

Psychologically Informed Treatment of Posttraumatic Pain – What are the Challenges & What is Missing?

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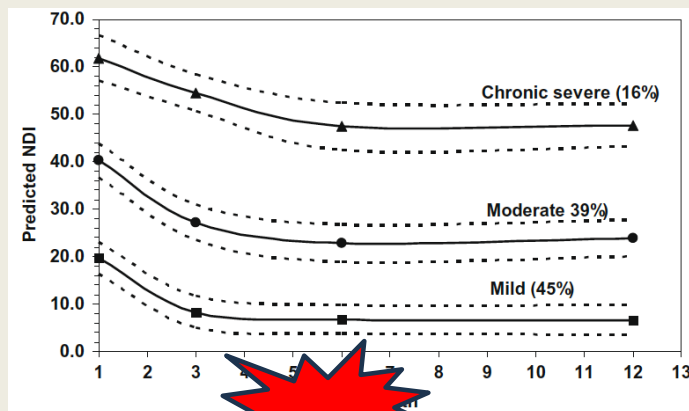
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Key messages

- Posttraumatic pain (although a sudden onset) do not arise out of a vacuum.
- Biological and psychological vulnerabilities impact the development of posttraumatic pain (and PTSD).
- Individual vulnerability factors influencing the function of the hypothalamic-pituitary-adrenal axis.
- Not "just" psychology but a psycho-biological link.
- Traumatic events activate this vulnerability.

The development of Chronic Whiplash Associated Disorder

Vulnerabilities?



Interventions?

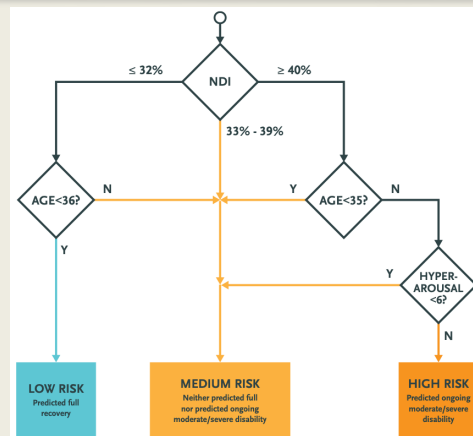


1-3 years

1-3 years

Hospital Diagnosed
Comorbidities
OR 1.4 (1.2.-1.9)
(Bendix et al. 2016)

Hospital Diagnosed
Comorbidities
OR 1.6 (1.1.-2.0)
(Bendix et al. 2016)





Pain 139 (2009) 248–259

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Research papers

Post-trauma ratings of pre-collision pain and psychological distress predict poor outcome following acute whiplash trauma: A 12-month follow-up study

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Helge Kasch^c, Troels S. Jensen^d, Per Fink^a

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Abstract

Patients with acute whiplash trauma were followed to examine if post-trauma ratings of pre-collision pain and psychological distress were associated with reduced work capability and neck pain at 12 months follow-up. The study included 740 consecutive patients (474 females, 266 males) referred from emergency departments or primary care after car accidents in four counties in Denmark. After the collision patients received a questionnaire on psychological distress, unspecified pain and socio-demographics and 12 months later a follow-up on work capability and neck pain was performed. Risk factors were identified by multiple logistic regression analysis. Factors associated with affected work capacity at the 12-month follow-up were pre-collision unspecified pain condition (OR = 2.4, $p = 0.002$) and socio-demographic characteristics: female gender, low educational level, unemployment and blue collar worker. Factors associated with considerable neck pain at follow-up were pre-collision unspecified pain (OR = 3.5, $p < 0.000$), pre-collision high psychological distress (OR = 2.1, $p = 0.03$) and socio-demographic characteristics: female gender and formal education >4 years. Pre-collision neck pain and severity of accident were not associated with poor outcome. In conclusion unspecified as opposed to specified pain (neck pain) before the collision is associated with poor recovery and high accumulation of pre-collision psychological distress is associated with considerable neck pain at follow-up. However, no conclusions on causality can be drawn. Personal characteristics before the collision are important for recovery and attention to pre-collision characteristics

