



# Disparities in Patient Reported Outcomes Completion Rates and Baseline Function in Newly Presenting Spine Patients

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## Background

Prior studies have demonstrated that minority patients and those of low socioeconomic status may present with worse physical and mental health on patient reported outcome measures (PROMs).<sup>1-3</sup> As PROMs are increasingly used in clinical care, research, and health policy, accurate assessment of health status among populations relies on the successful completion of PROM instruments.<sup>4-6</sup> The purpose of this study was to evaluate disparities in PROM (PROMIS-Physical Function, Pain Intensity, and Pain Interference) completion rates and baseline function scores among newly presenting spine patients.

## Methods

- A retrospective review of 10,803 consecutive new patients presenting to a single multidisciplinary spine clinic from June 2020 to September 2022 was performed
- Univariate statistics were performed to compare demographics between patients who did and did not complete PROMs
- Multivariate analysis was used to compare PROM instrument completion rates by race, ethnicity, and Social Vulnerability Index (SVI) and baseline scores among responders

## Results

Patient Characteristics by Patient Reported Outcome Measures Completion Status: Categorical Measures

Patient Characteristic	PROM Completion Rate Without Characteristic	PROM Completion Rate With Characteristic	P-Value
<b>Non-White Race</b>	71.8%	61.4%	<0.001
<b>Hispanic Ethnicity</b>	69.5%	56.5%	<0.001
<b>Female Sex</b>	69.2%	67.9%	0.165
<b>Diagnosis Type</b>			
<b>Cervical Only</b>	66.8%	76.5%	<0.001
<b>Lumbar Only</b>	60.4%	76.9%	<0.001
<b>Other</b>	76.8%	52.9%	<0.001

Patient Characteristics by Patient Reported Outcome Measures Completion Status: Scale Measures

Patient Characteristic	PROM Non-Responders	PROM Responders	P-Value
<b>Age</b>	56.8 ± 17.1	57.1 ± 16.5	0.331
<b>Body mass index</b>	29.8 ± 6.7	29.6 ± 6.7	0.144
<b>Overall SVI</b>	0.35 ± 0.26	0.31 ± 0.24	<0.001
<b>SVI – Socioeconomic Status</b>	0.29 ± 0.24	0.26 ± 0.23	<0.001
<b>SVI – Household Characteristics</b>	0.41 ± 0.25	0.38 ± 0.24	<0.001
<b>SVI – Racial/Ethnic Minority Status</b>	0.52 ± 0.30	0.45 ± 0.28	<0.001
<b>SVI – Housing Type/Transportation</b>	0.41 ± 0.26	0.39 ± 0.26	<0.001

Risk Adjusted Odds of Patient Reported Outcome Measures Completion

Patient Characteristic	Odds Ratio	Odds Ratio 95% CI	P-Value
<b>Non-White Race</b>	0.661	0.599-0.729	<0.001
<b>Hispanic</b>	0.569	0.448-0.721	<0.001
<b>Overall SVI</b>	0.608	0.511-0.723	<0.001
<b>SVI – Socioeconomic Status</b>	0.701	0.582-0.844	<0.001
<b>SVI – Household Characteristics</b>	0.613	0.513-0.733	<0.001
<b>SVI – Racial/Ethnic Minority Status</b>	0.533	0.458-0.620	<0.001
<b>SVI – Housing Type/Transportation</b>	0.761	0.641-0.902	0.002

Crude and Risk Adjusted Baseline PROMIS Scores by Race and SVI

Patient Characteristic	Crude		Risk Adjusted	
	β (95% CI)	P-Value	β (95% CI)	P-Value
<b>PROMIS PF</b>				
<b>Non-White Race</b>	-5.4 (-10.9 to 0.2)	0.059	-6.5 (-12.4 to -0.6)	0.032
<b>Hispanic Ethnicity</b>	-4.3 (-14.5 to 5.9)	0.395	-6.0 (-17.2 to 5.1)	0.279
<b>Overall SVI</b>	-4.5 (14.6 to 5.6)	0.374	-5.4 (-16.4 to 5.7)	0.328
<b>PROMIS Pain Interference</b>				
<b>Non-White Race</b>	0.1 (-0.3 to 0.4)	0.768	-0.3 (-0.7 to 0.1)	0.165
<b>Hispanic Ethnicity</b>	0.8 (-0.2 to 1.8)	0.114	0.7 (-0.2 to 1.7)	0.127
<b>Overall SVI</b>	0.5 (-0.2 to 1.1)	0.189	0.2 (-0.5 to 0.9)	0.615
<b>PROMIS Pain Intensity</b>				
<b>Non-White Race</b>	0.9 (0.5 to 1.3)	<0.001	0.6 (0.2 to 1.0)	0.005
<b>Hispanic Ethnicity</b>	1.6 (0.6 to 2.6)	0.002	1.5 (0.5 to 2.5)	0.004
<b>Overall SVI</b>	1.4 (0.7 to 2.1)	<0.001	1.1 (0.4 to 1.8)	0.002

## Conclusions

Our study highlights disparities in PROM completion rates and suggests that non-white patients, those of Hispanic ethnicity, and those at increased social vulnerability may be underrepresented in spine patient-reported outcomes. As these subpopulations may also have worse physical function or pain intensity, additional strategies are needed to better capture patient reported health status in order to avoid bias in clinical care, outcomes research and health policy.