

Therapeutic Pain Neuroscience Education

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Abstract

Therapeutic Pain Neuroscience Education (TPNE) is a modality that has been used for the past 2 to 3 decades to assist patients with Chronic Pain (CP) to adjust their misconceptions around what their pain means and in turn reduce their fear and anxiety around their pain. By doing so, TPNE helps to improve pain outcomes and overall quality of life for individuals suffering from CP conditions. A recent meta-analysis explored numerous studies that assessed TPNE, in order to gain further insight into its overall impact on specific pain outcome measures and in addition to understand what potential variables may act as predictors in determining the improvements in pain manifestations following TPNE. Group-based TPNE appeared to display a significant effect on pain kinesiophobia in particular. Further research has proven that group-based pain management programs appear to have a statistically and clinically positive effect on the pain experience in individuals suffering from various CP pathologies.

Keywords: Therapeutic pain; Neuroscience education; Chronic pain; Pain kinesiophobia; Pain management programs

Introduction

Pain Neuroscience Education (PNE) has been used in the past number of years as a treatment tool to aid in the management of Chronic Pain (CP) patients, [1–3] however what is its overall efficacy on pain outcomes and what are the potential predictor variables that may impact on the effect that it may have on CP patients? The term PNE was recently re-termed to Therapeutic Pain Neuroscience Education (TPNE) in a recently published meta-analysis, [4] in order to further highlight the therapeutic quality of this treatment modality and in addition to specify that the education is for patients rather than for the use of educating health care providers around pain neuroscience.

The provision of TPNE is indicated with the presence of

- Central sensitization indicators
- Aladaptive pain cognitions and coping strategies, and
- Negative perceptions of illness.

The ultimate goal of TPNE is to change maladaptive pain behaviors by modifying unhelpful pain cognitions through encouraging patients to better understand their pain [5].

Effect of Therapeutic Pain Neuroscience Education and Predictor Variables

The above-mentioned meta-analysis, based on inclusion and exclusion criteria, managed to incorporate 18 previous studies that examined the effect of TPNE. This meta-analysis found that TPNE had an overall positive effect on various pain outcome measures including pain kinesiophobia, pain intensity, and pain catastrophizing and pain disability. The results all showed statistically significant results ($p < 0.05$)

Of importance, in this study, the researchers also aimed to find whether various moderator variables such as dosage (number of weeks that TPNE was given and minutes per session) and format/structure of the sessions (multidisciplinary/interdisciplinary versus single disciplinary TPNE, stand-alone TPNE versus TPNE combined with other treatment modalities and TPNE provided in a group format or one-on-one with the clinician) were predictive in terms of the overall positive results noted. Of interest, the only statistically significant ($p < 0.05$) moderator variable was treatment provided in a group-based format which has a specific statistically significant ($p < 0.05$) large effect size (Cohen's $d = 0.80$) on pain kinesiophobia, as measured using the Tampa Scale of Kinesiophobia (TSK).

The effect that group-based treatment had on pain kinesiophobia in particular, may be explained *via* the influence of social observational learning through other group members, and by seeing other group members less fearful to move therefore facilitating other subjects to move with less fear of pain. Furthermore, it is suggested that psychological mechanisms such as verbally tempted expectancies, cued and contextual conditioning and social learning, act as catalysts for the cascade of events leading to the production and release of endogenous opioids and other endogenous analgesic chemicals and hormones [6-8]. A relatively recent review of CBT group-based pain programs makes note of the 'group processes (the interaction amongst the group members) as being an integral component of this treatment format [9]. GPMPs are said to require from group members and the lead clinician engagement, understanding and communication [10]. The investigators involved in the TPNE meta-analysis, proceeded to then

investigate Group-Based Pain Management Programs (GPMPs) and their effects on pain outcome measures with once again exploring the effect of various predictor variables [11]. The researchers found that GPMPs had a statistically significant effect ($p < 0.05$) on all the pain outcome measures that were analyzed, [11] which further supported the results of the effect of TPNE, specifically when carried out in a group-based setting.

Conclusion

TPNE, through various biopsychosocial mechanisms, appears to improve CP patients' pain manifestations following this treatment modality. Furthermore, it appears that group-based treatment, using TPNE, explicitly has a large effect on pain kinesiophobia. This impact may be explained through various means underlying group dynamics that may occur. GPMPs have been further explored and shown to aid in the management of CP patients and improve their overall pain experiences and quality of life.

References

1. Butler D, Moseley L (2003) The Evidence Base for Explain Pain.
2. Lane E, Fritz JM, Greene T, Maddox D (2018) The effectiveness of training physical therapists in pain neuroscience education on patient reported outcomes for patients with chronic spinal pain: A study protocol for a cluster randomized controlled trial. *BMC Musculoskelet Disord* 19: 1-8.
3. Louw A, Zimney K, Puentedura EJ, Diener I (2016) The efficacy of pain neuroscience education on musculoskeletal pain: A systematic review of the literature. *Physiother Theory Pract* 32: 332-355.
4. Romm MJ, Ahn S, Fiebert I, Cahalin LP (2021) A Meta-analysis of therapeutic pain neuroscience education, using dosage and treatment format as moderator variables. *Pain Pract* 21: 366-380.
5. Clarke CL, Ryan CG, Martin DJ (2011) Pain neurophysiology education for the management of individuals with chronic low back pain: A systematic review and meta-analysis. *Man Ther* 16: 544-549.
6. Colloca L, Klinger R, Flor H, Bingel U (2013) Placebo analgesia: Psychological and neurobiological mechanisms. *Pain* 154: 511-514.
7. Klinger R, Stuhreyer J, Schwartz M, Schmitz J, Colloca L (2018) Clinical use of placebo effects in patients with pain disorders. *Int Rev Neurobiol* 139: 107-128.
8. Werner EL, Storheim K, Grotle M (2016) Cognitive patient education for low back pain in primary care. *Spin* 41: 455-462.
9. Thorn B, Kuhajda CM (2006) Group cognitive therapy for chronic pain. *J Clin Psychol* 62: 1355-1366.
10. Wilson IR (2017) Management of chronic pain through pain management programmes. *Br Med Bull* 124: 55-64.
11. Romm MJ, Ahn S, Fiebert I, Cahalin LP (2020) A meta-analysis of group-based pain management programs: Overall effect on quality of life and other chronic pain outcome measures, with an exploration into moderator variables that influence the efficacy of such interventions. *Pain Med* 22: 407-429.