Long term trajectories of Chronic Widespread Pain: A 21-year prospective cohort latent class analysis

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Background: Chronic widespread pain (CWP) is common (population prevalence of approximately 10%) and has a significant impact on the individual, healthcare, and society. Currently little is known about the actual course of CWP over time, in particular the pathways to the development and maintenance of CWP. One useful way to understand these pathways is to identify common clusters of people who share pain trajectories. Such information is clinically useful to identify factors that predict development, persistence, and resolution of CWP.

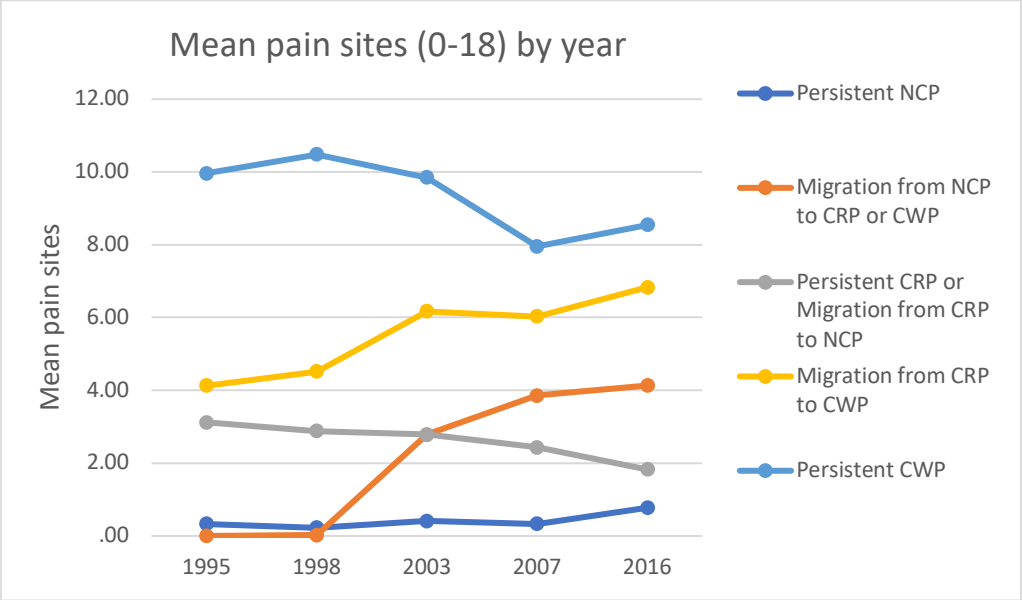
Objectives: The aim of this study was to identify different longitudinal pain trajectories over a period of 21 years.

Method: A 21-year longitudinal cohort of n=1858 adults (aged 20-74) completed surveys relating to their pain status at least three of the five time points 1995, 1998, 2003, 2007, and 2016. Pain status (presence of persistent pain) was ascertained from a report of painful regions (0-18) on a pain mannequin and categorised into: NCP (No chronic pain); CRP (Chronic regional pain) and CWP (chronic widespread pain). Latent Class Growth Analysis (LCGA) was carried out based on these categories on n=1858 participants who had provided data on pain location on at least three of the time-points. Participants were assigned to a trajectory cluster where the posterior probability was the highest. Model fit was assessed by statistical indices and clinical interpretations of clusters.

Results: LCGA identified five clusters describing different pathways of NCP, CRP and CWP over the 21 years. A cluster “Persistent NCP” was the most common pathway (n = 1052, 57%) representing those with no chronic pain over the whole time period. A “Persistent CRP or Migration from CRP to NCP” cluster included 411 individuals (22%) representing a group with stable or improving regional pain. In the groups who were shown to increase pain status the “Migration from NCP to CRP or CWP” cluster included 92 individuals (5%) and. there were 184 individuals (10%) in the cluster “Migration from CRP to CWP” representing a group with regional pain who developed CWP. The final cluster “Persistent CWP” included

119 individuals (6%) representing those with stable CWP throughout the time period. Figure 1 presents the mean number of pain sites over time by cluster.

Figure 1. Mean pain sites for each cluster for each point in time.



Conclusion: This study showed that whilst half of adults report no chronic pain over 21 years, a substantial proportion develop CWP or have persistent CWP over this time period. Whilst a common trajectory was movement from chronic regional pain to no chronic pain, a common pattern of improving CWP was not seen suggesting this is an uncommon trajectory. This is the first study to show long term trajectories for CWP, and further work is now required to understand factors that may identify individuals at risk of worsening pain status. These identified pathways of chronic pain over a lifespan improves the understanding of long-term development of chronic pain and chronic widespread pain.