



No Pain No Gain: Student performance over time on the Revised Neurophysiology of Pain Questionnaire

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PURPOSE

Core competencies in pain management for pre-licensure health professional education have been established. The purpose of this study was to assess the effect of 10-hours of pain neurophysiology education (PNE) on physical therapy students understanding of pain and retention of key concepts.

MATERIALS and METHODS

Thirty-three second year DPT students participated in 10 hours of PNE which was embedded in a clinical neuroscience course which included a 2-hour lab assignment called “The Matrix”. The content was guided by key principles recommended by the International Association for the Study of Pain (IASP). The lab assignment included case studies which required students to apply the didactic material, summarize it on white boards and present to the class (Fig.1). The Revised Neurophysiology of Pain Questionnaire (RNPQ) was used given its ability to assess an individual’s conceptualization of biological pain mechanisms in addition to having acceptable psychometric properties. The RNPQ comprises 13 true, false or undecided items related to the neurophysiology of pain (Fig. 2). A correct response scores one point, whereas incorrect or undecided responses score zero points. Students completed the RNPQ across 3 time points: 1) prior to delivery of course material; 2) following delivery of course material; and 3) 7-months post to assess baseline knowledge and retention of concepts over time.



Figure 1. Students completing the case study lab assignment.

RESULTS

A repeated measures ANOVA with Bonferroni correction analyzed RNPQ scores. Between group differences were significant ($p < .001$). Post-hoc tests were significant across groups: baseline compared to post class ($p = .003$), baseline compared to 7-months post ($p = .02$), and post-class compared to 7-months post ($p = .01$). The mean percentage scores across all 3 attempts of the RNPQ were $65 (\pm 30)$, $73 (\pm 24.2)$ and $82 (\pm 14.4)$ respectively. Percent correct responses were analyzed across all items with item 2 being considered problematic across all testing points with baseline, post-class and post 7-months percent scores being 0, 18 and 46 respectively (Fig. 2).

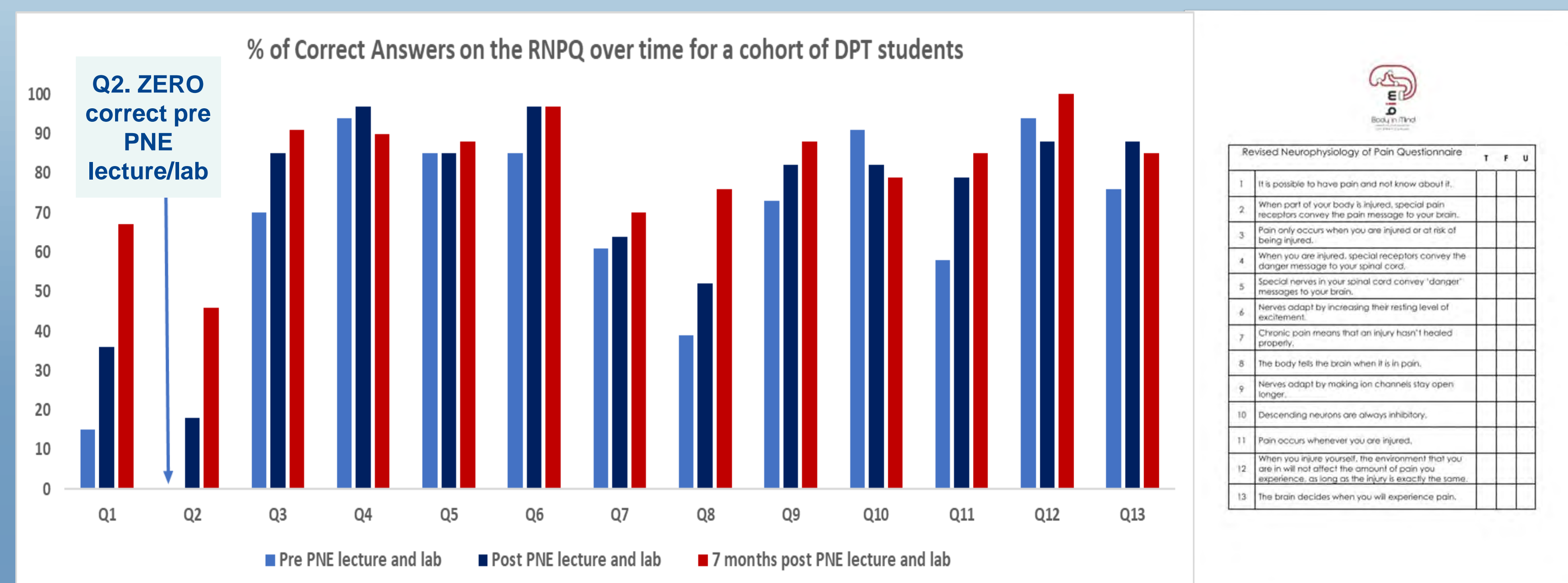


Figure 2.

Graph showing the percent of correct responses on the RNPQ over time and the Revised Neurophysiology of Pain Questionnaire (RNPQ) used as an outcome measure to assess student learning. Note Q 2 proved challenging.

CONCLUSION

Despite the available evidence, pain has been referred to as an orphan subject that has been squeezed into crowded curricula. While it may not be feasible for programs to cover IASP recommendations in their entirety, our findings showed that a condensed modular format in a course which complements the key components led to enhance understanding. However, many textbooks still equate pain with nociception consequently this may explain item 2 data despite the module providing evidence to the contrary.

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CLINICAL RELEVANCE

Students need to understand the multidimensional aspects of pain. Fundamental to this understanding is the ability to explain the biology of chronic pain and how a myriad of factors can exacerbate the pain state; this education is used clinically as a mechanism to reduce pain. Our results show that students shifted their conceptualization of pain from that of an indicator of tissue damage or disease to that of a perceptual need to protect body tissue and that pain can be overprotective. Failure to expose students to these concepts does little to promote appropriate care for patients.



Figure 3. The Matrix

A brain collage representing the content of 10-hours of PNE.

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