

Jr, eds. *Back Pain: New Approaches to Rehabilitation and Education*. New York: Manchester University Press; 187–204.

Jensen IB, Busch H, Bodin L, Hagberg J, Nygren A, Bergström G, 2009. Cost effectiveness of two rehabilitation programmes for neck and back pain patients: A seven year follow up. *Pain* 142, 202-208.

Kindler LL, Jones KD, Perrin N, Bennet RM 2010, Predicting the development of widespread pain for chronic back or neck pain. *The Journal of Pain* 11, 12, 1320-1328.

Linton SJ 2000, A review of psychological risk factors in back and neck pain. *Spine*, 25, 9, 1146-1156.

Linton SJ & Halldén K 1998, Can we screen for problematic back pain? A screening questionnaire for predicting outcome in acute and subacute back pain. *The Clinical Journal of Pain*, 14, 3, 209-215.

Linton SJ & Ryberg M 2000, Do epidemiological results replicate? The prevalence and health-economic consequences of neck and back pain in the general population. *European Journal of Pain*, 4, 347-354.

Linton SJ & van Tulder M 2001, Preventive interventions for back and neck pain problems: what is the evidence. *Spine*, 26, 7, 778-787.

Nezire K & Ayse SO 2004, Comparison of the quality of life of patients with lumbar and cervical disc herniation. *The Pain Clinic*, 16, 3, 381-386.

Osthus H, Cziske R, & Jacobi E 2006 A German version of the Extended Aberdeen Back Pain Scale. Development and evaluation. *Spine*, 31, 5, 571-577.

Pallant J 2005 *Statistical techniques to compare groups in SPSS Survival Manual a step by step guide to Data Analysis using SPSS version 12*, Open University Press, Berkshire, UK, New York, pp. 195-203.

Smith BH, Elliot AM, & Hannaford PC 2004 Is chronic pain a distinct diagnosis in primary care? Evidence arising from the Royal Practitioners' Oral Contraception Study, *Family Practice*, 21, 1, 66-74.

Storro S, Moen J, & Svebak S 2004 Effects on sick-leave of a multidisciplinary rehabilitation programme for chronic low back, neck or shoulder pain: comparison with usual treatment. *Journal of Rehabilitation Medicine*, 36, 12-16.

Vernon H, Mior S. 1991. The neck disability index: a study of reliability and validity. *J Manipulative Physiol Ther* 14, 409–15.

Waddell G, Newton M, Henderson I, et al. 1993. A fear-avoidance beliefs questionnaire (FABQ) and the role of fear-avoidance beliefs in chronic low back pain and disability. *Pain*, 52, 157–68.

Walker B, Muller R, & Grant WD 2004 Low back pain in Australian adults, health provider utilization and care seeking, *Journal of Manipulative and Physiological Therapeutics*, 27, 5, 327-335.

White I, Lewin G, & Prescott 2007 The core outcomes for neck pain: Validation of a new outcome measure. *Spine*, 29, 17, 1923-1930.

Williams NH, Wilkinson C, & Russell IT 2001 Extending the Aberdeen Back Pain Scale to include the whole spine: a set of outcome measures for the neck, upper and lower back. *Pain*, 94, 261-274.

Wolsko P, Eisenberg D, Davis R, Kessler R, & Phillips R 2003 Patterns and perceptions of care for treatment of back and neck pain: Results of a national survey. *Spine*, 28, 3, 292-297.



## PHYSIOTHERAPY STUDENTS' ATTITUDES TOWARDS THE FUNCTIONAL ABILITY OF PATIENTS WITH CHRONIC LOW BACK PAIN.

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### Abstract

**Background:** Health care professionals with more positive attitudes towards patients with chronic low back pain are more likely to provide their patients with evidence based care. Thus it is important that student physiotherapist's attitudes become more positive over the course of their degree. There is evidence that this occurs within four year degree programmes, but no studies have looked at three year courses. The aim of this study was to investigate the difference in attitudes of students towards functioning in individuals with chronic low back pain between year 1, 2 and 3 students on a three year physiotherapy undergraduate degree programme.

**Methods:** In this cross-sectional study, 47 students [Yr 1 (n=13); Yr 2 (n=11); Yr 3 (n=23)] were recruited from a 3 year undergraduate physiotherapy course. All participants completed the Health Care Providers' Pain and Impairment Relationship Scale (HC-PAIRS).

Results: Students in year 3 had more positive attitudes towards function in patients with chronic low back pain than students in year 1 [57.2 vs. 66.2 (mean difference – 8.9, 95% CI -17.2 to -0.86,  $p = 0.03$ )] and year 2 [57.2 vs. 65.9 (mean difference – 8.7, 95% CI -17.20 to -0.20,  $p = 0.04$ )]. There was no statistical difference between year 1 and 2. The values for year 3 were equivalent to those previously found in students in their final year of a UK based four year physiotherapy degree programme.

