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TITLE: Sleep quality and back pain: same genes?

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ABSTRACT: Sleep quality (SQ), chronic Low Back Pain (LBP) and chronic Neck Pain (NP) are genetically influenced; all three conditions frequently co-occur; and shared genetic etiology on a pairwise base has been reported. However, to our knowledge no study has investigated if these three conditions are influenced by the same genetic and environmental factors and the extent and pattern of genetic overlap between them yet. The sample comprised 2134 participants of the Murcia Twin Registry with a mean age of 53.77(SD=7.2). The sample was 54.6% female. SQ was measured by means of the Pittsburgh Sleep Quality Index Questionnaire. Lifetime prevalence of both NP and LBP were assessed through a dichotomous self-reported question derived from the Spanish National Health Survey. A multivariate model and a common pathway model with two latent factors were fitted in order to estimate the proportion of the variance accounted for: 1) specific genetic and environmental factors on LBP and NP separately; 2) genetic and

environmental factors on a latent factor for back pain (encompassing LBP and NP); and 3) common genetic and environmental factors shared by SQ and the latent back pain factor. Variance of the latent back pain factor is explained by both genetic (41%) and environmental (59%) factors. These results also showed that genes affecting SQ only contribute with a 3% of the variance to the common latent back pain variable and only 5% of the variance on the latent pain factor is shared with environmental factors related to SQ.

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