N = 740 consecutive patients

12 MO follow-up **pre-collision** predictors of:

Affected work capacity

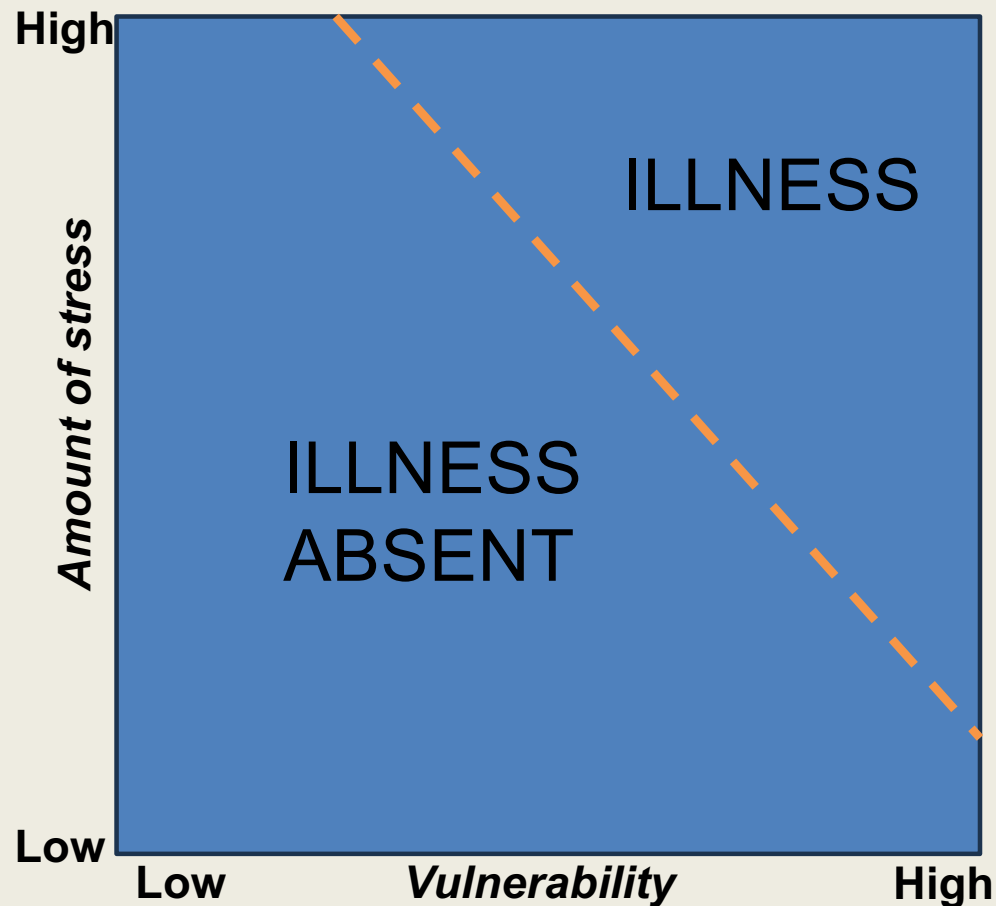
➤ Unspecified pain OR 2.4

Neck pain \geq 4 VAS

➤ Unspecified pain OR 3.5

➤ High psychological distress OR 2.1

Diathesis-Stress Model



Diathesis

Biological Factors

- Genetics
- Neurobiology
- Brain anomalies

Social Factors

- Social support
- Attachment Style

Psychological Factors

- Locus of control
- Self Efficacy
- Problem solving skills
- Psychological flexibility

Stress

Environmental

- Prenatal trauma
- Childhood abuse
- Neglect
- Family conflicts
- Significant life changes
- Traumatic events
- Socioeconomical
- Abuse of drugs



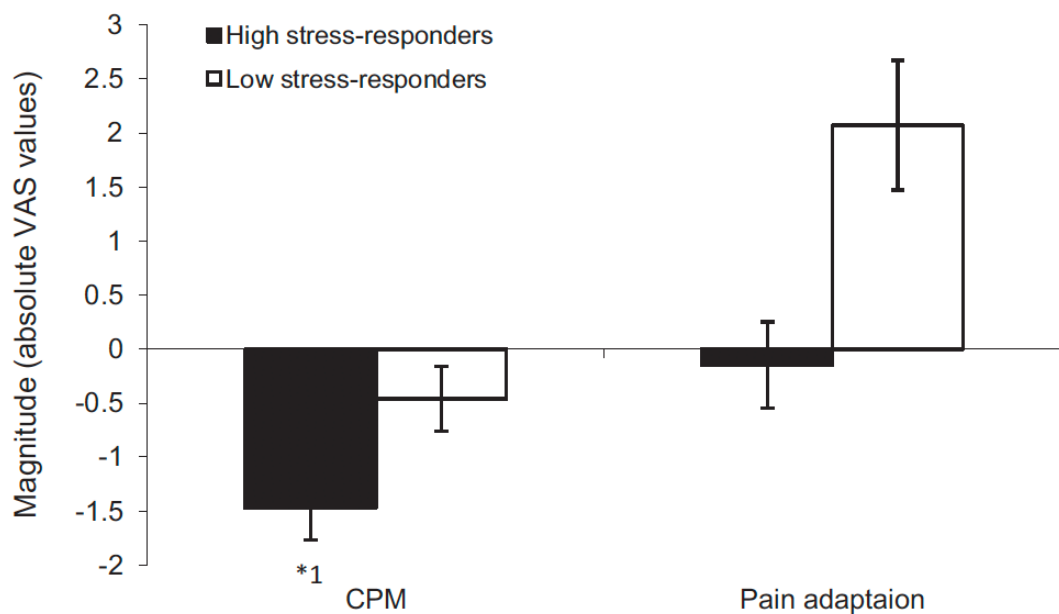
Development of the Disorder/behavior

Opposite Effects of Stress on Pain Modulation Depend on the Magnitude of Individual Stress Response



Nirit Geva and Ruth Defrin

Department of Physical Therapy and Sagol School of Neuroscience, Sackler Faculty of Medicine, Tel-Aviv University, Tel-Aviv, Israel.



N=31 healthy subjects

Posttraumatic Stress Symptoms and Pain Sensitization After Whiplash Injury: A Longitudinal Cohort Study With Quantitative Sensory Testing

