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INTRODUCTION

The biopsychosocial model has become progressively understood and acknowledged amongst physical therapists. While depression, catastrophizing, and fear-avoidance have been the focus of research looking at psychosocial risk factors, Foster has identified self-efficacy to be a more important factor in influencing patient outcomes in a primary care setting[1]. Furthermore, research has demonstrated that higher self-efficacy scores are associated with higher levels of consistency and performance on motor tasks,[2-3] and higher levels of motivation and academic achievement.[4] Self-efficacy levels have been indicated in affecting adherence levels to exercise, particularly when experiencing persistent pain[5].

Though some of the risk factors for poor rehabilitation outcomes might not be modifiable, it is possible others may be recognized and addressed during physical therapy (e.g., fear-avoidance behaviors, self-efficacy) by using a cognitive behavioral or psychosocial approach.[6,7] Consideration of a person's psychological presentation may direct treatments in order to decrease potential barriers and maximize the possibility for positive outcomes.

PURPOSE

The purpose of this study was to investigate the relationship between patient self-efficacy (SE) levels at initial evaluation and outcomes from physical therapy treatment. We hypothesized that higher SE levels would be correlated with more successful outcomes at the end of the episode of care.

PARTICIPANTS

Subjects were recruited for participation from the University of Puget Sound's outpatient musculoskeletal clinic between February and March of 2016. Of the 11 included subjects, 6 were men and 5 were women, and they ranged in age from 21 to 76 years old (the mean age was 54 years). Of the joint-specific therapeutic outcome measures used, SPADI was the most common (n=6), followed by the ODI (n=3), the LEFS (n=2), and finally the NDI (n=1).

METHODS

Subjects completed a General Self Efficacy Questionnaire (GSE) prior to their PT evaluation. A relevant outcome measure for each patient corresponding to the area of the body affected and The Numeric Pain Rating Scale (NPRS) were completed at the physical therapy evaluation by the treating PT and/or SPT. Specific therapeutic outcome measures included: Oswestry (ODI) for low back pain, Neck Disability Index (NDI) for neck conditions/pain, Lower Extremity Functional Scale (LEFS) for conditions of the lower extremities, and the Shoulder Pain and Disability Index (SPADI) for conditions related to the shoulder. After 6-12 visits, the outcome measure and NPRS were completed for the second time at the discharge from the episode of care.

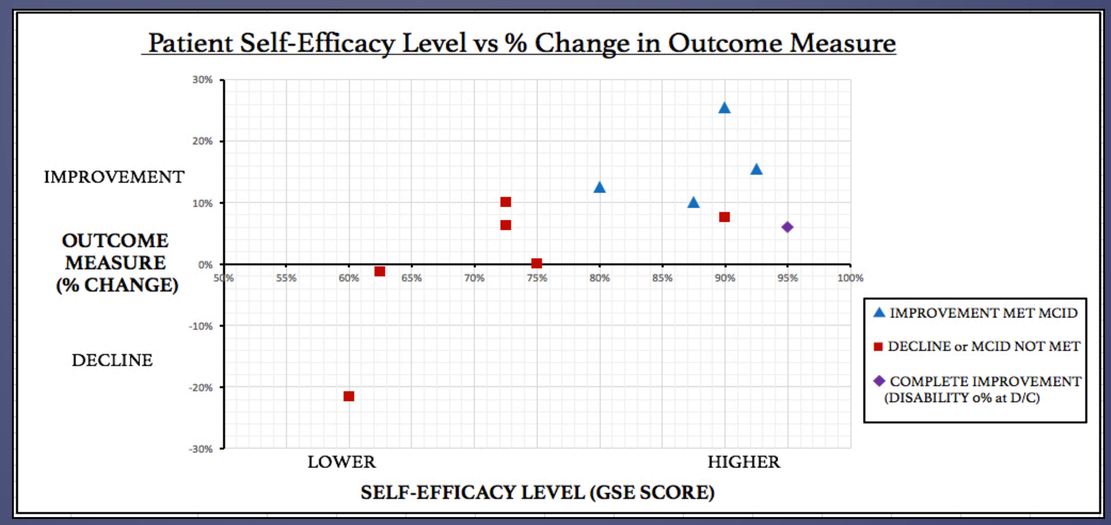

Figure 1. Graph correlating subject' s self-efficacy levels (GSE scores at intake) with percentage of change in therapeutic outcome measure over course of care.

