

# High Rate of Errors in Brief Pain Inventory Completion Among Adults with Sickle Cell Disease

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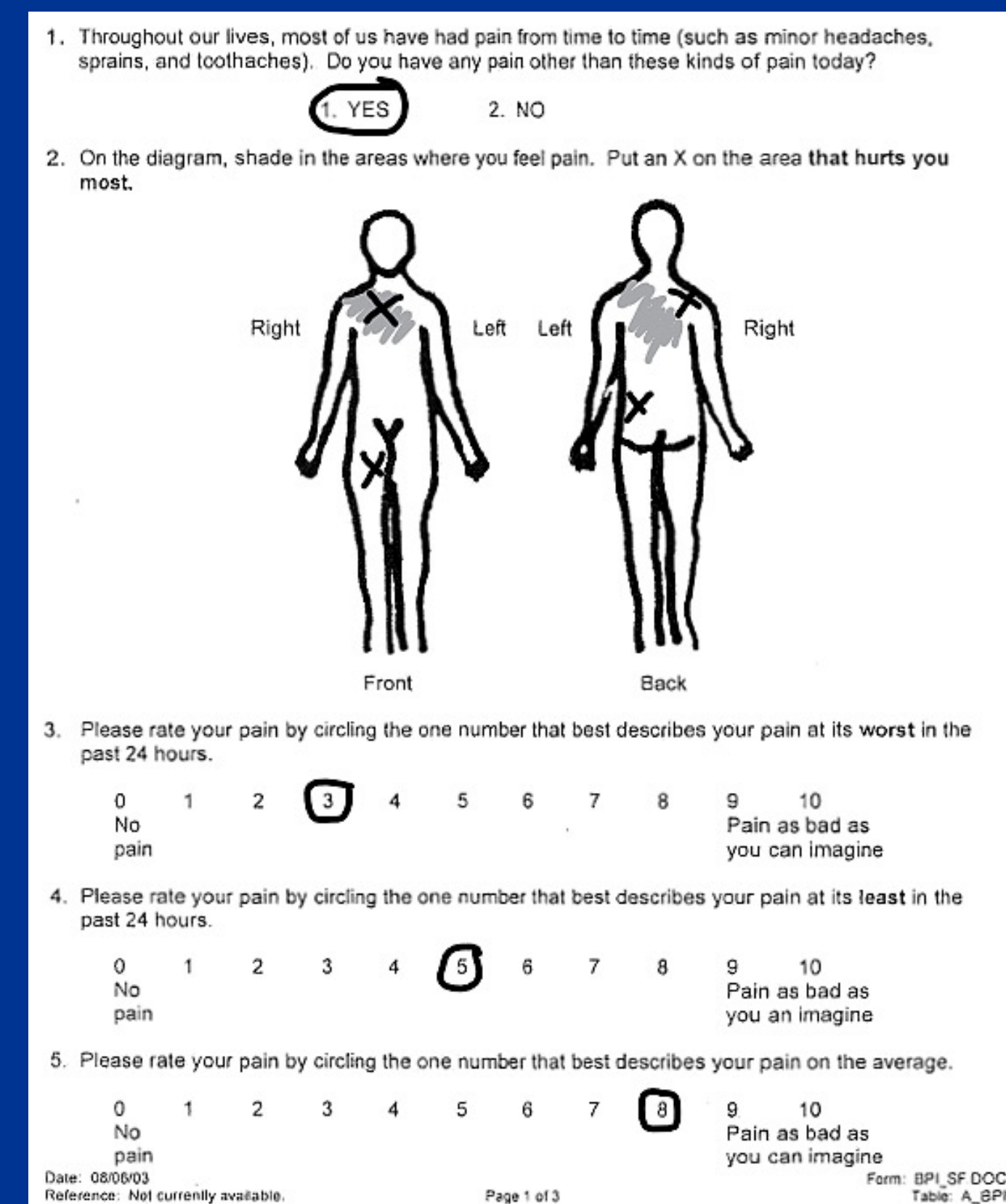
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## Background

- Adults living with sickle cell disease (SCD) experience severe acute and chronic pain.
- The Brief Pain Inventory (BPI) is a self-report scale to evaluate pain severity and interference.
- In a prior study, we found 51% of the BPI forms administered as part of an had incongruent pain intensity among the numeric scale items.
- While adults with SCD are known to be at risk for neurocognitive deficits due to silent and overt strokes, how this may impact their ability to accurately complete surveys of pain is understudied.

## Purpose

The purpose of this study was to evaluate the validity of BPI scores in patients living with SCD, and whether inconsistencies found in patients' completion of the BPI were associated with lower neurocognitive function.



## Methods

- **Design:** Secondary analysis of BPI forms (N = 71) from the parent study. Data collected via paper & pencil. BPI questionnaires were evaluated for inconsistencies.
- **Instruments:** Demographic Questionnaire, Brief Pain Inventory Short Form (BPI-SF), Repeatable Battery for the Assessment of Neuropsychological Status (RBANS), Hopkins Verbal Learning Test – Revised (HVLTR)
- **Analysis:** Descriptive statistics and T-tests were analyzed using SPSS ver. 28.

## Results

Sample Characteristics (N = 71)	
Variable	Mean ± SD (Range)
Age (years)	37.03 ± 12.05 (20 – 70)
Education (years)*	13.60 ± 2.04 (8 – 18)
Variable	N (%)
Gender	
Male	31 (43.7%)
Female	40 (56.3%)
Race	
African-American/Mixed African-American	70 (98.6%)
White	1 (1.4%)
SCD Genotype	
HgbSS	38 (53.5%)
HgbSC	26 (36.6%)
SB+Thal	6 (8.5%)
SB0Thal	1 (1.4%)

Note: \*n = 53

Frequency of Inconsistent Data Entry within BPI-SF (N = 71)	
Variable	N (%)
Any Inconsistency in BPI Entry	
No	56 (78.9%)
Yes	15 (21.1%)
Reported “no pain today” on item 1, but subsequently affirmed current pain on item 6.	
No	69 (97.2%)
Yes	2 (2.8%)
Conflicting scores on the pain intensity numeric scales (items 3, 4, & 6).	
No	60 (84.5%)
Yes	11 (15.5%)
Reported the same level of pain severity across all pain intensity scale items (items 3 – 6).	
No	69 (97.2%)
Yes	2 (2.8%)
Did not answer at least 1 question on pain intensity scale.	
No	70 (98.6%)
Yes	1 (1.4%)

Variable	Non-Error Grp		Error Group		t	p
	(M)	(SD)	(M)	(SD)		
RBANs Immediate Memory	91.93	15.53	84.33	15.90	1.67	.099
RBANs Modified Visuoconstruction Index	83.04	15.39	75.57	10.20	1.72	.091
RBANs Language	89.72	14.84	87.27	18.20	0.54	.591
RBANs Attention	86.67	16.80	76.07	19.29	2.09	.040
RBANs Delayed Memory	94.17	10.10	86.93	13.52	2.27	.026
RBANs Total Index	85.31	12.47	76.50	12.84	2.34	.024
HVLTR Total Recall	41.56	8.56	36.20	10.68	2.02	.048
HVLTR Delayed Recall	38.46	11.33	36.71	9.57	0.53	.600

## Conclusions

- One in five participants submitted BPI data that reported pain inconsistently based on the instrument instructions.
- We found preliminary evidence that individuals who report pain inconsistently using the BPI may have worse neurocognitive function, particularly attention & memory.
- Revisions to the BPI may improve its validity, especially in populations affected by neurocognitive impairments.
- New approaches to measuring pain and other patient-reported outcomes that do not rely on complex phrasing or numeric scales are needed to better measure these outcomes among underserved patient populations.

## Acknowledgements

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## References

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