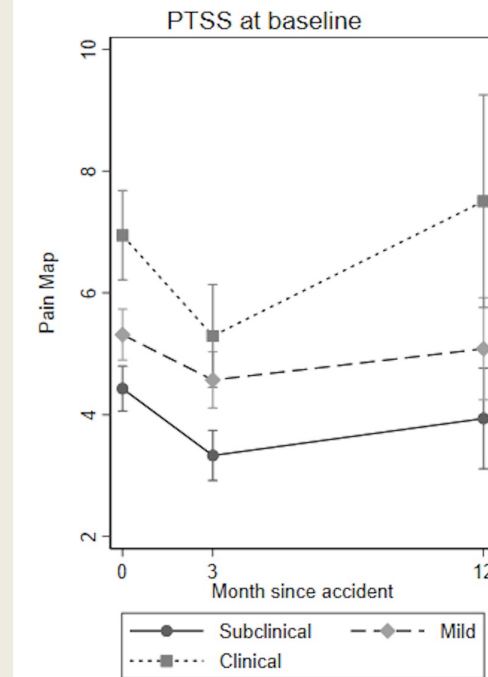
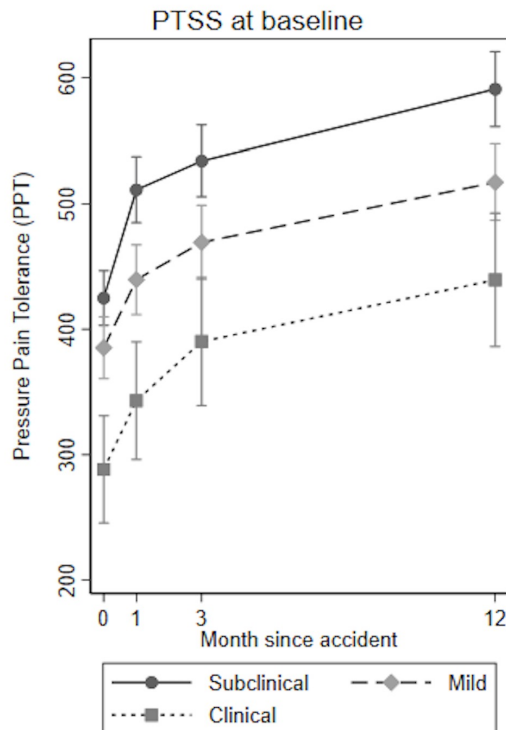
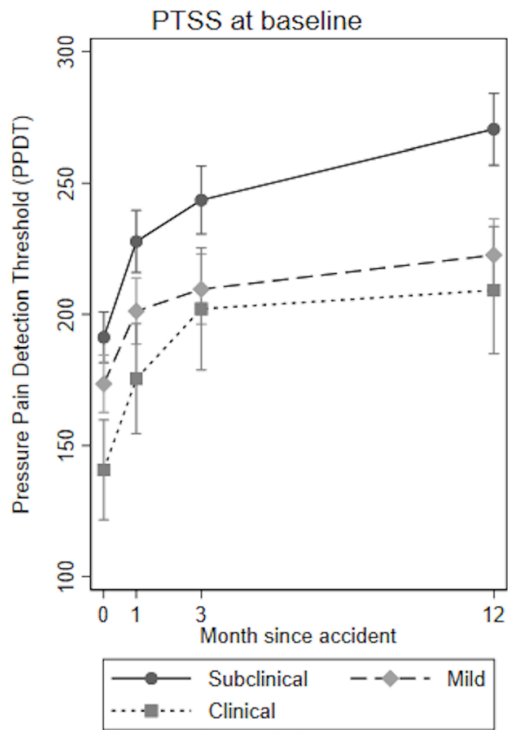
Tonny Elmose Andersen ^{1*}, Sophie Lykkegaard Ravn ^{1,2}, Tina Carstensen ^{3,4}, Eva Ørnbøl ³, Lisbeth Frostholt ^{3,4} and Helge Kasch ^{4,5}

WAD Cohort N=740

Within 10 days, 1, 3, 6, & 12 month post-injury.

Quantitative Sensory Testing (QST)

- Algometry, threshold and tolerance
- Palpation muscles
- Cervical range of motion (CROM)
- Direction with pain CROM
- Widespread pain



Reciprocal associations of pain and post-traumatic stress symptoms after whiplash injury: A longitudinal, cross-lagged study

S.L. Ravn^{1,2}, M. Sterling³, Y. Lahav^{1,4}, T.E. Andersen¹

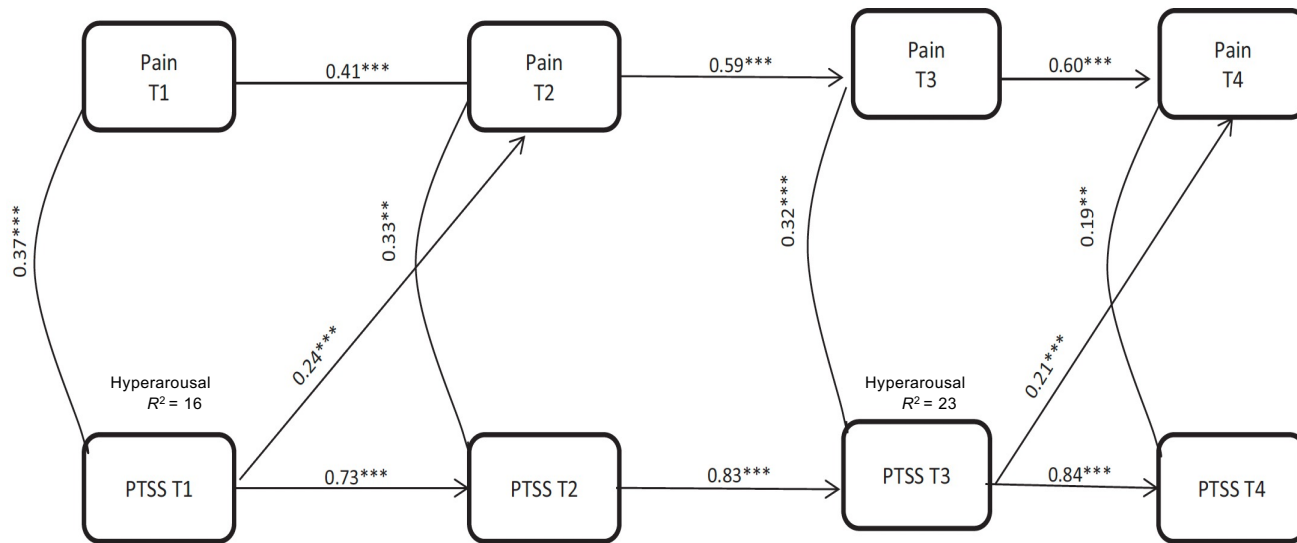
1 Department of Psychology, University of Southern Denmark, Odense M, Denmark

2 Specialized Hospital for Polio and Accident Victims, Rødovre, Denmark

3 Recover Injury Research Centre, NHMRC Centre of Research Excellence in Recovery Following Road Traffic Injuries, The University of Queensland, Brisbane, Qld, Australia

