

Can Pain Self-Efficacy Be Modified During an Orthopaedic Surgery Visit?

Giselle Isabella Gomez¹, Jacie Lee Lemos², Pariswi Tewari, Derek F Amanatullah², Loretta Chou², Michael J Gardner³, Serena S Hu¹, Marc R Safran⁴, Robin Neil Kamal

¹Stanford University, School of Medicine, ²Stanford University, ³Stanford University Sugery, ⁴Stanford Univ

INTRODUCTION:

Pain self-efficacy is defined as the perceived ability to carry out desired goals, even in the presence of pain. Greater pain self-efficacy has been associated with reduced pain, reduced pain catastrophizing, fewer limitations, and increased quality of life following treatment for orthopaedic conditions. It is also strongly correlated with patient activation and resilience, variables known to affect patient outcomes after orthopaedic surgery. Despite its known benefits, whether pain self-efficacy can be modified during a visit has not been studied. We aimed to understand whether pain self-efficacy could be improved over a single orthopaedic visit and what modifiable factors might be associated with an increase in pain self-efficacy.

METHODS:

We performed a prospective observational study of orthopaedic clinic visits at a single multispecialty clinic from February-May 2022. New patients who presented to one of six orthopaedic clinics were approached for the study prior to their encounter with the surgeon. Consented patients completed a pre-visit questionnaire including the Pain Self-Efficacy Questionnaire and demographic questions. A trained research member was present at the visit and recorded the five-item Observing Patient Involvement in Decision Making instrument score, number of questions asked by the patient, diagnosis, and visit duration. Immediately following the visit, patients completed a post-visit questionnaire consisting of the Pain Self-Efficacy Questionnaire and the Perceived Involvement in Care Scale.

RESULTS:

Of the 132 patients enrolled, 61 (46%) had improved pain self-efficacy after the orthopaedic visit, with 38 (29%) having improvement above a previous description of a clinically significant threshold (score improvement of 2.5). There were no significant differences between patients with increased pain self-efficacy and those without increased pain self-efficacy when comparing the Perceived Involvement in Care Scale, Observing Patient Involvement in Decision Making score, questions asked, or visit duration.

DISCUSSION AND CONCLUSION:

Almost half of patients' pain self-efficacy improved during an orthopaedic visit. The causal pathway to how to improve pain self-efficacy and the durability of improved pain self-efficacy have implications in strategies to improve patient outcomes in orthopaedic surgery, such as communication methods, shared decision making, and patient-reported outcome use. Future research can focus on studying different approaches (e.g., communication methods) that facilitate improving pain self-efficacy.

Patient Demographic Information		Mean (SD)
Age		55 (16)
	N (%)	
Gender		
Male	61 (46%)	
Female	70 (53%)	
Other	1 (1%)	
Race*		
White	80 (61%)	
African American	5 (4%)	
Hispanic	13 (10%)	
Asian	26 (20%)	
Other	13 (10%)	
Employment Status		
Working (full-time)	58 (44%)	
Working (part-time)	12 (9%)	
Retired	37 (28%)	
No work outside the home	2 (2%)	
Disabled	11 (8%)	
Unemployed	6 (5%)	
Student	6 (5%)	
Educational Status		
Some high school	5 (4%)	
High School graduate	25 (19%)	
Associate's or Bachelor's degree	55 (42%)	
Trade School	7 (5%)	
Master's or other Advanced Degree	29 (22%)	
Doctorate	11 (8%)	
Insurance*		
Medicaid/Med-Cal	25 (19%)	
Medicare	41 (31%)	
Private Insurance	86 (65%)	
Other	11 (8%)	
Household Income		
<\$50,000	31 (23%)	
\$50,000-99,999	28 (21%)	
\$100,000-149,999	17 (13%)	
\$150,000-199,999	16 (12%)	
\$200,000-249,999	16 (12%)	
≥\$250,000	24 (18%)	
Improvement Status		
PSE+	61 (46%)	
PSE-	71 (54%)	

* indicates areas where survey respondents could select multiple choices.

SCORES & CONTEXTUAL FACTORS	PSE+		PSE-		P-value
	Mean	SD	Mean	SD	
PSEQ Before	37.66	12.56	37.65	16.97	0.655
PSEQ After	42.44	11.96	34.92	18.21	0.0279
PSEQ Change	4.787	4.872	-2.73	-3.37	<0.001
PICS	8.672	2.508	8.915	2.534	0.554
OPTION-5	18.9	4.073	18.55	4.081	0.631
Number of Questions asked	4.344	4.187	3.704	3.244	0.401
Visit Duration (minutes)	10.69	6.187	10.18	6.237	0.525

PSEQ = Pain Self-Efficacy Questionnaire, PICS = Perceived Involvement in Care Score, OPTION-5 = Observing Patient Involvement in Decision Making instrument, PSE+ = Patients with an increase in PSEQ, PSE- = Patients with an equal or reduced PSEQ score

Univariate and Multivariate Logistic Regression Analysis of Factors Associated with Change in Self-Efficacy				
Predictor	Coefficient	OR	P-value	
Univariate				
PICS	-0.039	0.962	0.576	
OPTION-5	0.052	1.053	0.633	
Number of Questions Asked	0.047	1.048	0.326	
Visit Duration	0.013	1.013	0.624	
Age	1.009	0.009	0.805	
Multivariate				
Race				
White	Reference	1	-	
Black/African American	0.59268	1.809	0.529	
Asian	0.18731	1.206	0.841	
Hispanic	0.03306	1.034	0.956	
Other	-0.78792	0.254	0.646	
Sex*				
Male	Reference	1	-	
Female	0.630	1.880	0.329	
Education				
Some Highschool	Reference	1	-	
Highschool	1.306	3.691	0.271	
Associate of Bachelor	1.423	4.150	0.216	
Trade	-15.18	2.56E-27	0.967	
Master's or other Advanced Degree	1.179	3.251	0.617	
Doctorate	1.546	7.991	0.129	
Employment				
Working (full-time)	Reference	1	-	
Working (part-time)	0.738	1.148	0.828	
Retired	0.108	1.119	0.748	
No work outside the home	0.138	1.148	0.923	
Disabled	-0.822	0.456	0.531	
Unemployed	-1.471	0.480	0.192	
Student	0.138	1.148	0.923	
Insurance				
Medicaid	Reference	1	-	
Medicare	0.205	1.228	0.613	
Private Insurance	0.114	1.121	0.788	
Other	-0.13	0.887	0.853	
Income				
<\$50,000	Reference	1	-	
\$50,000-99,999	0.192	1.188	0.746	
\$100,000-149,999	0.277	1.431	0.428	
\$150,000-199,999	0.208	1.231	0.779	
\$200,000-249,999	0.308	1.411	0.779	
≥\$250,000	0.266	1.317	0.151	
Clinic				
A	Reference	1	-	
B	-2.399	0.092	0.837	
C	-1.044	0.338	0.623	
D	-0.860	0.433	0.137	
E	-0.709	0.493	0.138	
F	-0.839	0.432	0.132	