

Is the Patient Global Health Assessment Reliable in Juvenile Idiopathic Arthritis?

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Background: Juvenile idiopathic arthritis (JIA) is a chronic autoimmune disease that poses many challenges in monitoring and management. There is increasing recognition of the importance of patient-reported outcomes (PROs), because they reflect the patient's own view of their rheumatic illness. Although newer PROs are being developed and more widely utilized both in clinical care and in research, their performance and reliability remain unclear. This study seeks to evaluate: (1) performance of the patient global health assessment (PGA) compared to standard disease activity measures in children with JIA, (2) correlations of the PGA with socioeconomic status (SES) in children with JIA, and (3) relationship between PGA and physician global health assessment in children with JIA.

Methods: A convenience sample of patients with JIA (N = 47) aged 2-18 were recruited from a single center. Patients aged ≥ 10 years completed the questionnaire, and parents of patients aged 2-9 completed a proxy questionnaire on their child's behalf. Correlations between (1) the PGA and disease activity, as measured by the Juvenile Disease Activity Score-71 (JADAS-71), (2) the PGA and physician global health assessment, and (3) the physician global health assessment and the JADAS-71 were evaluated using Spearman correlation coefficients. PGAs were compared by age, sex, insurance status, race, and ethnicity using Wilcoxon rank-sum tests. Differences between PGA and physician global health assessments were compared using Wilcoxon rank-sum tests.

Results: 16 parents and 31 patients completed the patient global assessments (Table 1). There was a moderate correlation between PGA and JADAS-71 ($r= 0.503$, $p<0.001$), and PGA and physician global health assessments ($r= 0.503$, $p= 0.002$). There was a stronger correlation between physician global health assessments and JADAS ($r= 0.612$, $p<0.001$). PGA median scores and IQRs appeared to be higher among patients with Medicaid insurance, non-white race, and Hispanic ethnicity, with the greatest difference seen in the category of race (Table 2). There were no differences between patient and physician assessments across all groups except among patients with Medicaid (difference median = -1.25) and Hispanic patients (difference median = 2) (Table 3).

Conclusion: Our results demonstrate that physician global health assessment had a stronger correlation with standard disease activity measures than the PGA. These scores were higher in patients who were non-White race, Hispanic, and had Medicaid insurance; however, these were not statistically significant. These data indicate that the PGA is fairly stable across groups, and can be used reliably for disease monitoring.

Further validation using data from other centers and patient cohorts is needed prior to implementation in routine clinical care.

This study was approved by the Hospital for Special Surgery IRB.

Table 1. Patient Characteristics

	Patients and Parents (N = 47)	Patients (n = 31)	Parents (n = 16)
Age, years (median, IQ range)	12.4 [8.6, 15.0]	14.2 [12.4, 15.8]	4.3 [3.3, 9.0]
Sex			
Male	17 (36.2%)	14 (45.2%)	3 (18.8%)
Race			
Caucasian/White	38 (80.9%)	24 (77.4%)	14 (87.5%)
Asian	3 (6.4%)	3 (9.7%)	0 (0.0%)
Other	6 (12.7%)	4 (12.9%)	2 (12.5%)
Ethnicity			
Hispanic	8 (17.0%)	5 (16.1%)	3 (18.8%)
Insurance			
Medicaid	8 (17.0%)	4 (12.9%)	4 (25.0%)
Private	39 (83.0%)	27 (87.1%)	12 (75.0%)
BMI, kg/m² (median, IQ range)	18.3 [15.6, 22.3]	21.3 [18.2, 23.8]	15.5 [15.0, 16.8]

Table 2. Comparison of Patient Global Assessments by age, sex, insurance status, race and ethnicity

	Patient global median [IQR]	P-value
Age		
Patient completed	2 [0, 5]	0.892
Parent completed	2 [0.05, 4.5]	
Sex		
Male	2 [0, 5]	0.679
Female	2 [0, 4]	
Insurance		
Medicaid	2.5 [1, 5,]	0.313
Private	2 [0, 4]	
Race		
White	1.5 [0, 4]	0.266
Non-white	4 [2, 5]	
Ethnicity		
Hispanic	2.5 [2.5, 5]	0.134
Non-Hispanic	1 [0, 4]	

Table 3. Discordance of patient and physician assessments by age, sex, insurance status, race, and ethnicity

	Difference median** [IQR]	P-value
Age		
Patient completed	0 [-1, 2]	0.370
Parent completed	0 [-2.25, 1]	
Sex		
Male	0 [-2, 2]	0.731
Female	0 [-2, 1]	
Insurance		
Medicaid	-1.25 [-4.5, 1.0]	0.226
Private	0 [-2, 1]	
Race		
White	0 [-2, 1]	0.957
Non-white	0 [-2, 2]	
Ethnicity		
Hispanic	2 [-0.5, 2.25]	0.127
Non-Hispanic	0 [-2, 1]	

**Differences between patient and physician global assessments were calculated as patient global – physician global