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Can Women Live with More Symptoms than Men?: Defining Gender Differences in the Patient Acceptable Symptom State (PASS) in Orthopaedic Foot and Ankle Surgery

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Introduction/Purpose: Over the last few years an increasing focus has been directed to define cut-off points for important health improvement. Minimal clinically important difference (MCID) values have traditionally been used to determine if a statistical change translates to a clinical improvement to the patient. Although MCID is helpful, it may be even more important to identify if the current treatment is adequate or that the patient has achieved an acceptable symptom state (symptoms minimal enough to live with). The purpose of this study was to determine if gender influenced patient reported outcomes (patient acceptable symptom state (PASS) and PROMIS Physical Function, Pain Interference and Depression) in patients with foot and ankle problems.

Methods: Prospectively collected PROMIS and PASS were identified for 450 surgical patients (Males=126, Females=324). The CPT codes, gender %, age and follow up were recorded (Table 1). To assure the overall recovery experienced by females and males was similar, aggregate PROMIS scores were compared using ANOVA analysis. The average PROMIS t-scores were comparable and without clinically meaningful differences between gender groups. The ability of each PROMIS scale to predict PASS status was determined using receiver operator curves (ROC). The area under the curve (AUC) and thresholds approximating 95% sensitivity/specificity for males and females were assessed for each PROMIS domain. AUC values below 0.7 are not considered clinically useful. Differences AUC or approximating 95% sensitivity/specificity thresholds by gender would support the hypothesis that PASS status is influenced by gender.

Results: There were significant differences in the AUC for gender suggesting PROMIS scores are better predictors of PASS for females than males however there were only minor differences in near 95% sensitivity/specificity PROMIS threshold values by gender. The AUC values for females were higher than for males for each PROMIS scale (Figure 1). The thresholds PROMIS PF, PI and Dep for males and females are in Table 1. The thresholds for PROMIS PF to determine PASS yes was lower for females compared to males; while the thresholds for PROMIS PI to determine PASS yes were similar between males and females. This suggests that women accept lower function as an acceptable status than men. Men and women accept similar pain thresholds as PASS yes.

Conclusion: PROMIS domains more accurately predict PASS status in females based on the AUC. Females are more likely to judge their physical abilities as acceptable at a lower PROMIS PF threshold value compared to males. Despite these gender differences, males and females both identify a PROMIS threshold (PF and PI) that was near the average of the US population (t-score 50). The lower AUC for males may indicate that males judge any symptoms as unacceptable and use a broader frame of reference than isolatedly perceived physical function and pain interference when judging whether their physical abilities and symptoms are acceptable.

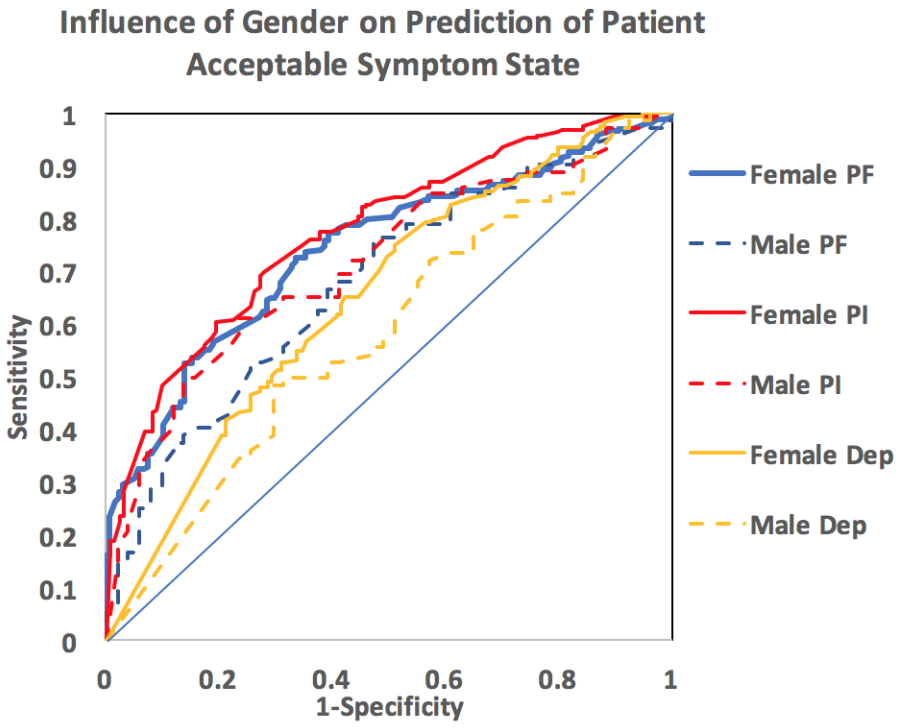

Figure 1. Receiver operator curves for each patient reported outcome information system (PROMIS) scale to predict patient acceptable symptom state (PASS) by gender. For each PROMIS scale the area under the curve is lower for males as compared to females suggesting that the ability of PROMIS scales to predict PASS is less in males as compared to females.
PF = physical function, PI=pain interference, Dep = depression.

Table 1. Accuracy and Threshold data

	Thresholds	Specificity	Threshold	Sensitivity
Female Physical Function	48.5	94.9	30.0	93.8
Male Physical Function	52.1	94.1	27.0	94.4
Female Pain Interference	50.2	97	62.8	93.5
Male Pain Interference	50.6	94.1	68.3	94.4
Female Depression	-	-	56.5	93.5

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