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Differences in body image and pain responses in nonspecific low back pain

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Background and aims

There is growing evidence that changes in body image are related to pain, especially in low back pain (LBP)[1]. Besides, psychosocial variables based on the avoidance-endurance model[2] suggest a link between catastrophizing, fear/anxiety and avoidance behavior and chronicity of pain via physical underuse and increased disability on the one hand. On the other hand, a link between distress or eustress endurance pain responses with thought suppression or distraction and pain persistence behavior, physical overuse and long-term chronicity of pain has been shown[3]. To date, there is a lack of research on the relative impact from body image variables on pain and disability, compared to the AEM-based pain responses. The present study aimed to investigate whether body image in terms of physical efficacy, self-acceptance, and health may explain the variance in pain and disability independent from AEM-based pain responses.

Methods

94 LBP-patients (44 male, mean age 39.2 ± 13,19) consecutively recruited from an exercise treatment setting.

Measures:

- Pain intensity (mean 7 days, back and leg pain)
- Von Korff Disability Score
- Avoidance-Endurance-Questionnaire AEQ[4]
  - Anxiety/Depression Scale ADS
  - Help-/Hopelessness Scale HHS
  - Avoidance of Social Activities Scale ASAS
  - Thought Suppression Scale TSS
  - Pain Persistence Scale PPS
- Beck Depression-Inventory BDI-PC[5]
- Frankfurt-Body-Concept-Scales FKKS[6]
  - Physical Efficacy Scale SKEF
  - Self Acceptance Scale SSAK
  - Health-related body image SGKB

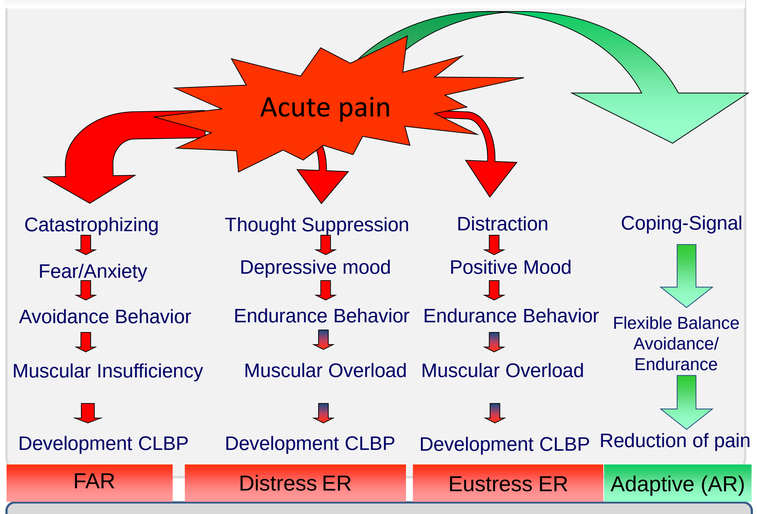

Fig. 1: Avoidance-Endurance-Model of pain

Results

Table 1 Correlations between pain, disability, AEM-responses to pain and body image

	1	2	3	4	5	6	7	8	9	10	11
1 Back pain	1										
2 Leg pain	.498**	1									
3 Disability	.594**	.577**	1								
4 ADS	.289**	.227*	.341**	1							
5 HHS	.325**	.286**	.573**	.660**	1						
6 ASAS	.056	.061	.246*	.539**	.498**	1					
7 TSS	.290**	.332**	.388**	.458**	.430**	.298**	1				
8 PPS	.153	.333**	.204	-.001	-.077	-.166	.555**	1			
9 SKEF	-.205*	-.198	-.310**	-.289**	-.237*	-.411**	-.347**	-.136	1		
10 SSAK	-.203*	-.203*	-.280**	-.466**	-.403**	-.244*	-.261*	-.001	.511**	1	
11 SGKB	-.336**	-.287**	-.516**	-.540**	-.561**	-.499**	-.437**	-.066	.706**	.615**	1

The *bivariate correlations* reveal significant negative associations between all body image variables and the outcomes back pain and disability (see tab 1). Self-acceptance and health-related body image were further correlated with leg pain. Furthermore, most of the fear-avoidance variables are positive related to all outcomes. Among endurance, thought suppression was positive related to all outcomes while pain persistence was significant associated with leg pain.

Table 2 Results of multiple regression analyses

	Beta	T	p
Pain intensity (back pain)			
1 Disability	.550	7.667	.000
R^2 corr: .294			
Pain intensity (leg pain)			
1 Disability Score	.510	5.787	.000
2 Pain Persistence	.229	2.599	.011
R^2 corr: .345			
Disability			
1 HHS	.409	4.042	.000
2 PPS	.218	2.560	.012
3 SGKB	-.257	-.254	.013
R^2 corr: .389			

Results on *multiple regression analyses* (see tab 2) indicate, that intensity of back pain was only predicted by disability, explaining .29 % of the variance. Intensity of leg pain was independently predicted by disability and pain-related persistence behavior. Both variables explaining .35% of the variance of that criterion.

Pain disability, in turn, was independently predicted by helplessness/hopelessness, pain persistence and health-related body image, explaining .39 % of the variance altogether.

Neither age nor gender were significantly correlated with the outcomes.

Statistics

Bivariate correlations were computed to calculate the relationship between pain intensity (mean back and leg pain during 7 days), disability and all psychosocial variables. A set of multiple regression analyses calculated the relative impact of body image variables and AEM-based pain responses on pain and disability. The selection of predictor variables was conducted blockwise including (1) pain or disability, (2) fear-avoidance, (3) endurance, (4) body image variables.

Conclusions

The results of this study indicate that different aspects of body image, such as physical self efficacy, self-acceptance and image of health are negatively associated with intensity of pain and disability in patients suffering from non-specific low back pain. Body image variables were further negatively related to all fear-avoidance variables and thought suppression as one of the endurance pain responses. Thus, body image seem to play a significant role in low back pain and distinct maladaptive pain responses. To note, body image seems not to be associated with pain persistence behavior. The multiple regression analyses indicate that especially health-related body image is an independent predictor of disability, besides helplessness/hopelessness and pain persistence. Pain persistence, in turn, plays a role in leg pain as well as in disability.

We may conclude that body image variables besides the well-known fear-avoidance and endurance-related pain responses should be addressed more differentially in the treatment of patients with low back pain. However, further studies are needed to affirm the importance of body image on the maintenance of LBP and the success of therapy.

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