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# Chronic Pain Across Time and Generations:

A Longitudinal and Family Perspective

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## Academic dissertation

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## Abstract

### Background

Pain is a complex and personal experience influenced by biological, psychological and social factors. Pain persisting beyond physical tissue healing, is defined as chronic pain. Chronic pain is common among adults and has substantial consequences for both individuals and society. Although biological factors in relation to pain development have been widely studied, social factors and lifestyle factors have been given far less attention, particular in longitudinal perspectives. Temporomandibular disorders (TMD) and widespread pain (WSP) represent two chronic pain conditions, both with substantial impact on the lives of those affected. Therefore, this thesis aimed to improve the understanding of pain variation over time by and generations examining TMD pain and WSP in relation to gender, lifestyle, mental and physical well-being, and generational factors.

### Methods

This thesis includes four studies. Study I, II and III utilized longitudinal data on TMD, collected during repeated dental visits at the individual level between 2010 to 2017. For study II and III, the TMD data were linked to health survey data, independently collected at a health intervention. Study I and III explored onset and remission of TMD states and the associations to gender, physical and mental well-being as well as sick leave. Study II explored associations between TMD and lifestyle factors and sick leave. Study IV utilized cross-sectional data from three data bases. Together, these databases cover three generations, consisting of parents, children, and grandchildren – randomly sampled from the general population. The association between WSP and parental history of sick leave was explored among children and grandchildren.

### Results

In study I, women had higher rates of onset of all three symptomatic TMD states: TMD pain only, functional limitations only and TMD pain and functional limitations. Moreover, women had a lower rate of remission from TMD pain. Study II showed that TMD was associated with increased sick leave and with a lower health related quality of life. Study III showed that better mental and physical well-being were associated with higher rates of TMD-pain remission whereas sick leave was associated with lower rates. Better mental and physical well-being were associated with lower rates of TMD-pain onset whereas sick leave was associated with higher rates. In Study IV, sick leave due to neck and shoulder pain in the parental generation was significantly associated with WSP in both subsequent generations.

### Conclusions

The finding that TMD pain was not only more prevalent in women, but also with a worse prognosis when compared to men, highlight the importance of considering gender aspects in chronic pain assessment and management. The association between TMD pain and sick leave indicates a substantial burden for both individuals and society, whereas the role of mental and physical well-being in pain remission supports a holistic approach to care. In addition, the association between pain-related sick leave in an earlier generation and widespread pain in later generations suggests that widespread pain may be linked within families. Taken together, these findings reinforce the burden of chronic pain beyond the purely biological and individual perspective.

**Keywords:** Epidemiology, orofacial pain, temporomandibular disorders, widespread pain

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