4 I-Core Research Center for Mass Trauma, Tel Aviv, Israel

2017



N=253
WAD grade I-III

Genetic Vulnerability



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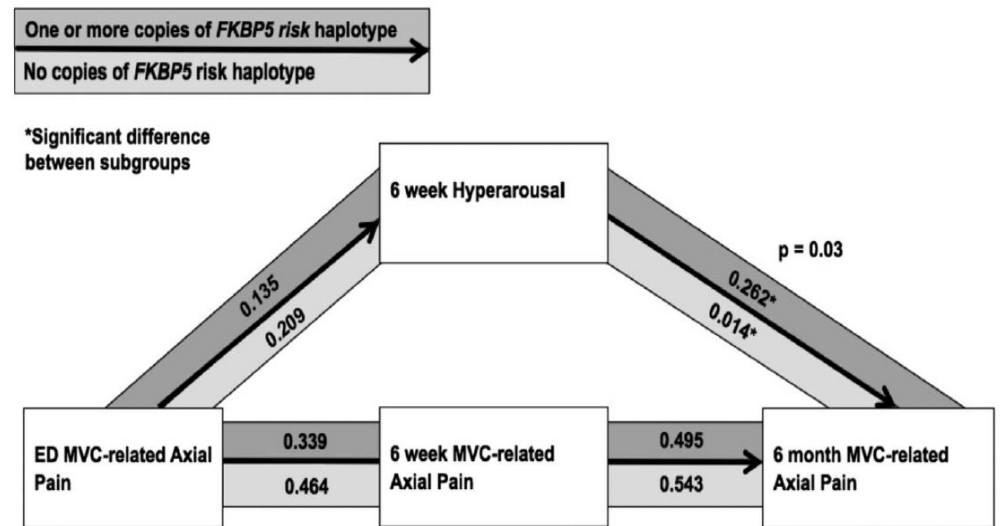
Polymorphisms in the glucocorticoid receptor co-chaperone FKBP5 predict persistent musculoskeletal pain after traumatic stress exposure

Andrey V. Bortsov^{a,b,1}, Jennifer E. Smith^{a,b,1}, Luda Diatchenko^c, April C. Soward^{a,b}, Jacob C. Ulirsch^{a,b}, Catherine Rossi^d, Robert A. Swor^e, William E. Hauda^f, David A. Peak^g, Jeffrey S. Jones^h, Debra Holbrookⁱ, Niels K. Rathlev^j, Kelly A. Foley^k, David C. Lee^l, Renee Collette^m, Robert M. Domeierⁿ, Phyllis L. Hendry^o, Samuel A. McLean^{a,b,p,*}

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Stress-related psychological symptoms contribute to axial pain persistence after motor vehicle collision: path analysis results from a prospective longitudinal study

Rose K. Feinberg^{a,b}, JunMei Hu^{a,b}, Mark A. Weaver^c, Roger B. Fillington^d, Robert A. Swor^e, David A. Peak^f, Jeffrey S. Jones^g, Niels K. Rathlev^h, David C. Lee^l, Robert M. Domeier^j, Phyllis L. Hendry^k, Israel Liberzon^l, Samuel A. McLean^{a,b,m,*}



Attachment Insecurity as a Vulnerability

What is Attachment Theory

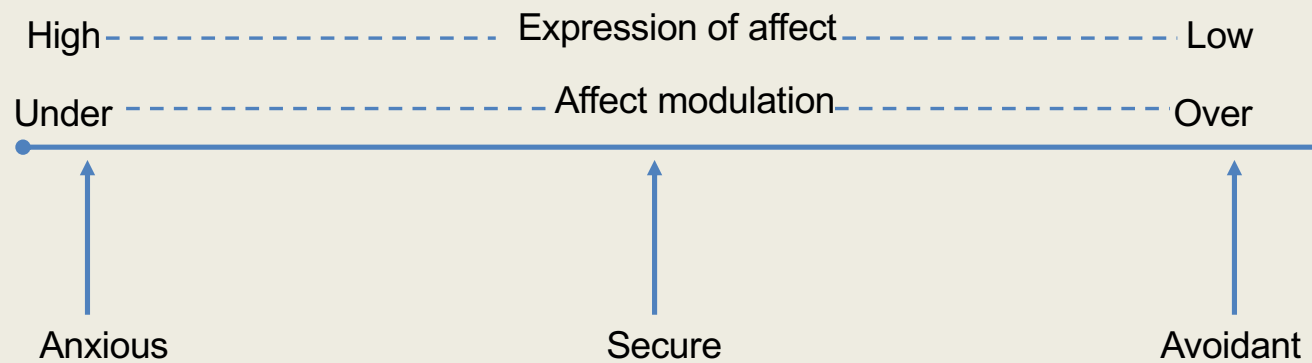
- Our biology and the sum of our childhood experiences are the foundation of how we think about ourselves and others.
- John Bowlby (1969) explains how infants are prewired for connection or attachment.
- As infants and children we are 100% reliant on caregivers for survival and emotional connection to feel safe.
- Care takers = attachment figures in the theory.
- Depending on the quality of early interactions with attachment figures we develop stable cognitive and emotional schemas of our self and others.
- As children we learn certain behaviors (attachment behaviors) lead to either being comforted and helped, or they may lead to anxiety, anger or ignorance or a combination thereof from our attachment figures. This shapes different attachment styles.