		Not at all true	Hardly true	Moderately true	Exactly true
1	I can always manage to solve difficult problems if I try hard enough.	☐	☐	☐	☐
2	If someone opposes me, I can find the means and ways to get what I want.	☐	☐	☐	☐
3	It is easy for me to stick to my aims and accomplish my goals.	☐	☐	☐	☐
4	I am confident that I could deal efficiently with unexpected events.	☐	☐	☐	☐
5	Thanks to my resourcefulness, I know how to handle unforeseen situations.	☐	☐	☐	☐
6	I can solve most problems if I invest the necessary effort.	☐	☐	☐	☐
7	I can remain calm when facing difficulties because I can rely on my coping abilities.	☐	☐	☐	☐
8	When I am confronted with a problem, I can usually find several solutions.	☐	☐	☐	☐
9	If I am in trouble, I can usually think of a solution.	☐	☐	☐	☐
10	I can usually handle whatever comes my way.	☐	☐	☐	☐

Figure 2. General Self Efficacy Scale Questionnaire

RESULTS

The average initial GSE score for all subjects (n=11) was 79.8%. For the participants whose outcome measure scores improved and met the specific MCID (n=4), the average GSE score was 87.5%, and 85.0% for the 8 subjects who saw overall improvement regardless of whether the MCID was met or not. For the 3 participants whose condition did not change or whose condition worsened the initial GSE score was 65.8%.

A trend in the averages of the GSE scores indicates a possible relationship between SE and therapeutic outcomes. However, while a Point Biserial Correlation revealed a moderate positive correlation (r=0.503) between initial GSE scores and the specific therapeutic outcome measures it does not reach significance (p=0.114).

Outcome:	Mean GSE %	STD DEV
Improvement (to MCID level)	87.50%	5.40%
All Improvements of Outcome (regardless of MCID met)	85.00%	8.86%
No Change or Declined	65.83%	8.04%

Figure 3. Mean GSE scores grouped by outcome category

Initial GSE scores were significantly correlated with the change in pain scores measured by the NPRS (r=0.895; p= 0.04) but not with whether the change in pain score met the MCID (r=0.589; p=0.296).

CONCLUSIONS

The lack of significant correlation between GSE at intake and therapeutic outcome may signify a disassociation between self-efficacy (SE) and therapeutic outcomes, or unique conditions in this study. The average initial GSE score for subjects who improved versus subjects who did not was notably different, indicating support for a correlation between variables. The relatively high GSE scores of this population indicate the need for larger sampling and expansion of the psychosocial characteristics measured. Researchers collecting data in an educational setting should consider generalizability of this setting.

RELEVANCE

Despite the limitations and lack of statistical significance, this research offers some support that SE can impact the success of physical therapy (PT). Though the average GSE score for all subjects was particularly high with limited variability, there was a noticeable difference between the average GSE scores of subjects who saw improvements in their outcomes versus subjects who did not. This possible relationship between SE and PT outcomes, with low SE putting patients at risk for poor outcomes, warrants future research to further examine this relationship. Future research with larger sample sizes, broadened psychosocial measurement, and heightened accuracy of outcome measure administration are necessary to further understand the relationship between SE and PT outcomes. Additionally, it may be beneficial to examine whether SE can be modified throughout PT to ensure optimal results. If indeed SE can be enhanced in the PT setting, clinicians would be encouraged to adjust treatment approaches to encourage SE in patients who are thought to be at higher risk for negative outcomes based on their GSE score or other standardized psychosocial measure.

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IRB Approval
This study was granted approval for participation by human volunteers from the Institutional Review Board of the University of Puget Sound on November 3rd 2015. UPS IRB PROTOCOL #: 1516-040

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