

# Capturing Clinical Judgments of Psychiatric Symptoms in Children: A Brief Rating Scale for Research and Clinical Applications

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## Abstract

**Background:** Evidence-based practices require systematic assessments of clinical symptoms. Many psychiatric rating scales have been developed for research purposes, but these often require extensive training and are commonly targeted at adult psychiatric disorders. The Children's Psychiatric Symptom Rating Scale (CPSRS) is designed for clinicians to use when rating the most common psychiatric symptoms experienced by children. It is designed for use without extensive training and is closely aligned with the conditions in the DSM. User-friendly features include bidirectional ratings for mood state, activity level, and sleep, as well as specific childhood problems such as enuresis and encopresis. **Methods:** A series of studies was performed in children aged 12 and under. The inter-rater reliability and test-retest reliability of the CPSRS was examined in a study of 50 children and the results were compared those obtained from ratings with the BPRS. The convergent validity of therapist ratings was examined in a study of 200 children whose parents completed a clinical rating scale. Discriminant validity was examined by looking at the overlap between intelligence test scores and therapist CPSRS ratings in 388 children. Sensitivity to global impairment was examined by comparing severity ratings for 120 outpatients in a partial hospital program to 212 consecutive admissions to an inpatient unit serving children of the same age. Finally, the factor structure of the scale was examined in a sample of 1788 children. **Results:** Inter-rater reliability of the CPSRS was similar to the BPRS-CA and consistent with previous studies of child populations (mean item ICC>.60). Convergent validity was confirmed by statistically significant correlations between parent and therapist ratings of mood, conduct, anxiety, and psychotic symptoms (all  $p < .05$ ). No correlations between IQ total and subscale scores and CPSRS scores were statistically significant ( $r < .05$ ,  $p > .38$ ). A multivariate analysis found that inpatients had globally higher scores than outpatients,  $F(1,26)=9.47$ ,  $p < .001$ . The CPSRS factor structure is consistent with its conceptual organization, with factors defining mood, anxiety, conduct, psychosis, and elimination disorders. The model fit was quite suitable in split sample analyses, RMSEA=.06, CFI=.96. **Implications:** The CPSRS is designed to be easily used by clinicians in practice without specialized training. This user-friendly tool makes it possible to capture judgments of the quality and severity of symptoms experienced by children in mental health settings. Using this instrument, experienced clinicians with no special training in the use of this measure were able to generate ratings that were reliable, valid, and sensitive to global severity of illness. The large samples in these studies suggest that the findings are likely to generalize to other clinical settings and other types of clinician raters.

## Introduction

- The Children's Psychiatric Rating Scale (CPSRS) was developed to be used by clinicians to capture their judgments of psychiatric symptoms and behavior problems of children. This scale was designed to provide broad coverage of the symptoms associated with the most common psychiatric disorders experienced by this age group.
- There are several rating scales that are used for similar purposes; however, there are characteristics of the CPSRS that make it unique. These were added with the intention of improving the reliability of the measure. Specifically, the CPSRS provides explicitly stated definitions of the constructs being rated and clearly defined anchor points on the severity dimensions.
- The present study looked at the:
  - inter-rater reliability,
  - convergence with other clinician rated scales,
  - convergence with parent-ratings,
  - sensitivity to global impairments
  - factor structure of the scale

## Reliability study

- Subjects were recruited from three different child inpatient units. Subjects were 6-12 years of age, currently hospitalized, with an expected length of stay of over 2 weeks, and considered suitable for participation by the treatment team.
- Six clinical psychology Ph.D. candidates conducted chart reviews and completed the CPSRS and BPRS-CA following a structured clinical interview.
- Pearson's  $r$  was calculated for inter-rater reliability.
- Mean percentage of absolute agreement was calculated by dividing the number of exact ratings by the total number of ratings for each scale.

## Convergent Validity Study

- 200 child inpatients whose parents had completed the PIC-2 were rated on the CPSRS at the time of admission by their primarily therapist.

## Sensitivity to Global Impairments

- Sensitivity to global impairment was examined by comparing severity ratings for 120 outpatients in a partial hospital program to 212 consecutive admissions to an inpatient unit serving children of the same age.

## Factor Analytic Study

- 1747 Children whose therapists had completed the CPSRS within 48 hours of admission were the source of data.
- Split-half confirmatory factor analysis was used to examine factor structure of the instrument.

