Exploring Pain Attitudes and Beliefs of First-year Singaporean Physiotherapy Students Before and After Pain Education Programme

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Introduction

Background

In Singapore, and globally, Low Back Pain (LBP) is the leading cause of activity limitation and disability (Wu et al., 2020, Hartvigsen et al., 2018, GBD, 2017). Medical and human costs attributed to LBP is projected to increase in the future (Clark & Horton, 2018). One potential barrier to effectively managing LBP is its complexity – LBP is biopsychosocial in nature. The Pain and Movement Reasoning model (PMRM, Figure 1) provides a clinical reasoning strategy to capture the complexity of pain (Jones & O'Shaughnessy, 2014). A recent qualitative study, reported physiotherapists found it suitable for practice across clinical areas, with benefits to both teaching and clinical application (Jones et al., 2021). At Singapore Institute of Technology, a brief online Pain Education Package (PEP) incorporating the PMRM is part of the first-year undergraduate physiotherapy curriculum.

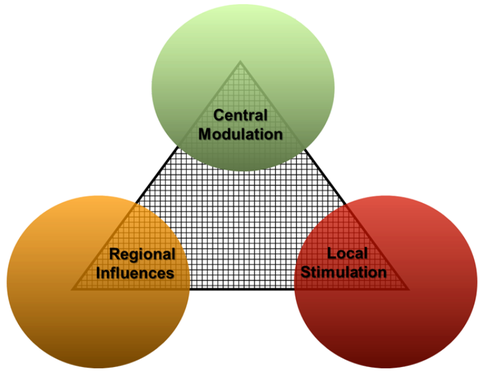

Figure 1: Pain and Movement Reasoning Model

Purpose

Aims & Objectives

Explore pain attitudes and beliefs of first-year physiotherapy students in Singapore across the teaching period where they engage with the PEP.

Report on results from two questionnaires measuring pain attitudes and beliefs - Pain Attitudes and Beliefs Scale (PABS-PT), and Health Care Providers' Pain and Impairment Relationship Scale (HC-PAIRS).

Methods

Type of Study: Repeated Cross-Sectional Survey (Figure 2)

Recruitment: Participants responded to a recruitment message sent to their student email account.

PEP: A brief online pain education learning package (~1 hour duration) was presented in Week 1 as part of the usual curriculum – and was not restricted to participants.

Data Collection (Figure 2): Participants completed both questionnaires at three time-points in Trimester 3 – Week 1, Week 3 and Week 8. To facilitate recruitment, the submissions were anonymous, resulting in three cross-sectional data collections, rather than longitudinal data.

Statistical analysis: Results across each time-point were analysed for individual questionnaires using three separate one-way ANOVAs (dependent variables: HC-PAIRS, PABS-PT Biopsychosocial Factor and Biomedical Factor). Analyses were performed to compare between the three sets of grouped data obtained and to identify potential shifts in pain attitudes and beliefs of the cohort.

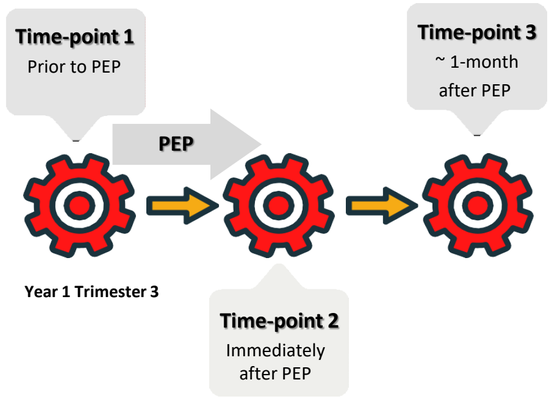

***Figure 2: Timeline of* Data Collection**

Participants

Inclusion Criteria:

First-year students enrolled in an introductory Musculoskeletal Physiotherapy module as part of a Bachelor of Science with Honours in Physiotherapy in Singapore.

Exclusion Criteria:

Students undertaking the Professional Conversion Programme for Physiotherapists in SIT

Results

HC-PAIRS & PABS-PT

For both questionnaires, the responses collected at timepoint 2 and 3 were significantly different to responses collected at timepoint 1. An issue with data collection meant that the full complement of items could not be analysed for PABS-PT which limits the conclusions that can be drawn. However, the differences evident in the different timepoints for both questionnaires suggest participants in time points 2 and 3 were more orientated to a biopsychosocial perspective of LBP.

***Table 1:* Mean scores (SD) of grouped data on the dependent variables at time-points 1 (before), 2 (immediately after) and 3 (at 1-month follow-up) for PABS-PT [limited to 16/19 items] and HC-PAIRS**

	Time-point 1 (n=40)	Time-point 2 (n=35)	Mean Difference between time-points 1 and 2 (95% CI)	P-value (between time-points 1 and 2)	Time-point 3 (n=32)	Mean Difference between time-points 1 and 3 (95% CI)	P-value (between time-points 1 and 3)
PABS-PT Behavioural Factor 2	25.83 (1.6)	↑28.78 (2.2)	2.95 (1.7; 4.1)	0.000*	↑28.84 (2.4)	3.02 (1.79; 4.25)	0.000*
PABS-PT Biomedical Factor 1	33.65 (4.7)	↓27.40 (5.2)	-6.25 (-9.0; -3.5)	0.000*	↓27.84 (4.6)	-5.81 (-8.7; -3.0)	0.000*
HC-PAIRS	63.78 (9.8)	↓55.00 (11.1)	-8.78 (-14.2; -3.3)	0.001*	↓52.75 (8.6)	-11.03 (-16.6; -5.44)	0.000*

PABS-PT, Pain Attitudes and Beliefs Scale for Physical Therapists (Incomplete)
HC-PAIRS, Health Care Providers Pain and Impairment Relationship Scale

*Indicates a statistically significant difference, $p < 0.05$

References

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Discussion

The scores analysed at stipulated time points suggest a modest change in two measures of pain attitudes and beliefs, after the introduction of an online learning package incorporating the *Pain and Movement Reasoning Model*. The methodology used in this study does not allow a causal relationship to be identified and there are some limitations in drawing conclusions due to missing items in the PABS-PT data set. However, the differences in responses before and after the brief pain training is encouraging and provides support for the early introduction of contemporary concepts of pain into health professional training.

Conclusions

A change in responses to two questionnaires measuring pain attitudes and beliefs was observed after a brief online pain education package was delivered. This change suggested participants responding after pain education had a more biopsychosocial orientation and a decreased in biomedical orientation towards LBP. However, the methodology does not allow a causal effect to be established.

Recommendations

Further research is warranted to investigate the change in individuals' responses and the components of pain education that might be most impactful on pain attitudes and beliefs.

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