Conclusions: Students in their final year of a 3 year undergraduate programme had more positive attitudes towards the functional ability of patients with chronic low back pain when compared to year one and two students. Clinical placements may play an important positive role in the attitudinal shift and this should be investigated further.

**Key Words:** Chronic low back pain; Students; Attitudes

## Introduction

The attitudes of healthcare practitioners can have a significant effect on the outcome of treatment, and influence the attitudes of their patients (Burton 1999, Rainville 2000, Street et al, 2009). This is important in the management of chronic low back pain where appropriate advice from practitioners has been shown to correlate with more positive outcomes for the patient (Burton et al 1999). Healthcare practitioners with more positive attitudes towards the functional ability of patients with chronic low back pain are more likely to recommend a more active approach to back pain management in line with clinical guidelines (Coudeyre et al. 2006; Bishop et al. 2008). Thus to increase the likelihood that student physiotherapists graduate to become evidence based practitioners when working with back pain patients, undergraduate training should seek to enhance students perceptions of the functional ability of patients with chronic low back pain (Ryan et al. 2010).

A number of studies have examined changes in attitudes towards chronic low back pain during a physiotherapy educational programme of study (Latimer et al. 2004; Ferreira et al 2004; Ryan et al. 2010). Latimer et al, 2004 investigated the influence of a specialised teaching module and found such teaching resulted in positive changes in attitudes of Australian physiotherapy students towards functioning in patients with chronic low back pain. Similar findings with Brazilian students have also been reported (Ferreira et al. 2004). In a UK based study, first and final year students on a four year physiotherapy degree programme were compared to first and final year students on a non-healthcare related degree programme. The research found that final year physiotherapy students had attained more positive attitudes towards functioning in patients with chronic low back pain than the non-health care students and final year physiotherapy students had more positive attitudes than first year physiotherapy students (Ryan et al. 2010).

A key limitation of the work by Ryan et al. (2010) was that the work was based on a four year educational programme which represents the minority of state registered courses in the UK, reducing the generalisability of the findings to the wider population of UK physiotherapy students. It has been recommended that there is a need to replicate this work with students on a three year degree programme (Ryan et al. 2012). Furthermore, none of the studies thus far have investigated how attitudes change over the course of the programme from year to year. Such information may provide an indication of the components of physiotherapy healthcare education that might stimulate the positive change in attitudes.

The aim of this study was to investigate the difference in attitudes towards functioning in individuals with chronic low back pain between year 1, 2 and 3 students on a three year physiotherapy degree programme.

## Methods

### *Study overview*

In this cross-sectional study, the attitudes of students in year 1, 2 and 3 of a three year physiotherapy degree programme were attained using the Health Care Providers' Pain and Impairment Relationship Scale (HC-PAIRS) (Rainville et al 1995). The total HC-PAIRS score was then compared between each year.

### *Participants*

Participants were recruited from year one, two and three of the undergraduate physiotherapy degree programme within the School of Health and Social Care at Teesside University in the UK. Prospective participants were contacted via student e-mail inviting them to participate. This was followed up one week later with an email reminder. The online questionnaires were supported by Bristol Online Survey (BOS) software. All questionnaires were returned anonymously to preserve anonymity. Full ethical approval was obtained from Teesside University School of Health and Social Care Research Governance and Ethics Committee.

### *Outcome Measure*

The outcome measure for this study was the Health Care Providers' Pain and Impairment Relationship Scale (HC-PAIRS) (Rainville et al 1995), a modified version of the Pain and Impairment Relationship Scale (PAIRS), a tool used for assessing the attitudes and beliefs of patients (Riley et al, 1988). The PAIRS was adapted to measure the beliefs of health care providers about the relationship between pain and impairment in chronic low back pain patients. The questionnaire contains fifteen items. Each item consists of a seven-point Likert scale, ranging from 'completely disagree' to 'completely agree'. The total score on the questionnaire ranges from 15 to 105. Higher scores on the questionnaire represent more negative attitudes toward the functional ability of a person with chronic low back pain. The questionnaire has demonstrated good levels of validity (Houben et al, 2005; Rainville et al, 2000; Bishop

et al. 2007) and reliability (Riley et al, 1988; Rainville et al, 1995; Houben et al, 2004).

### Data Analysis

The data collected from the study was analysed using Statistical Package for Social Sciences, version 20.0 (SPSS Inc., Chicago, IL). Data was found to be normally distributed using a one sample Kolmogorov-Smirnov test. The HC-PAIRS scores were analysed using one-way analysis of variance (ANOVA) to identify if there was a difference between years. Post-hoc tests were then used to investigate differences in means between the individual years. An alpha level of 0.05 was considered statistically significant

## Results

Forty seven participants completed this study. The participant's characteristics are shown in Table 1.

