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Appendix 1 A list of Patient Reported Outcome Measurements (PROMs) and their descriptions

Outcome Measures	Description
All PROMIS Instruments	A score of 50 points represents the mean and every 10 points away from 50 a standard deviation away from the mean for a general population in the U.S. Higher scores reflect greater levels of the measured construct. For instance, higher PROMIS UE implies greater upper extremity physical function and higher PROMIS Depression reflects greater levels of depression (1)(2)
PROMIS UE (v1.0)	Assesses arm and hand-specific limitations (e.g. writing, lifting heavy objects). Lower scores indicate greater upper-extremity disability (37).
PROMIS PI (v1.0)	Assesses the impact of pain on common activities of daily life including social, cognitive, emotional, physical, and recreational aspects (38).
PROMIS Depression (v1.0)	Assesses negative mood (sadness, guilt), views of self (worthlessness, self-criticism) and diminished positive affect and engagement (loss of interest) within the previous week (39).
PROMIS Anxiety (v1.0)	Assesses levels of anxiety through measuring aspects of fear (e.g. fearfulness, feelings of panic), anxious misery (e.g. worry, dread), hyperarousal (e.g. tension, nervousness, restless) and some somatic symptoms related to arousal (e.g. dizziness) (40).
PROMIS ES (v1.0)	Assesses patient perceived feelings of being cared for and being valued as a person (41).
PROMIS IS (v1.0)	Assesses the perceived availability of support from others in fulfilling specific functions e.g. help with chores, assistance getting to an appointment (41).
QuickDASH	Assesses limitations of physical functioning (e.g. daily tasks, social activities) and arm symptoms (e.g. pain) using 11 items answered on a 5-point Likert scale (10–13). Total scores are scaled from 0 to 100 with higher scores representing greater limitations (42,43,44).
EQ-5D-3L	Assesses five health domains i.e. mobility, self-care, usual activities, pain/discomfort and anxiety/depression, each requiring 3 response levels providing a five-digit number that can be converted to a total index score. Higher scores represent greater overall health (46, 47).
PRWE	Assesses wrist pain and disability in activities of daily living with specific wrist problems. The pain subscale contains 5 items each rated from 1-10 with a maximum score of 50 and a function subscale with 10 items each rated from 0-5 with a maximum score of 50 (45).
PCS	Assesses maladaptive cognitive responses to nociception (e.g. rumination, magnification, helplessness). Thirteen items are scored from 1 ("not at all") to 4 ("all the time") and total scores range from 13 to 52 with higher scores reflecting greater catastrophizing (48).
PSEQ-2	Assesses adaptive coping strategy and the confidence one can achieve one's goals in spite of pain. Items are scored on a 7-point Likert scale and added to form a total score ranging from 0 to 12, with higher scores indicating greater self-efficacy (49,50).
TSK-11	Assesses fear of painful movement and reinjury. Eleven items are rated on a 4-point scale and added to form a total score ranging from 11 to 44 with higher scores indicating greater kinesiophobia (51).

PROMIS, Patient Reported Outcome Measurement Information System; UE, Upper extremity physical function; PI, Pain interference; ES, Emotional Support; IS, Instrumental Support; QuickDASH, Quick Disabilities of the Arm, Shoulder and Hand; EQ-5D-3L, European

Quality of Life Index-version 3L, OSS, Oxford Shoulder Score; PCS, Pain Catastrophizing Scale; PSEQ-2, Pain Self-Efficacy Questionnaire; TSK-11, Tampa Scale for Kinesiophobia-11

Appendix 2 Bivariate Analysis of association between PROMIS UE and variables at less than 1 week after injury

