	34.6	
Ever hospitalized for surgery/serious illness	no [ref]	471	56.5	552	70.1	<0.0001
	yes	363	43.5	235	29.9	
Past use of 11 medications	3 or more	176	21.1	63	8.0	<0.0001
	2	359	43.0	183	23.2	
	1	191	22.9	282	35.7	
	0 [ref]	109	13.1	261	33.1	

1 – P-values are from Chi-square test of association between putative risk factor and racial/ethnic group.