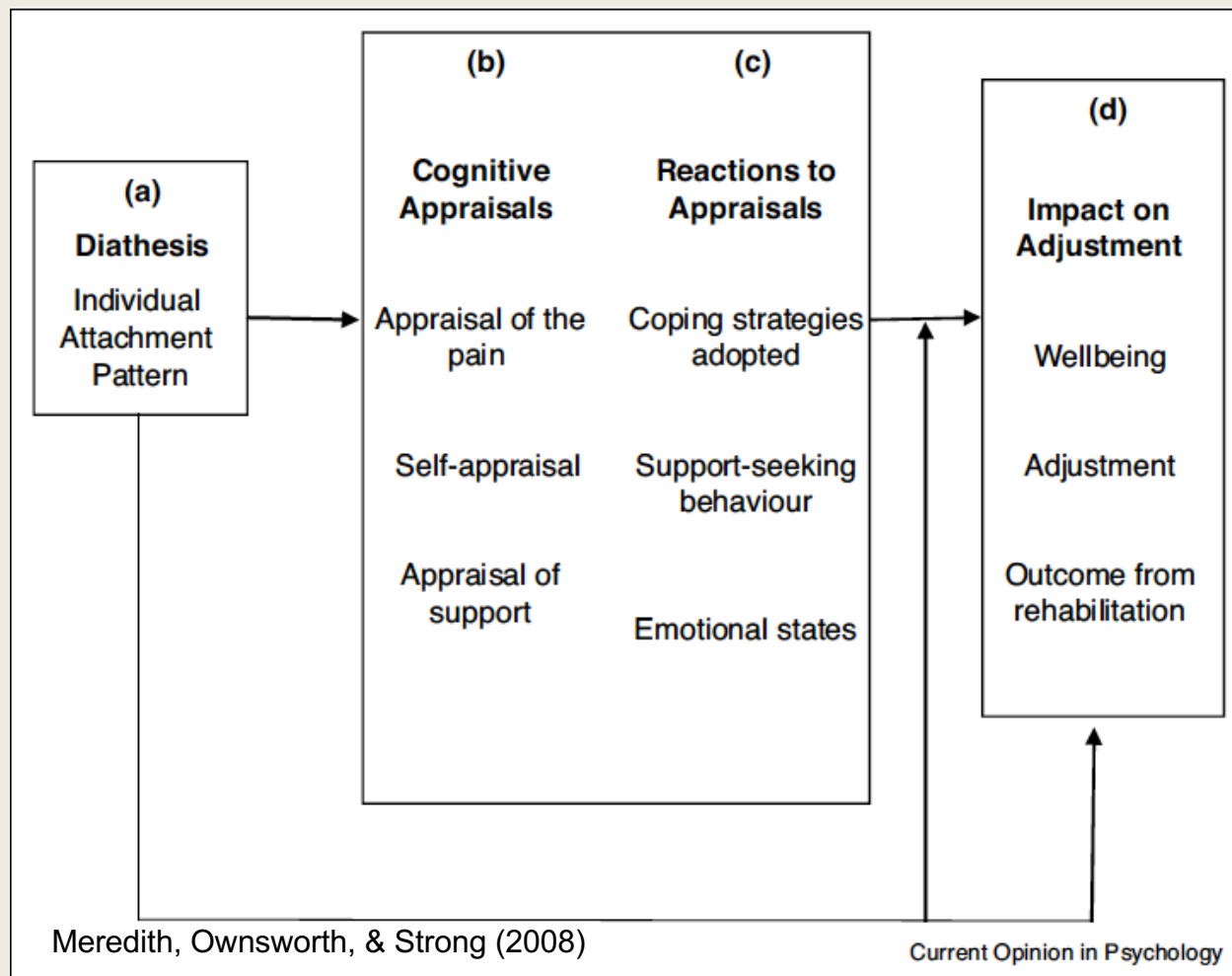
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The attachment dimensions



The Attachment-Diathesis Model of Chronic Pain





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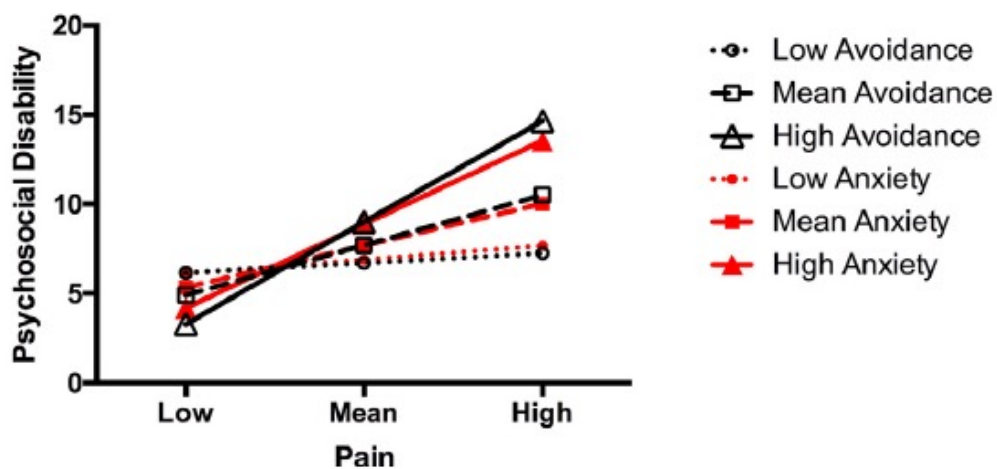


Attachment insecurity as a vulnerability factor in the development of chronic whiplash associated disorder – A prospective cohort study