**Table 1:** Participant characteristics

	Year 1	Year 2	Year 3
No. of participants (n)	13	11	23
Gender (female)	6	4	17
Age (years)†	22 (5)	23 (5)	24 (4)
Response rate (%)	32%	26%	64%

Legend: † The age data are presented as mean ±1SD.

The one-way ANOVA indicated a statistically significant difference in HC-PAIRS score between years ( $p < 0.05$ ). Post-hoc analysis identified that there was a statistically significant improvement in attitudes between year 1 and year 3 and between year 2 and year 3 but there was no significant difference in scores between years 1 and 2 (Table 2).

## Discussion

The aim of this study was to investigate the difference in attitudes towards functioning in individuals with chronic low back pain between year 1, 2 and 3 students on a three year physiotherapy degree programme. There was no statistically significant difference between year 1 and 2. However Year 3 students had significantly more positive attitudes towards the functional ability of chronic low back pain patients compared to year 1 and 2.

This is the first study to show that the attitudes of students towards the functional ability of patients with chronic low back pain improves over a three year physiotherapy degree

**Table 2:** HC-PAIRS between years post-hoc comparison

	Year 1 Mean (1SD)	Year 2 Mean (1SD)	Year 3 Mean (1SD)	Mean Difference	95% CI	p-value
HC-PAIRS Year 1 vs. 2	66.2 (10.4)	65.9 (9.8)		- 0.2	- 9.9 to 9.4	1.000
HC-PAIRS Year 2 vs. 3		65.9 (9.8)	57.2 (8.8)	- 8.7	-17.2 to 0.2	0.04
HC-PAIRS Year 1 vs. 3	66.2 (10.4)		57.2 (8.8)	- 8.9	-17.0 to 0.9	0.03

Legend: P-Value, \* indicates  $p < 0.05$ ; SD = Standard Deviation; CI = Confidence Interval; HC-PAIRS = Health Care Providers' Pain and Impairment Relationship Scale.

programme, building upon previous findings from a four year undergraduate programme (Ryan et al. 2010). The findings from our study are more generalisable to the rest of the UK, as the majority of degree programmes in the UK are three years in duration. Furthermore, the magnitude of the improvement (-8.9 [CI -17.0 to -0.9]) and the final year mean score 57.2 are comparable to those seen for four year programmes in the UK (improvement: -9.2 [-12.2 to -6.1]; final year score 57.4) (Ryan et al. 2010). Interestingly, they are also similar to those seen for a five year medical programme in the UK (improvement: 9.2 [-11.1 to -7.3]; final year score 56.4) (Morris et al. 2012).

The more positive health care professionals' attitudes are towards the ability of a patient with chronic low back pain to function despite their pain, the more likely health care professionals are to recommend an active approach to rehabilitation, in keeping with clinical guidelines (Coudeyre et al. 2006; Bishop et al. 2008). Thus, the findings of this study suggest that the three year undergraduate course improves student's attitudes in a way which is likely to help them to develop into evidence based professionals (Ryan et al. 2010).

Another unique aspect of this study is that it looks at the difference in attitudes between individual years rather than simply looking at first and final year, which allows us to hypothesise regarding what point in the degree programme attitudes begin to change, and from this what components of the course may instigate that change. In this study, attitudes were similar between year 1 and 2 but it was between year 2 and 3 where the difference occurred. Interestingly, neither participants in year 1 or 2 will have undertaken a full clinical placement as measures were taken at the beginning of each year. Thus it could be hypothesised that the classroom based learning, with teaching methods that include case studies and visiting service users, did not result in any change in attitudes and it was not until students experienced clinical placements that attitudes shifted. This supports the proposal that clinical placement and clinical educators may have a pivotal role in shaping students' attitudes towards patients with chronic low back pain (Kennedy et al. 2014), and emphasises the importance of this component of the degree programme.

### Limitations

The primary limitation of this study is that the study was cross-sectional thus the difference in attitudes between

groups may have been due to the differing attitudes of the individuals in the different groups, rather the effects of the educational training. Similarly, there was no control such as investigating a non-health care educational programme group to determine if differences were specifically due to physiotherapy training or simply the effect of receiving a university education. Another limitation was the relatively low response rate. Previous response rates in studies with healthcare professionals as participants reported an average response rate of 57.5% (Cook et al, 2009). The response rates for years 1, 2 and 3 were 26%, 32% and 64% respectively, thus years 1 and 2 were less than the average proposed by Cook et al. (2009). Therefore, the differences between groups may have been the effect of sampling bias. The study only represents a single physiotherapy degree programme which may make it difficult to extrapolate the results across all 3 year undergraduate degree programmes in the UK. However, the physiotherapy course used in this study is accredited by the Health Professions Council and the Chartered Society of Physiotherapy in the UK, so it could be hypothesised that there will be strong similarities between this course and other accredited courses, increasing the generalisability of the findings. Finally, the attitudes of year 3 students were not captured at the end of their final year thus the impact of that final year on student's attitudes has not have been captured.

