



Association between Pre-Adolescent Spinal Pain and Painful Temporomandibular Disorders in Young Adulthood



AARHUS UNIVERSITY



Scandinavian Center for Orofacial Neurosciences (SCON)

Poster number: **WE411**

Mojdeh Mansoori¹, Cristina Rocha Exposto¹, Bodil Hammer Bech², Luda Diatchenko³, Lene Baad-Hansen¹

1. Department of Dentistry and Oral Health, Section for Orofacial Pain and Jaw Function, Aarhus University, Denmark. 2. Department of Public Health - Research Unit of Epidemiology, Aarhus University, Denmark. 3. Departments of Anesthesia & Faculty of Dentistry, McGill University, and Genome Quebec Innovation Centre, Montreal, Quebec, Canada.

1. Background

- Painful temporomandibular disorders (**p-TMD**): Common non-odontogenic chronic orofacial pain
- Co-morbidity: TMD co-occurs with cervical spinal pain [1]
- Shared Mechanisms: Common pathophysiological mechanisms
- Several cross-sectional studies but lack of longitudinal data showing association between p-TMD and spinal pain [2-4]
- Knowledge Gap: Comprehensive understanding lacking [5]
- Prevalence in Children: Spinal pain is common among children [6]

2. Aim

Investigate the association between pre-adolescent spinal pain and the presence of p-TMD in young adulthood

3. Methods

- Data Source: Danish National Birth Cohort (DNBC)
- Participants: Aged 18-24 who completed the TMD pain screener
- Spinal Pain Data: Collected at DNBC 11-year follow-up using Young Spine Questionnaire (YSQ)
- Overall Spinal Pain: Composite of neck, middle back, and low back pain, using the most severe pain reported [6].
- Spinal Pain Categories:
 - No/mild intensity/low frequency pain (group 1)
 - Moderate intensity/medium frequency pain (group 2)
 - Moderate to severe intensity/high frequency (group 3)

Table 1. Spinal Pain Categories		How much did it hurt at its worst?					
		1 (no pain)	2	3	4	5	6 (very much pain)
Pain Frequency	Yes, often	Group 1	Group 2	Group 2	Group 3	Group 3	Group 3
	Once in a while	Group 1	Group 2	Group 2	Group 3	Group 3	Group 3
	Once or twice	Group 1	Group 2	Group 2	Group 2	Group 2	Group 2
	Never	Group 1	Group 1	Group 1	Group 1	Group 1	Group 1

4. Statistics

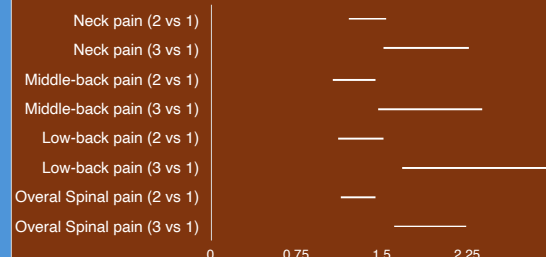
- Analyses: Logistic Regression Models
- Adjusted for confounding factors:
 - ✓ Sex, sleep quality, mental health, maternal socio-occupational status
- Addressing Selection Bias:
 - ✓ Utilized inverse probability weighting (IPW) to mitigate selection bias

5. Results

- 11,982 participants completed the TMD pain screener
- Data on spinal pain were available for 9,639 individuals (65% females)

Table 2. Distribution of p-TMD vs spinal pain				
	Spinal Pain			Total
	No/mild intensity/ low frequency	Moderate intensity/ medium frequency	Moderate to severe intensity/ high frequency	
	Neck pain			
p-TMD (-)	4,778 (77.7%)	1,916 (69.6%)	454 (62.5%)	7,148 (74.2%)
p-TMD (+)	1,373 (22.3%)	836 (30.4%)	273 (37.5%)	2,482 (25.8%)
Total	6,151 (100%)	2,752 (100%)	727 (100%)	9630 (100%)
Middle back Pain				
p-TMD (-)	5,922 (75.9%)	970 (69.5%)	248 (59.9%)	7,140 (74.2%)
p-TMD (+)	1,885 (24.1%)	426 (30.5%)	166 (40.1%)	2,477 (25.8%)
Total	7,807 (100%)	1,396 (100%)	414 (100%)	9,617 (100%)
Low back Pain				
p-TMD (-)	6,215 (75.8%)	755 (67.5%)	169 (55.2%)	7,139 (74.2%)
p-TMD (+)	1,979 (24.2%)	364 (32.5%)	137 (44.8%)	2,480 (25.8%)
Total	8,194 (100%)	1,119 (100%)	306 (100%)	9619 (100%)
Overall Spinal Pain				
p-TMD (-)	4,136 (78.2%)	803 (71.9%)	714 (62.2%)	7,153 (74.2%)
p-TMD (+)	1,155 (21.8%)	898 (28.1%)	433 (37.8%)	2,486 (25.8%)

Odds Ratios of p-TMD for Different Spinal Pain categories



6. Conclusions

- Presence of spinal pain in pre-adolescence is significantly and strongly associated with p-TMD later in life, i.e., in young adulthood.
- Supports previous cross-sectional research [2-4]
- Clinical importance: Emphasizes screening for multi-location pain in assessment.
- Management: Highlights the need for comprehensive pain care addressing jaw and spine health
- Relevance for patient care: Considering musculoskeletal health from childhood to adulthood, offers insights that could shape early interventions for those at risk of developing painful temporomandibular disorders

7. References

- De Laat, A., et al., Correlation between cervical spine and temporomandibular disorders. Clinical oral investigations, 1998. 2: p. 54-57.
- Kim, D., et al., The relationship between spinal pain and temporomandibular joint disorders in Korea: a nationwide propensity score-matched study. BMC Musculoskeletal Disorders, 2019. 20(1): p. 1-13.
- Wessinger, B., et al., Does a dose-response relation exist between spinal pain and temporomandibular disorders? BMC Musculoskeletal Disorders, 2009. 10(1): p. 1-8.
- Walczyńska-Drąg, K., et al., Correlation between TMD and cervical spine pain and mobility: is the whole body balance TMD related? BioMed research international, 2014. 2014.
- Justribo-Manion, C., et al., Is low back pain a risk/prognostic factor for the development and/or progression of temporomandibular disorders? A systematic review with meta-analysis. Journal of Oral Rehabilitation, 2023.
- Joergensen, A.C., et al., Epidemiology of spinal pain in children: a study within the Danish National Birth Cohort. European Journal of Pediatrics, 2019. 178: p. 695-706.

8. Acknowledgements

This study is supported by Independent Research Fund Denmark and Aarhus University Research Foundation.