## Test-Retest Characteristics of CPSRS items overlapping with BPRSC

CPSRS Item	M		SD		SC (d)	IR		TR
	T1	T2	T1	T2		T1	T2	
<b>Host &amp; Aggr Beh</b>	<b>3.44</b>	<b>3.79</b>	<b>2.01</b>	<b>1.82</b>	<b>-.18</b>	<b>.55</b>	<b>.60</b>	<b>.58</b>
<b>Inattention</b>	<b>2.30</b>	<b>2.01</b>	<b>1.55</b>	<b>1.58</b>	<b>.19</b>	<b>.62</b>	<b>.58</b>	<b>.58</b>
<b>Impulsivity</b>	<b>2.50</b>	<b>2.59</b>	<b>1.58</b>	<b>1.52</b>	<b>-.06</b>	<b>.70</b>	<b>.59</b>	<b>.52</b>
<b>Prev Mood State</b>	<b>2.45</b>	<b>2.54</b>	<b>0.66</b>	<b>0.65</b>	<b>-.14</b>	<b>.52</b>	<b>.62</b>	<b>.39</b>
<b>Self-Esteem</b>	<b>2.76</b>	<b>2.81</b>	<b>0.59</b>	<b>0.44</b>	<b>-.10</b>	<b>.60</b>	<b>.60</b>	<b>.39</b>
<b>Sleep Disturbance</b>	<b>1.45</b>	<b>1.40</b>	<b>1.46</b>	<b>1.32</b>	<b>.04</b>	<b>.68</b>	<b>.80</b>	<b>.46</b>
<b>Suicidality</b>	<b>0.72</b>	<b>0.30</b>	<b>1.14</b>	<b>0.60</b>	<b>.46</b>	<b>.74</b>	<b>.66</b>	<b>.42</b>
<b>Separation Anx</b>	<b>1.93</b>	<b>1.31</b>	<b>1.59</b>	<b>1.35</b>	<b>.42</b>	<b>.70</b>	<b>.76</b>	<b>.55</b>
<b>Social Withdrawal</b>	<b>1.43</b>	<b>0.94</b>	<b>1.77</b>	<b>1.59</b>	<b>.29</b>	<b>.64</b>	<b>.74</b>	<b>.42</b>
<b>Hallucinations</b>	<b>0.83</b>	<b>0.54</b>	<b>1.53</b>	<b>1.24</b>	<b>.21</b>	<b>.84</b>	<b>.93</b>	<b>.52</b>
<b>Delusions</b>	<b>0.31</b>	<b>0.21</b>	<b>1.00</b>	<b>0.69</b>	<b>.12</b>	<b>.54</b>	<b>.40</b>	<b>.40</b>
<b>Susp &amp; Paranoia</b>	<b>0.53</b>	<b>0.38</b>	<b>1.14</b>	<b>0.91</b>	<b>.15</b>	<b>.88</b>	<b>.76</b>	<b>.52</b>
<b>Verbal Product</b>	<b>3.22</b>	<b>3.24</b>	<b>0.56</b>	<b>0.54</b>	<b>-.04</b>	<b>.37</b>	<b>.34</b>	<b>.64</b>

## Split Sample Factor Loadings

Item	Sample 1	Sample 2
	Factor Loading	Factor Loading
<i>Depression</i>		
Depression	.80	.80
Low Self-Esteem	.84	.93
Suicidality	.52	.59
Social Withdrawal	.57	.61
<i>Anxiety</i>		
Anxiety	.88	.85
Separation Anxiety	.70	.73
<i>Behavior Problems</i>		
Impulsivity	.87	.85
Inattention	.73	.70
Hostility/Aggression	.77	.80
Conduct Problems	.84	.85
<i>Psychosis</i>		
Delusions	.82	.88
Thought Disorder	.75	.80
Hallucinations	.60	.67
Paranoia	.62	.63
<i>Elimination</i>		
Enuresis (Diurnal)	.79	.92
Enuresis (Nocturnal)	.77	.74
Encopresis (Diurnal)	.82	.85
Encopresis (Nocturnal)	.96	.85