## Conclusion

The aim of this study was to investigate the difference in attitudes towards functioning in individuals with chronic low back pain between year 1, 2 and 3 students on a three year physiotherapy undergraduate degree programme. Students in final year of their 3 year undergraduate programme had more positive attitudes towards the functional ability of patients with chronic low back pain compared to year one and two students. The magnitude of the improvement and the final attitude values were similar to those reported for a 4 year UK based physiotherapy undergraduate course. Furthermore, the results tentatively indicate that clinical placement may be a crucial teaching component in shaping students' attitudes towards chronic low back pain. However, this would need to be confirmed in future research, directly targeted at this question.

## References

- Bishop, A., Thomas, E., Foster, N., (2007) Health care practitioners' attitudes and beliefs about low back pain: A systemic search and critical review of available measurement tools. *PAIN*, 132:91-101
- Bishop, A., Foster, N., Thomas, E., Hay, E., (2008) How does the self-reported clinical management of patients with low back pain relate to the attitudes and beliefs of health care practitioners? A survey of UK general practitioners and physiotherapists. *PAIN*, 135:187-195
- Burton A.K, Waddell G., Tillotson K.M., Summerton N. (1999) Information and advice to patients with back pain can have a positive effect. *Spine* 24:2484-2491.
- Cook, J., Dickinson, H., Eccles, M., (2009) Response rates in postal surveys of healthcare professionals between 1996 and 2005: An observational study. *BMC Health Services Research*, 9:1-8.
- Ferreira, P.H., Ferreira, L.M., Latimer, J., Maher, C., Refshauge, K., Sakamoto, A., Garofalo, R., (2004) Attitudes and Beliefs of Brazilian and Australian physiotherapy students towards chronic back pain: a cross-cultural comparison. *Physiotherapy Research International*, 9:13-23.
- Houben, R., Gijzen, A., Peterson, J., de Jong, P., Vlaeyen, J., (2005) Do health care providers' attitudes towards back pain predict their treatment recommendations? Differential predictive validity of implicit and explicit attitude measures', *Pain*, 114:491-498.
- Houben, R., Vlaeyen, J., Peters, M., Ostelo, R., Wolters, P., Stomp van den Berg, S., (2004) Health care providers' attitudes and beliefs towards common low back pain: factor structure and psychometric properties of the HC-PAIRS. *Clinical Journal of Pain*, 20:37-44.
- Kennedy, N., Condon, E., O'Sullivan, K. (2014) Physiotherapy Practice Educators' Beliefs Towards Low Back Pain and Influence on Student Beliefs. *Pain and rehabilitation*, 36:4-10.
- Latimer, J., Maher, C., Refshauge, K., (2004). The Attitudes and Beliefs of Physiotherapy Students to Chronic Back Pain. *Clinical Journal of Pain*, 20:45-50.
- Morris, H., Ryan, C., Lauchlan, D., Field, M., (2012) Do medical student attitudes towards patients with chronic low back pain improve during training? A cross-sectional study. *BMC Medical Education*, 12:10.
- Rainville, J., Bagnall, D., Phalen, L., (1995) Health care providers' attitudes and beliefs about functional impairments and chronic back pain. *Clinical Journal of Pain*, 11:287-295.
- Rainville, J., Carlson, N., Polatin, P., Gatchel, R., Indahl, A., (2000) 'Exploration of physicians' recommendations for activities in chronic low back pain'. *Spine*, 25:2210-2220.
- Riley, J., Ahern, D., Follick, M., (1988) 'Chronic pain and functional impairment: assessing beliefs about their relationship'. *Archives of Physical Medicine and Rehabilitation*, 69:579-582.
- Ryan, C., Murphy, D., Clark, M., Lee, A., (2010) 'The effect of a physiotherapy education compared with a non-healthcare education on the attitudes and beliefs of students towards functioning in individuals with back pain: An observational, cross sectional study', *Physiotherapy*, 96:144-150.
- Street, R.L., Makoul, G., Arora, N.K., Epstein, R.M. (2009) *How does communication heal? Pathways linking clinician-patient communication to health outcomes. Patient education and Counselling*, 74:295-301.

