



## Do Brain Signatures of Chronic Primary Orofacial Pains Overlap? A Systematic Review of Neuroimaging Studies

WE279

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### Introduction

Chronic Primary Headache or Orofacial Pain (Nicholas et al 2019, ICOP):

- Chronic TMD
- Chronic Burning Mouth
- Chronic primary Oro-facial Pain

Suggestive of common underlying mechanisms based on significant functional and emotional impairment.

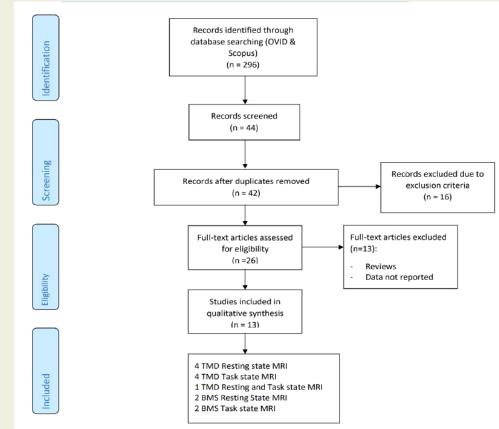
### Aim

- To investigate common underlying pain pathways for Chronic Oro-facial Pain subtypes

### Study Design

- Systematic review of neuroimaging studies of Chronic Oro-facial Pain subtypes – TMD, BMS, PIPF
- Resting and task state
- Imaging modalities - MRI, CT, PET, SPECT, EEG

### Prisma Flow Diagram



### Results (2)



### Results (1)

Source	Diagnosis/Imaging modality	Analysis Method	Resting/Task	Patient		Control
				Female/Male/Age (years)	Assessment	
Kayser 2014	TMD (MRI BOLD fMRI)	PC	Resting	17	23±14-11±9 NPS, PCS	mean 3 months
Yousaf 2014	TMD (MRI STIR weighted T1)	CBF	Resting	12	3 (44-45-31) NPS, MPQ	11±4.5 years
Younger 2010	TMD (MRI PAST-DS-PGR)	GMV	Resting	14	20±13-17 NPS	4.4±2.3y
Ichijo 2012	TMD (MRI T2/質子密度)	PC	Resting	8	23±1-11 NPS, SF36PQ, BPI, STOPE	mean 3 months
Mogey 2012	TMD (T1, DTI)	FA	Resting	17	23±14-11±9 NPS	8.8±4.25 years
Guttmann 2013	TMD (MRI BOLD fMRI)	BA, CBF, FA	Intrinsic brain activity, finger & thumb	13	4 (44-43)	NPS, MPQ 10.7±4 years
Zhao 2011	TMD (T1, DTI)	BA	Resting	11	3 (33-14-12) NPS, BCI, BDI	mean 3 months
Ichijo 2012	TMD (MRI T2/質子密度)	PC	Resting	8	23±1-17 NPS, SF36PQ, BPI, STOPE	mean 3 months
Guttmann 2013	TMD (GASL, DTI)	GM, metabolism levels	Intrinsic brain activity by clustering	16	4 (45-14-12) NPS, MPQ, BDI, STOPE	11±4.3 years
Weissman-Pogal 2011	TMD (T1, structural), T2 (functional)	Peak activation coordinates fMRI/DTCP, restfMRI/DTCP, restfMRI	17	19±2-11 NPS	13±3.3 years	
Sindrig 2018	BMS (T1, DTI, fMRI sequence)	GMV	Resting	7	5 (59-41-12) Unadjusted, uncorrected activation	3 months
Khurana 2013	BMS (DTI, fMRI sequence)	GMV, FA, DTI, PC	Resting	9	54±4-77 NPS	4-4.4 years
Abdullah 2006	BMS (fMRI sequence)	BA	Thermal simulation	8	49 (40-16-10) SCL, BDR, BCI, STAI	16.5±3.1 months
Kotenko 2020	BMS (T2)	BA	Thermal simulation	15	52 (44-6.3)	15

### Conclusions

- Overlap in functional and emotional areas lends support to the classification of chronic primary Oro-facial pain
- Heterogeneity did not allow meta-analysis
- Supports use of biopsychosocial interventions such as ours which can be accessed via QR code:

