Background

- Rheumatoid Arthritis (RA), an autoimmune disease, causing chronic inflammation and progressive disability, affects approximately 0.5% to 0.8% of the US population and 1% of the world^{1,2}
- **Commonly utilized assessments of RA patients'** disease limitations are the PROMIS Physical **Functioning and Upper Extremity scales³**

Objectives

- **Evaluate the PROMIS PF (8b) and UE (7a)** alongside RA patient characteristics and other patient-reported outcomes (PROs)
- Identify constructs, patient characteristics, and items that present opportunities for developing a tailored PRO-based approached to assessing RA limitations and progression

Methods

- Cross-sectional study conducted in 2022 utilized a web-based survey with participants with RA recruited from an online registry, PatientSpot (formerly ArthritisPower)
- Participants completed a survey containing demographic items and scales assessing physical functioning, RA impact on life, and treatment satisfaction
- Conducted multiple linear regression models:
- Dependent Variables: PROMIS PF and PROMIS UE standardized scores
- Independent Variables: Participant characteristics, RA impact on life scale, RA treatment satisfaction scale, and Task Difficulty scale
- Analyses were conducted using IBM SPSS Statistics 29 and R version 4.2.1

Measures

PROMIS PF (8b)

 Eight-item, 5-point Likert scale items ranging from 1 = 'Unable to do' to 5 = 'Without any difficulty'

PROMIS UE (7a)

- Seven-item, 5-point Likert scale items ranging from = 'Unable to do' to 5 = 'Without any difficulty'
- **RA Impact on Life scale⁴**
- Nine-item, 7-point Likert scale items ranging from 1 = 'Strongly Disagree' to 7 = 'Strongly Agree'

RA Treatment Satisfaction scale⁴

• Six-item, 7-point Likert scale items ranging from 1 = 'Strongly Disagree' to 7 = 'Strongly Agree'

Task Difficulty scale

- 13-item, 5-point Likert scale items ranging from 1 = 'Unable to do' to 5 = 'Without any difficulty'
- Items adapted from CDC's "Specific Functional Limitations⁷⁵ and common Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) that provide difficult to arthritis patients

Association of Rheumatoid Arthritis (RA) Patient Characteristics and Perceived Treatment Satisfaction, RA Impact on Life, and Task Difficulty with PROMIS Measures' Physical Functioning and Upper Extremity Scores



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The findings suggest an opportunity to refine assessments of patients' RA limitations and its functional impact on their daily lives by focusing on specific IADL-oriented, upper extremity-focused tasks that can be tailored to the tasks patients find to be most difficult