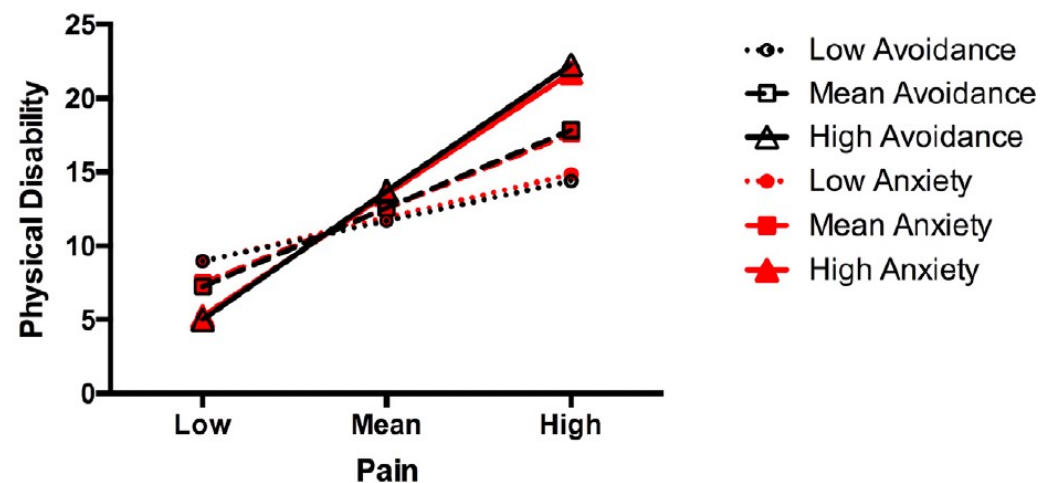
Tonny Elmoose Andersen^{a,*}, Michele Sterling^b, Annick Maujean^b, Pamela Meredith^c

N = 205, T1 < 3 weeks

Moderation by attachment



Moderation by Attachment



Attachment and Posttraumatic Stress Disorder in Multiple Trauma Samples

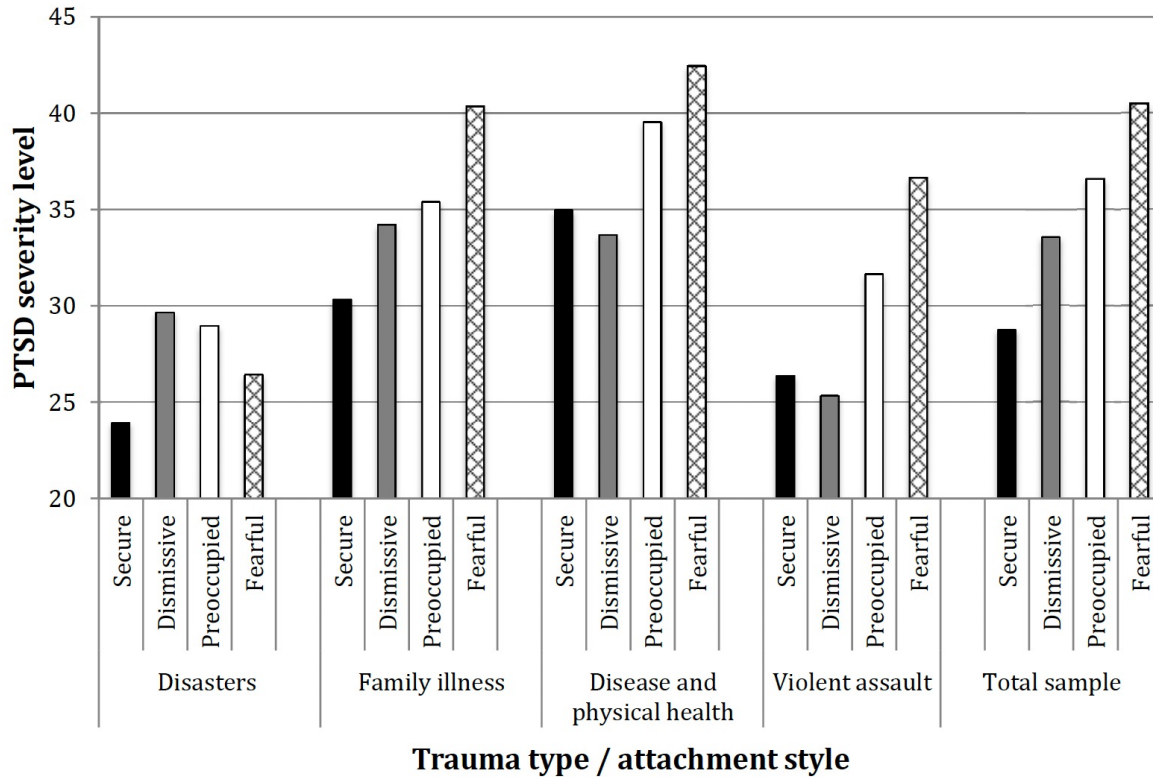
Ask Elklit¹, Karen-Inge Karstoft², Yael Lahav³ and Tonny Elmoose Andersen¹

¹Department of Psychology, University of Southern Denmark, Denmark

²Research & Knowledge Centre, Danish Veteran Centre, Ringsted, Denmark

³Center of Excellence for Mass Trauma, Tel Aviv University, Israel

Trauma categories, attachment style, and PTSD severity level



Adverse Childhood Experiences

Sexual, physical, emotional abuse or neglect

85 studies, N=826.452

Chronic pain in adulthood:

- **OR 1.53** (95% CI, 1.42-1.65);
- **4 ACES 1.95** (95% CI, 1.73-2.19)

Bussières et al. (2023)

So what to do?

- We need to ask patients about their lives and their stories.
- We need to understand how pain affects the whole person and what other stressors are present in their lives.
- Build resilience to stress by increasing psychological flexibility.



ChatGPT generated image

But how?

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ChatGPT generated image

Psychology offers usable insights and methods, but:

"Indeed, a common notion is that psychological treatment for pain is "palliative care", something to be administered when all real medical treatment fails." (Darnall & Colloca, 2018, p.8)

Randomized Controlled Trial > Eur J Pain. 2022 Jul;26(6):1256-1268. doi: 10.1002/ejp.1945.

Epub 2022 Apr 11.

Values-based cognitive behavioural therapy for the prevention of chronic whiplash associated disorders: A randomized controlled trial

Tonny Elmoose Andersen ¹, Sophie L Ravn ^{1 2}, Anna Mejlidal ³, Kirsten Kaya Roessler ¹

Affiliations + expand

PMID: 35364620 PMCID: [PMC9322531](#) DOI: [10.1002/ejp.1945](#)

In relation to this trial, where treatment was delivered by psychologists, we did a qualitative follow-up study (Ravn et al., 2023, EFIC):

- Pain and need beliefs are strongly biomedically focused
- Stigma relating to consulting a psychologist
- Talking is not treating

And similar findings on reluctance to seek out a psychologist has been found by others as well (e.g., Pincus et al., 2015)

EJP

European Journal of Pain



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Personalized pain management: Is it time for process-based therapy for particular people with chronic pain?

