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What is the Responsiveness and Quality of Life "Utility" for PROMIS Outcomes in Foot and Ankle Patients Following Physical Therapy?

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Introduction/Purpose: Patients with foot and ankle conditions have been shown to demonstrate improvement in their generic outcomes using the Patient Reported Outcome Measurement Information System (PROMIS). However, the responsiveness to change and the impact change may have on quality of life has not been explored following non-operative care with physical therapy. The effect size (ES) is an assessment of the magnitude of change while the impact of change in physical function can be assed with quality of life utility scores. Therefore, the purpose of this analysis was to investigate the responsiveness of the PROMIS physical function (PF) scale on changes in quality of life.

Methods: The PROMIS PF scale was available at the start and end of physical therapy treatment for 352 patients with foot and ankle ICD10 codes. PF was chosen as a good outcome measure to assess overall outcome from physical therapy care. Changes from baseline to post-care were examine using Cohen's d to remove dependence on sample size and was interpreted as d=0.20 as a small effect, d=0.05 as a medium effect, and d=0.80 as a large effect. Using available isotonic regression with linear interpolation functions, health state utility scores were calculated from the PROMIS PF scores. These scores represent a health state between 0, representing 'being dead', and 1 being the utility of 'full health'. This methodology has been shown to be reliable and valid for assessing overall health quality of life from changes in physical function. Repeated measures ANOVA models were used to compare outcomes across time.

Results: A significant improvement ($p<0.01$) in PF scores was seen across the sample following physical therapy (PF t-score; baseline 38.6+-8.8; follow-up 45+-9.1). This change was associated with a moderate to large ES of 0.75. The average ES for those subjects with a starting t-score less than 45 (n=294) was 0.86 (large effect) while for those with a starting t-score of greater than 45 (n=58) was 0.27 (small effect). There was also a significant ($p<0.01$) improvement in utility scores following physical therapy (utility score; baseline 0.58+-0.2; follow-up 0.72+-0.2).

Conclusion: There is a general improvement in reported physical function following physical therapy but the magnitude of this effect depends on baseline function. Lower function is associated with greater changes. Improvement in physical function was associated with an overall improvement in quality of life. The non-linear nature of utility scores suggests some patients may have large increases in quality of life with small changes in physical function.

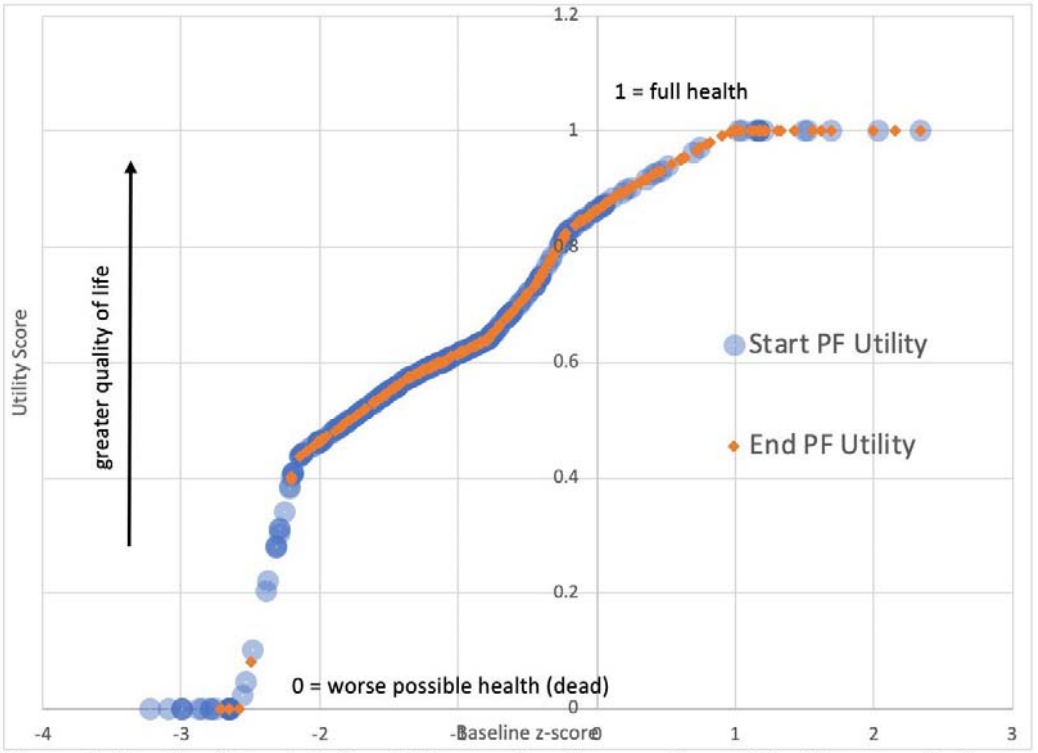

Figure 1. Baseline (blue circles) and follow-up (small orange diamonds) utility scores for foot and ankle subjects seen in physical therapy. A shift up and to the right at the end of physical therapy suggests an improvement in overall quality of life.

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