Table 1: Participant Characteristics (N = 90).		Table 2: PROMIS UE, PROMIS PF, RA Impact on Life, RA Treatment Satisfaction, and Task Difficulty Scores (N = 90).		Table 3: Multiple Linear Regression Analysis of Factors Associated with PROMIS PF Scores (N = 87).				
Total [%]					Coefficient S		td. Coefficient	
	n = 90 (90.9%)			Factor	В	Std. error	Beta	r-value
rears Since RA Diagnosis			Item Total	(Constant)	18.665	1.174		<0.001***
Less than two years ago			x (SD)	Dinner: Ability to prepare	1 608	0.376	0 298	<0.001***
2 - 5 years ago	15 (16.7)	PROMIS Upper Extremity (UE) SF7a	34.96	dinner	1.000		01200	
More than 5 years ago	62 (68.9)	Scaled T-Score	(7.62)	CDC_4: Ability to stoop,	0.935	0.313	0.196	0.004**
Sender		PROMIS Physical Function (PF) SF8b	37.23	bend, or kneel				
Male		Scaled T-Score	(5.67)	CDC_3: Ability to stand for	1.352	0.506	0.198	0.009**
Female	76 (84.4)	Mean RA Impact on Life	3.20 (1.28)					
Non-binary/third gender	-	Mean RA Treatment Satisfaction	4.28 (1.34)	RA Impact on Life	0.999	0.249	0.240	<0.001***
Other	1 (1.1)	Mean Task Difficulty	3.77 (0.73)	Comb: Ability to brush or	1.140	0.359	0.200	0.002**
Prefer not to say		Task Difficulty: CDC Items (Lower Values	3.15 (0.82)	comb hair				
Education Level		Indicate Greater Difficulty with Task)		Age: Less than 45 years	1.541	1.213	0.060	0.208
Less than high school	-	CDC_1	3.72 (1.00)	Age: 65 years and older	-1.342	0.560	-0.116	0.019*
High school graduate	5 (5.6)	CDC_2	3.61 (1.16)	* Significant at p ≤ 0.05; ** Significant at p ≤ 0.01; *** Significant at p ≤ 0.001 F = 55.96; df (7, 79); p < 0.001; R = 0.912; R ² = 0.832.				
Some college	21 (23.3)	CDC_3	2.48 (1.23)					
2-year degree	14 (15.6)	CDC_4	2.79 (1.13)	Table 1: Multiple Linear Pearoscien Analysis of				
4-degree	24 (26.7)	Task Difficulty: Dressing (ADL)	4.06 (0.96)	Eactors Associated		DOMICI	IE Scoros	> (N - 27)
Professional degree	7 (7.8)	Task Difficulty: Bathing (ADLs)	4.08 (0.95)	raciois Associateu				S(IN - 07).
Doctorate or Master's degree	19 (21.1)	Bathe	4.04 (1.04)			fficient S	Std. Coefficie	<u>nt</u> P-value
Prefer not to say	_	Comb	4.12 (0.99)	Factor	B 11 106		Beta	~^ ^^ ***
Annual Household Income		Task Difficulty: Toileting (ADL)	4.54 (0.80)		11.100	2.492		~U.UU I
Less than \$20,000	10 (11.1)	Task Difficultly: Dinner (IADL)	3.69 (1.02)	Pill/jar opening: Ability to	2.833	0.534	0.381	<0.001***
\$20,000 - \$ 49,999	25 (27.8)	Task Difficulty: Eating (ADL)	4.58 (0.73)	Dinner: Ability to propero				
\$50,0,00 - \$74,999	14 (15.6)	Task Difficulty: Transferring/Socializing (IADLs)	4.16 (0.78)	dinner	1.176	0.669	0.153	0.083
\$75,000 - \$99,999	11 (12.2)	Drive 1	4.10 (1.23)	CDC 4: Ability to stoop.			a 4 a a	
\$100,000 - \$150,000	13 (14.4)	Drive 2	4.21 (0.93)	bend, or kneel	1.352	0.506	0.198	0.009**
Greater than \$150,000	7 (7.8)	Task Difficulty: Pill/iar opening (IADL)	3.06 (1.03)	RA Impact on Life	0.983	0.437	0.165	0.027*
Prefer not to say	10 (11.1)	Task Difficulty: IADLs	3.63 (0.83)	Drive_2: Ability to fasten	1 504	0 705	0 170	0 036*
Age		Task Difficulty: ADLs	4.32 (0.77)	seat belt	1.00-	0.700	0.170	
Less than 45 years	5 (5.6)			Years Since RA Diagnosis:	-2.404	1.561	-0.112	0.127
45-64 years	56 (62.2)			Less than 2 years ago				
65 years and older	29 (32.2)			More than 5 years ago	-2.995	1.201	-0.183	0.015*

- influenced the associations with both standardized PROMIS PF and UE scores.
- progressive nature of RA and the importance of early diagnosis and intervention.
- skills such as standing, bending, and combing hair.

Discussion

Participants' perceived difficulty with stooping/bending/kneeling and perceived impact of RA on their lives significantly

The negative associations observed with age (PF model) and duration since diagnosis (UE model) underscore the

UE model reveals significant associations related to IADL-oriented fine motor skills in one's ability to open pill bottles and fasten one's seat belt, whereas PF model identifies significant associations related to ADL-oriented gross motor

* Significant at $p \le 0.05$; ** Significant at $p \le 0.01$; *** Significant at $p \le 0.001$ F = 32.68; df (7, 79); p < 0.001; R = 0.862; R² = 0.743.

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