Lance M. McCracken

First published: 08 February 2023 | <https://doi.org/10.1002/ejp.2091>

Get it at UQ Library

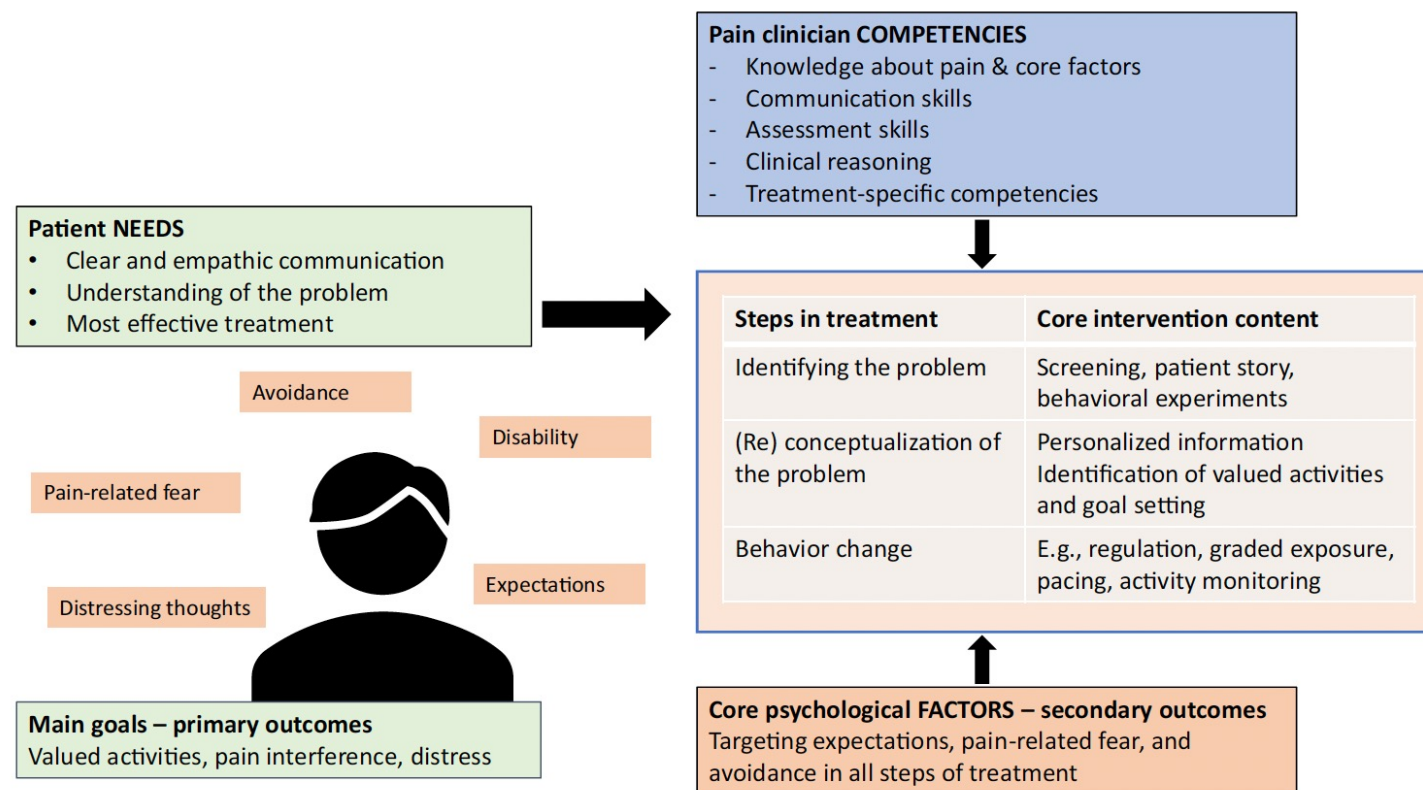
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Topical Review

Steven J. Linton*, Peter B. O’Sullivan, Hedvig E. Zetterberg, Johan W. S. Vlaeyen

The “future” pain clinician: Competencies needed to provide psychologically informed care



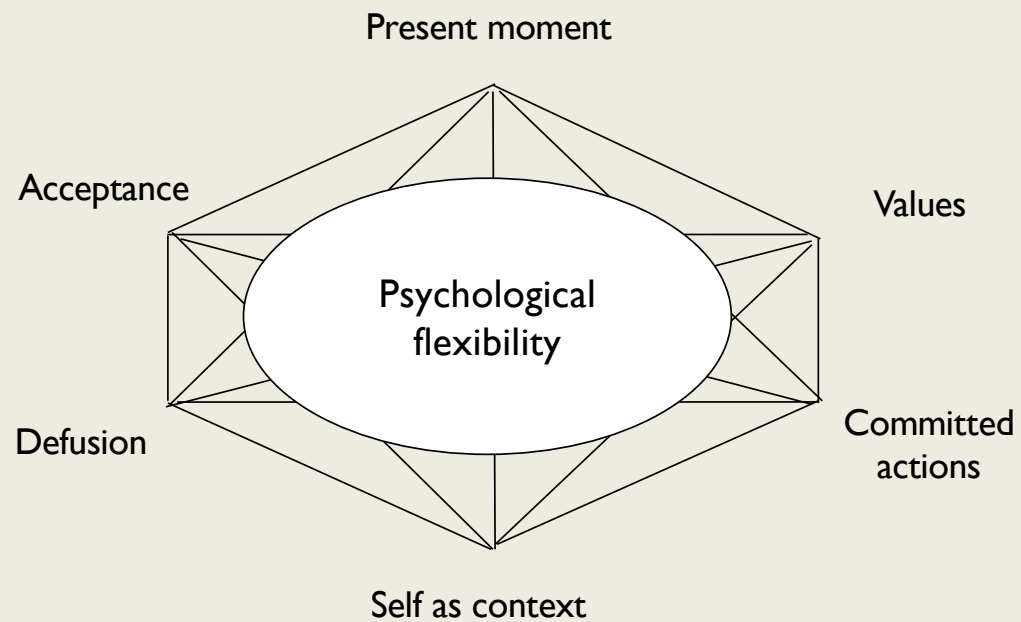
What do we do
when we encounter suffering in our lives?



