Pain Severity and Pain Interference Associated with Psychosocial Factors

Annalisa F. Sciullo[1], Elizabeth K. Seng, PhD[1,2], Frederick W. Foley, PhD[1,3]

Ferkauf Graduate School of Psychology, Yeshiva University[1] Saul R. Korey Department of Neurology, Albert Einstein College of Medicine[2] Multiple Sclerosis Center at Holy Name Medical Center[3]

Objective

To study the relationship of pain severity and pain interference with psychosocial factors in people with Multiple Sclerosis (MS).

Background

MS is a chronic inflammatory, demyelinating neurological disease of the central nervous system, which can result in many debilitating symptoms including pain. Chronic pain is highly prevalent in MS, and can interfere with quality of life. **The fear-avoidance model of chronic pain shows modifiable psychosocial factors can aide in the maintenance and exacerbation of pain**. In those with MS:

- **Depression and catastrophizing** show significant and positive associations with pain severity and pain interference (PI)[3,5]
- **Excessive worry** is significantly associated with PI and trends toward higher pain intensity in those with MS and pain[2]
- Those experiencing pain in MS are significantly more likely to partake in **avoidance and resignation behaviors** compared to those without pain[8]

Method

Participants were 61 adults with MS recruited from a larger ongoing study conducted at the outpatient Multiple Sclerosis Clinic within Holy Name Medical Center in New Jersey. They were predominantly female (70.5%) with mean age of 48 years (SD = 11.66) and of white descent (70.5%). Most were diagnosed with relapsing remitting MS (82%). Participants completed questionnaires assessing

- **Pain symptoms** [Numeric Rating Scale (0-10)[7] and the *PROMIS pain interference scale*][1],
- **Pain-related cognitions** [Tampa Kinesiophobia Scale (TSK)[4] and Pain Catastrophizing Scale (PCS)[9]]
- **Psychiatric symptoms** (Hospital Anxiety and Depression Scales; HADS)[6].

Pain was coded in three groups: No Pain (NRS = 0), Pain with low PI (NRS ≥ 1 and PI ≤ 26.5), and Pain with High PI (NRS ≥ 1 and PI > 26.5). Separate multinomial logistical regressions evaluated the differences between pain groups on psychosocial factors.

Figure 1. Vlaeyen and colleagues' adaptation of the fear-avoidance model for chronic pain (1995).
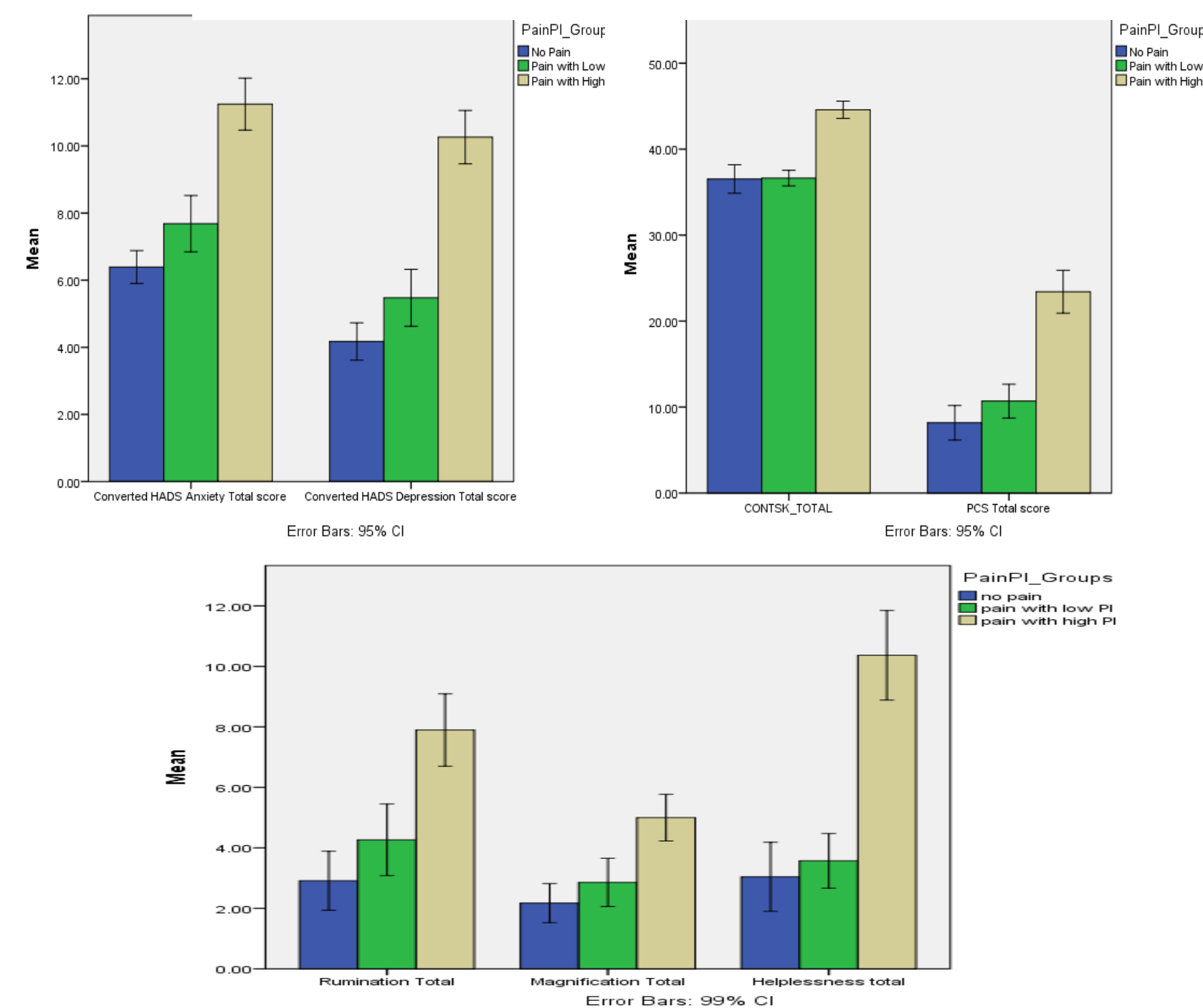
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Results

