

PAIN ATTITUDES, PAIN COPING, SOCIAL SUPPORT AND SELF-REPORTED PAIN IN OSTEOARTHRITIS

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BACKGROUND

It is well recognized that people with similar osteoarthritis (OA) severity, as determined by radiographs, may experience significantly different levels of pain, suggesting that the pain experience in OA is influenced not only by biologic or physiological factors, but also by psychological and social factors.

OBJECTIVE

To examine the relationship between OA pain and pain coping, pain attitudes and social support, after adjusting for potential confounders, among people with hip or knee OA.

METHODS

Subjects: 717 individuals participating in a population-based cohort study of individuals with hip or knee OA living in Ontario, Canada. Participants were aged 55+ years with moderate to severe hip or knee OA at baseline (1995-1997).

Telephone Interview: Standardized telephone interview assessed:

- Socio-demographics (age, gender, body mass index [BMI], income)
- Health status (# self-reported comorbidities other than arthritis)
- OA pain and disability (WOMAC pain and physical function scores)
- Pain attitudes (Pain Catastrophizing Scale)
- Pain coping (Vanderbilt Multidimensional Pain Coping Inventory passive and active coping scales; Gignac Coping Behaviours Scale)
- Social support (Lubben Social Network Scale)

Statistical Analysis: Univariate analyses examining the relationship between OA pain (WOMAC pain scale score) and the following independent variables: socio-demographic characteristics, pain attitudes, pain coping and behaviours, and social support. Multivariable linear regression was used to examine independent correlates of OA pain to develop hypotheses for prospective testing.

RESULTS

Table 1: Demographic Characteristics (n= 717)

Age (years), mean (min-max)	76.9 (57.8 – 96.8)
Female, n (%)	551 (76.9%)
BMI (kg/m ²), mean (min – max)	28.5 (16.0 – 49.6)
≥ 2 comorbid conditions, n (%)	387 (54.0)
Annual household income ≤ \$20,000, n (%)	319/584 (54.6%)
WOMAC pain score (/20) ¹ , mean (min – max)	8.6 (0 – 18)
WOMAC physical function score (/68) ² , mean (min-max)	33.5 (0 – 65)
Pain Catastrophizing Score (/52) ³ , mean (min – max)	8.9 (0 – 45)
Vanderbilt Passive Pain Coping Subscale (/24) ⁴ , mean (min – max)	6.0 (0 – 22)
Vanderbilt Active Pain Coping Subscale (/20) ⁵ , mean (min – max)	9.8 (0 – 20)
Gignac Behavioural Coping Scale (/5) ⁶ , mean (min-max)	2.8 (1 – 5)
Lubben Social Network Scale (/30) ⁷ , mean (min – max)	20.4 (0 – 30)

Higher scores indicate ¹greater pain, ²greater physical disability, ³greater pain catastrophizing, ⁴greater degree of passive pain coping strategies, ⁵greater degree of active pain coping strategies, ⁶greater behavioural coping and ⁷higher level of social support.

RESULTS, continued

Univariate Analyses

Correlates of OA Pain: Greater pain (WOMAC pain scores) was associated with older age, female sex, lower income, greater arthritis functional disability, less social support, and higher levels of each pain catastrophizing, passive pain coping and coping behaviours, but lower levels of active pain coping (p<0.0001 for all).

Correlates of Greater Social Support: Individuals with greater social support (Lubben Social Network Scale) were less likely to engage in pain catastrophizing and passive pain coping, and had lower scores on coping behaviours, and were more likely to engage in active pain coping (p<0.0001 for all)

Multivariable Analysis: Independent correlates of greater OA pain

Table 2: Multivariable Regression Model – Relationship Between Pain, Social Support and Coping

Independent variables	Dependent Variable = WOMAC pain scale score (n = 568)							
	Parameter Estimate	P value	Parameter Estimate	P value	Parameter Estimate	P value	Parameter Estimate	P value
Intercept	-0.481	0.85	-0.529	0.807	0.115	0.954	2.028	0.366
Age	0.121	<0.0001	0.092	<0.0001	0.029	0.148	0.077	0.0002
Sex = male	-0.577	0.136	-0.396	0.223	0.009	0.976	-0.496	0.125
BMI	0.130	<0.0001	0.095	0.0004	0.070	0.005	0.090	0.0007
Income	-0.779	0.0001	-0.632	0.0002	-0.568	0.0003	-0.588	0.0005
Social Support	-0.146	<0.0001	-0.047	0.019	-0.023	0.216	-0.020	0.331
Pain Catastrophizing			0.209	<0.0001	0.134	<0.0001	0.176	<0.0001
Gignac Coping Behaviours					1.57	<0.0001		
Vanderbilt Active Pain Coping							-0.158	0.0001

R² for final model including Pain Catastrophizing and *either* Gignac Coping Behaviours Scale *or* Active Pain Coping subscale of the Vanderbilt Multidimensional Pain Coping Inventory = 0.511, p<0.0001.

The effect of social support was reduced when pain attitudes (pain catastrophizing) were included in the model, and became non-significant when measures of pain coping were included in the model (either Gignac Coping Behaviours Scale or the Vanderbilt active pain coping subscale), suggesting the impact of social support on OA pain may be mediated by pain attitudes and pain coping (Table 2, above).

CONCLUSIONS

As has been shown for other chronic conditions, adjusting for socio-demographic characteristics, the pain experience in OA is strongly related to social support, possibly through its effect on pain attitudes and pain coping. Prospective studies are needed to evaluate the temporal relationships between these factors over time.