## Domain Specific Correlations Between Parent and Clinician Ratings

CPSRS	Behavior Problems				Mood Problems			Anxiety Symptoms				Psychotic Symptoms			
	HOS	CON	INA	IMP	MOO	SUI	EST	ANX	SEP	OBS	WIT	DEL	THD	HAL	SUS
PIC-2															
Defensiveness	-.34**	-.33**	-.17*	-.20**	-.16*	.20**	-.08	.20**	.20**	-.19**	.10	-.04	-.09	.23**	.13
Impulsive & Dist	.27**	.29**	.16*	.25**	.24**	-.22**	.19**	-.26**	-.20**	-.24**	-.15*	.02	.07	-.13	.03
Disruptive Beh	.27**	.27**	.19**	.23**	.24**	-.23**	.17*	-.22**	-.16*	-.21**	-.10	.03	.09	-.12	.05
Fearlessness	.12	.17*	-.05	.15*	.10	-.10	.16*	-.24**	-.22**	-.20**	-.22**	-.03	-.02	.10	-.04
Delinquency	.38**	.35**	.09	.28**	.14*	-.18*	.19**	-.25**	-.20**	-.22**	-.16*	-.02	.01	-.19**	.07
Dyscontrol	.41**	.36**	.10	.30**	.17*	-.15*	.20**	-.24**	-.20**	-.21**	-.13	-.04	.01	-.12	.07
Noncompliance	.32**	.32**	.14	.23**	.11	-.16*	.11	-.22**	-.20**	-.19**	-.12	.02	.02	-.25**	.02
Develop Deviation	.16*	.12	.16*	.16*	.13	-.14	.14	-.06	-.01	-.04	.02	.12	.22**	.10	.14*
Cognitive Impair	.11	.06	.13	.09	.17*	-.14*	.09	-.11	-.01	-.04	-.06	.05	.16*	-.03	.13
Poor Achievement	.09	.10	.11	.07	.16*	-.19**	.09	-.11	-.02	-.07	-.09	.04	.07	-.06	.10
Develop Delay	.16*	.12	.16*	.16*	.13	.14	.14	-.06	-.02	-.04	-.01	.14*	.26**	.05	.18**
Reality Distortion	.13	.10	.09	.13	.07	.13	.15*	-.09	-.05	-.02	.02	.19**	.21**	.18*	.17*
Hall & Delusions	.07	.07	.01	.08	.00	-.09	.13	-.10	-.06	.00	.00	.23**	.17*	.23**	.18*

\* $p < .05$  \*\* $p < .01$ ;

## Comparison of Partial Hospital And Acute Admissions on CPSRS

CPSRS Variable	Inpatient		Partial Hospital		t	ES
	M	SD	M	SD		
Hostility	4.00	1.67	2.64	1.61	7.17***	.82
Conduct Problems	3.66	1.72	2.08	1.41	8.61***	.99
Inattention	3.17	1.57	2.20	1.48	5.50***	.61
Impulsivity	4.04	1.16	3.28	1.18	5.67***	.65
Depressed Mood State	2.32	1.46	2.52	1.46	-1.18	.14
Agitated/Manic Mood State	0.14	.61	0.10	.43	.65	.07
Self-Esteem	0.54	1.00	0.56	.74	-.11	.01
Psychomotor Slowing	0.38	.78	0.47	.93	-.93	.11
Psychomotor Agitation	0.33	.82	0.48	.93	-.15	.02
Suicidality	1.76	1.83	0.94	1.12	4.46**	.51
Emotional Range	0.27	1.05	-.03	1.00	2.54**	.29
Emotional Intensity	0.49	1.06	0.08	1.09	3.36***	.39
Emotional Variability	0.58	1.00	0.20	.98	3.35***	.38
Daytime Wetting	0.02	.34	0.03	.37	-.24	.03
Bed Wetting	0.12	.65	0.28	1.01	-1.67	.19
Daytime Soiling	0.00	.07	0.03	.27	-1.02	.12
Soiling in Bed	0.01	.12	0.03	.27	-.50	.06
Somatization	1.08	1.38	0.85	1.45	1.40	.16
Anxiety	2.90	1.41	2.33	1.44	3.50***	.19
Separation Anxiety	0.94	1.37	0.70	1.35	1.57	.18
Obsessions	0.68	1.28	1.03	1.32	-2.36*	.27
Compulsions	0.33	.87	0.59	1.30	-2.26*	.26
Social Withdrawal	1.26	1.42	1.11	1.45	.95	.11
Sexually Inappropriate	0.65	1.27	0.20	.69	3.61**	.41
Hallucinations	0.70	1.48	0.27	.81	2.97**	.34
Delusions	0.42	1.02	0.09	.51	3.35***	.38
Thought Disorder	0.35	.86	0.14	.58	2.40*	.28
Verbal Productivity	-.02	.69	-.03	.70	-.18	.02
Paranoia	0.89	1.31	0.72	.95	1.28	.15
GPR	6.01	113	4.95	1.24	7.91***	.91

\*\*\*  $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$

## Results

- Inter-rater was consistent with many similar scales for children.
- Domain specific correlations between parent and clinician ratings were consistently statistically significant. In many studies of children raters from different points of view are less convergent
- The scale was very sensitive to differences in global severity of illness.
- The factor structure fit the data in both samples: (RMSEA = .06; CFI = .95;  $\chi^2=9147.18$ ,  $p < .001$ ).
- This same model fit was also equally good, with relatively similar factor loadings, in the second sample (RMSEA = .06; CFI = .95;  $\chi^2=6402.86.89$ ,  $p < .001$ ).

## Implications

- The CPSRS works well for its intended purpose: as a rating scale for use by experienced clinicians without additional training.
- All the standard indicators of scale quality are met and ratings have an interpretable factor structure and sensitivity to global severity.
- Further research is in process to examine other properties of the scale and usefulness in other childhood conditions.

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To obtain a copy of the CPSRS  
and related documents:  
E-mail Dr. Pogge at:  
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