Characteristics for third wave therapies in general

- Approach to thoughts rather than content of thoughts
- Promotion of processes associated with functioning, quality of life, health, and well-being rather than controlling or reducing specific symptoms
- Acceptance, openness, and flexible attention to internal experiences
- Increased value-based and meaningful behaviour

Core concepts



Controlled Clinical Trial > BMC Fam Pract. 2021 Sep 8;22(1):179.
doi: 10.1186/s12875-021-01526-5.

Education of the primary health care staff based on acceptance and commitment therapy is associated with reduced sick leave in a prospective controlled trial

Åsa Kadowaki ¹, Anna-Karin Alvinger ¹, Hanna Israelsson Larsen ¹, Anna Persdotter ¹,
Marta Steilmach Zak ¹, Peter Johansson ¹, Fredrik H Nystrom ²

Clinical Trial > J Pain. 2020 Jan-Feb;21(1-2):71-81. doi: 10.1016/j.jpain.2019.05.012.
Epub 2019 Jun 5.

Physical Therapy Informed by Acceptance and Commitment Therapy (PACT) Versus Usual Care Physical Therapy for Adults With Chronic Low Back Pain: A Randomized Controlled Trial

Emma Godfrey ¹, Vari Wileman ², Melissa Galea Holmes ², Lance M McCracken ², Sam Norton ²,
Rona Moss-Morris ², Sandra Noonan ³, Massimo Barcellona ⁴, Duncan Critchley ⁵

Clinical Trial > J Pain. 2020 Jan-Feb;21(1-2):71-81. doi: 10.1016/j.jpain.2019.05.012.
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Physical Therapy Informed by Acceptance and Commitment Therapy (PACT) Versus Usual Care Physical Therapy for Adults With Chronic Low Back Pain: A Randomized Controlled Trial

Emma Godfrey ¹, Vari Wileman ², Melissa Galea Holmes ², Lance M McCracken ², Sam Norton ²,
Rona Moss-Morris ², Sandra Noonan ³, Massimo Barcellona ⁴, Duncan Critchley ⁵

Content of clinicians' communication with patients suffering from spinal pain in assessment situations in a specialized spine center: A qualitative study evaluating psychologically informed pain assessments before and after clinicians' participation in an Acceptance and Commitment Therapy course

Sophie Lykkegaard Ravn ¹, Tonny Elmose Andersen & Berit Schiøtz-Christensen

BMC Musculoskeletal Disorders 24, Article number: 549 (2023) | Cite this article
468 Accesses | Metrics

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Published in final edited form as: NIHMSID: NIHMS1843460
J Contextual Behav Sci. 2022 Apr; 24: 185–196. PMID: 36578359
Published online 2022 May 14. doi: 10.1016/j.jcbs.2022.05.005

Acceptance and Commitment Therapy Informed Behavioral Health Interventions Delivered by Non-Mental Health Professionals: A Systematic Review

Trisha Arnold, PhD,^{1,2} Kayla K. Haubrick, MPH,² Lynne B. Klasko-Foster, PhD,¹ Brooke G. Rogers, Ph.D., M.P.H.,¹
Andrew Barnett, PhD,^{1,2} Natalia A. Ramirez-Sanchez, MS,³ Zoe Bertone,² and Brandon A. Gaudiano, PhD¹

- A significant reduction in long-term sick leave for patients in primary health care, where staff received ACT education/training
- PACT significantly improved patients' disability at 3 months compared to usual care physical therapy, but effect sizes were small and not sustained at 12 months
- Participation in an ACT course for non-mental health professionals seemed to increase, among others, the discussion of life values and values-based actions in assessment of spinal pain
- ACT interventions can be successfully delivered by a variety of "laypeople" (for example parents and teachers, but also including some health care professionals) and can effectively address psychological distress and increase favourable health behaviours in the context of general health

Participant experiences

- Patients appreciated the approach, among others experiencing that pain professionals were “working with the whole of me” (Wilson et al., 2017)
- Patients addresses the value of living more and struggling less as an overall theme, also underlining the shift from battling against to working with the body in a compassionate way (Aymerich et al., 2022)
- Physiotherapists found that there was a challenge of moving away from 'fixing' towards 'sitting with'. “Participants described this as uncomfortable because it did not fit their biomedical training.” (Barker et al., 2015, p.1)
- Physiotherapists found it was challenging and valuable at the same time, among others also noting a need for ongoing supervision (Holmes et al., 2021)

SYSTEMATIC REVIEW AND META-ANALYSIS

Barriers and enablers influencing healthcare professionals' adoption of a biopsychosocial approach to musculoskeletal pain: a systematic review and qualitative evidence synthesis

Ng, Wendy^{a,*}; Slater, Helen^a; Starcevich, Cobie^a; Wright, Anthony^a; Mitchell, Tim^{a,b}; Beales, Darren^{a,b}

[Author Information](#) 

PAIN 162(8):p 2154-2185, August 2021. | DOI: 10.1097/j.pain.0000000000002217

Information ≠ knowledge ≠ competences ≠ application

How much and in what form of training are needed?

How do we evaluate competences?

How do we ensure application into practice, also in the long run?

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Example exercises