- No pain was reported by 37.7% of the sample (n = 21)*,* **31.1% reported pain with low PI, (*n* = 19), and 31.1% reported pain with high PI (*n* = 19)**
- Approximately one fifth of participants met clinical cutoffs of PCS total (17.9%), 61.6% met the cutoff for "high responders" on the TSK, a third met clinical cutoffs for depression (31%), and half met cutoffs for anxiety (50.9%).
- **Of those reporting any pain (Pain ≥ 1), mean pain was 4.59 (SD = 2.60), considered moderate pain** in MS, and **mean PI of 62.07** (SD = 1.3; 88th-92nd Percentile). The **mean pain duration was 81.44 months** (SD = 91.40)
- For those reporting pain with high PI (n = 19), mean pain severity was on the border of moderate to severe pain (M = 5.58, SD = 2.73), yet average pain interference fell at the 97th percentile (t = 69.26; SE = 1.3)
- **Pain with high PI was associated with higher reporting of all psychosocial factors compared to no pain** (TSK OR = 1.19, 95% CI = [1.06, 1.32]; PCS OR = 1.10, 95% CI = [1.04, 1.17]; depression OR = 1.42, 95% CI = [1.16, 1.73]; anxiety OR = 1.35, 95% CI = [1.13, 1.62])
- **Pain with high PI was associated with higher reporting of all psychosocial factors compared to pain with low PI** (TSK OR = 1.16, 95% CI = [1.04, 1.29]; PCS OR = 1.07, 95% CI = [1.01, 1.13]; depression OR = 1.29, 95% CI = [1.08, 1.54]; anxiety OR = 1.23, 95% CI = [1.04, 1.46])
- Within catastrophizing, pain with high PI was associated with higher rumination, magnification and helplessness compared to no pain and pain with high PI was associated with higher helplessness compared to those in pain with low PI.

Conclusions

- This study revealed that **pain interference,** in addition to the presence of pain, is **associated with increased maladaptive psychological factors in people with MS**.
- This study provides novel information that **fear of pain and helplessness are associated with pain interference in people with MS.**
- Assessment of pain in MS should include **pain interference as an important pain construct**. Furthermore, treatment targets for pain in MS should encompass psychological symptoms and cognitions of pain, as well as behavioral activities to increase movement.