

# The association between depressive symptoms and pain-related functioning among adolescents with musculoskeletal pain. A longitudinal study.

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## Background

- Globally, up to 40% of the adolescents report recurrent musculoskeletal pain.
- In Scandinavian studies, nearly half of the adolescents reporting recurrent musculoskeletal pain also report co-occurring depressive symptoms.
- Musculoskeletal pain often affects functioning in everyday activities, i.e. pain-related functioning.
- There is some evidence that depression and pain-related functioning correlate. However, uncertainty remains of how they relate to one another across time.

## Aims

The aim of this study was to analyse the temporal association between depressive symptoms and pain-related functioning in adolescents with recurrent musculoskeletal pain.

## Materials and Methods

- This study was embedded in a five-year longitudinal cohort study, the Three-cities study, including adolescents in 18 lower secondary schools in three cities in mid-Sweden ( $n=2768$ ).
- A sub-sample of 617 adolescents in 7<sup>th</sup> grade with recurrent musculoskeletal pain (defined as pain in the back- neck- and/or shoulders once a week, or more, during the last six months) was included in this study, with data collected from the first three years.
- Measures:
  - Sociodemographics
  - Depressive symptoms: Center for Epidemiology Studies Depression Child (CESD-C).
  - Pain-related functioning: Three questions, assigning problems in school, leisure activities and contact with friends due to pain.
- Four models were estimated to find the best fitting model for the relationship between depressive symptoms and pain-related functioning across time:
  - Autoregressive (the basic model)
  - Depressive symptoms predicting pain-related functioning
  - Pain-related functioning predicting depressive symptoms
  - A bidirectional model where depressive symptoms predict pain-related functioning and pain-related functioning predict depressive symptoms.

Covariate: Gender



Photographer: Antonio Guillem

## References:

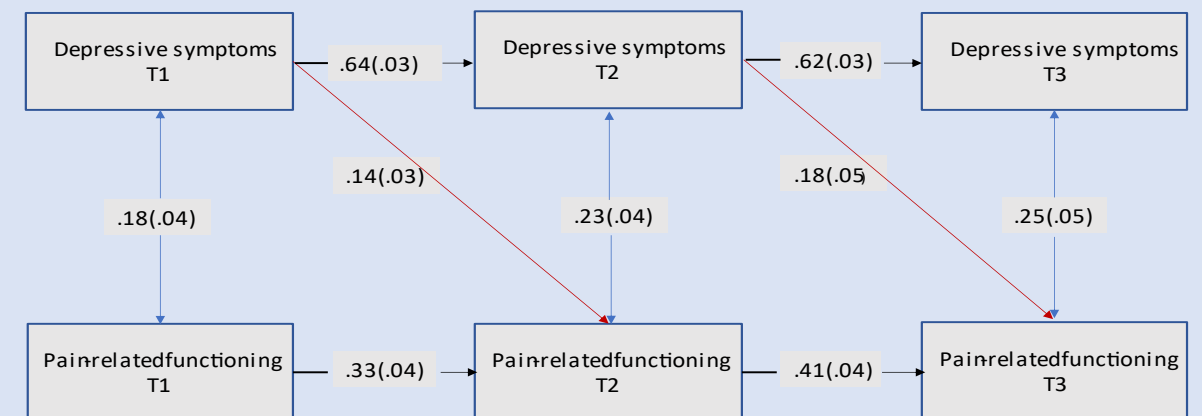
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## Results

- Depressive symptoms and pain-related functioning are correlated across time.
- In this cohort of adolescents with recurrent musculoskeletal pain, depressive symptoms had a larger impact on pain-related functioning, after two years, than pain-related functioning had on the development of depressive symptoms.

Table 1. Model fit indices for selecting the best fitting model on the relationship between depressive symptoms and pain-related functioning among adolescents with chronic musculoskeletal pain

Model	$\chi^2$	RMSEA	CFI	SRMR	AIC	BIC
Autoregressive model	60.540*	0.09	0.94	0.94	5446.23	5552.42
Pain-related functioning on depressive symptoms	57.87*	0.09	0.94	0.94	5447.56	5562.60
<b>Depressive symptoms on pain-related functioning</b>	<b>35.90*</b>	<b>0.07</b>	<b>0.07</b>	<b>0.97</b>	<b>5425.59</b>	<b>5540.63</b>
Bidirectional model	30.06*	0.07	0.07	0.97	4529.41	4644.42



Figur 1. Cross-lagged panel model of depressive symptoms on pain-related functioning among adolescents with chronic musculoskeletal pain

## Conclusions

These results support a theoretical model where depressive symptoms drive pain-related functioning more than the other way around. This emphasises the importance of screening for depression in adolescents with recurrent musculoskeletal pain. In addition, targeting depressive symptoms might be essential in reducing musculoskeletal pain and its functional consequences.

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