	PROMIS UE PF	
	Value (Spearman's Rho / z / Chi-square)	**p value**
Age	-0.3	**0.0000**
Sex	5.7	**0.0000**
CACI*	-0.3	**0.0000**
Marital status	22.6	**0.0001**
Social support status	72.5	**0.0001**
Education	0.1	**0.0149**
Work status	98.4	**0.0001**
IMD Factor	0.1	0.3016
Broad injury classification	-1.3	0.1832
Dominant side injured	-0.6	0.5279
High energy injury	3.3	**0.0008**
Neurovascular compromise	2.5	**0.0113**
Open injury	-0.8	0.4167
Surgery	0.5	0.6007
Complication	7.4	**0.0000**
Prior dominant side fracture	2.1	**0.0328**
Prior non-dominant side fracture	-0.6	0.5514
Opioid use	9.2	**0.0000**
Anti-depressant use	10.7	**0.0000**
Health-related outcomes at less than 1 week	**(Spearman's rho)**	**p value**
PROMIS Pain Interference	-0.5	**0.0000**
PROMIS Depression	-0.3	**0.0000**
PROMIS Anxiety	-0.4	**0.0000**
PCS	-0.6	**0.0000**
PSEQ-2	0.4	**0.0000**
TSK-11	-0.4	**0.0000**

*CACI = Age-adjusted Charlson Comorbidity Index.

Appendix 3. Multivariable Analysis of Predictive Factors at less than a week after injury for Limitations at 6 to 9 months including patients undergoing surgery

PROMIS UE PF	Regression Coefficient	95% Confidence Interval		Robust Standard Error	p-value	VIF	Partial R^2	Adjusted R^2
Variables								
WS: Retired	-7.47	-9.16	-5.78	0.86	<0.001	1.19	0.19	
Opioid use	-4.22	-6.50	-1.94	1.16	<0.001	1.89	0.04	
Antidepressant use	-9.78	-12.78	-6.78	1.53	<0.001	2.30	0.11	0.58
PROMIS PI	-1.68	-2.65	-0.72	0.49	0.001	1.61	0.04	
PCS	-1.73	-2.81	-0.65	0.55	0.002	1.79	0.03	
Surgery	-0.24	-2.21	1.72	0.10	0.807	1.01	0.00	

In model: age, female sex, Charlson Comorbidity Index, marital status (MS), social support (SS), education, work status (WS), undergoing surgical intervention, high energy injury, neurovascular status, complications, prior dominant arm fracture, opioid use, antidepressant use, PROMIS PI, PROMIS Depression, PROMIS Anxiety, PCS, PSEQ-2, TSK-11

Partial R^2 only shown for variables with p<0.05

Appendix 4. Longitudinal Analysis of Factors associated with PROMIS UE, QuickDASH, PRWE and EQ-5D-3L including patients undergoing surgery

PROMIS UE	Regression Coefficient	95% Confidence Interval		Robust Standard Error	p-value	Adjusted R^2
Variables						
PROMIS PI	-8.47	-9.02	-7.93	0.28	<0.001	
TSK-11	-1.86	-2.38	-1.33	0.28	<0.001	0.78
Age	-0.04	-0.06	-0.03	0.01	<0.001	
Surgery	0.35	-0.38	1.07	0.37	0.348	

QuickDASH	Regression Coefficient	95% Confidence Interval		Robust Standard Error	p-value	Adjusted R^2
Variables						
PROMIS PI	20.55	19.28	21.82	0.65	<0.001	
TSK-11	5.81	4.45	7.17	0.69	<0.001	0.80
Female sex	3.39	2.02	4.75	0.70	<0.001	
Surgery	0.96	-0.94	2.85	0.97	0.323	

PRWE	Regression Coefficient	95% Confidence Interval		Robust Standard Error	p-value	Adjusted R^2
Variables						
PROMIS PI	24.92	23.51	26.32	0.72	<0.001	
TSK-11	3.21	1.80	4.62	0.72	<0.001	0.81
Surgery	-0.31	-2.19	1.57	0.96	0.748	

EQ-5D-3L	Regression Coefficient	95% Confidence Interval		Robust Standard Error	p-value	Adjusted R^2
Variables						
PROMIS PI	-0.27	-0.29	-0.25	0.01	<0.001	
PSEQ-2	0.08	0.06	0.11	0.01	<0.001	
Surgery	0.02	-0.03	0.06	0.02	0.432	0.54

All continuous variables are standardized (mean=0, SD=1) before being included in the model. This allows for direct comparison of the regression coefficients of continuous variables for influence of the dependant variable.

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