Behavioral Ratings in Pediatric Multiple Sclerosis (MS)

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Objective

To identify behavioral areas most frequently reported in the range of clinical concern in pediatric MS.

Background

The frequency and nature of behavioral disturbance associated with pediatric MS remains unclear. Adult MS is associated with elevated rates of depression and other psychiatric disturbances but these are less defined in pediatric MS[3]. Furthermore, the psychosocial burden of pediatric illness in general is linked to increased behavioral problems.

Previous reports in pediatric MS have been from relatively small sample sizes with variable findings. In one sample of 28 participants with pediatric MS[1], none had clinically significant elevations on the BASC-2 self report depression scale nor did depression ratings differ significantly to 85 healthy controls.. A prior sample of 29 pediatric onset MS participants compared to 29 healthy controls[2] had self and parent report in the average (nonclinical) range for all scales, but with significantly greater number of participants with clinical elevations on the attention, depression, somatization and adaptive skills. To clarify the behavioral symptoms of pediatric MS, we consecutively evaluated a large outpatient sample with self- and parent-reported behavioral ratings

Methods

Patients 18 years and younger diagnosed with MS, clinically isolated syndrome (CIS), or radiologically isolated syndrome (RIS) were consecutively recruited at the Lourie Center for Pediatric MS between April, 2006 and May, 2014. Participants were asked to complete the Behavioral Assessment System for Children, second edition (BASC-2); parents completed parent-report forms. In addition, as part of their routine clinical visit, participants underwent a comprehensive neurological evaluation and neuropsychological testing.

The BASC-2 includes clinical and adaptive functioning scales, with scores falling greater than two standard deviations from the normative mean considered to be clinically significant. Participant's BASC-2 profiles were generated using the program software referencing large normative databases (combined sex). Only profiles with acceptable validity indices were included for analyses.

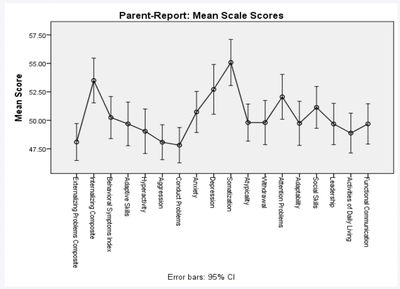
Results

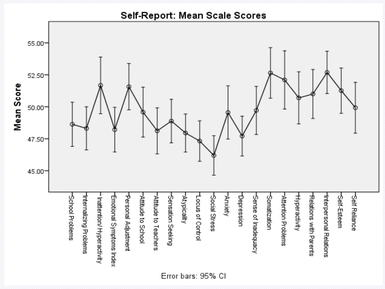
Analyses included 156 patients diagnosed with MS (n=119, 76%), CIS (n =32, 21%), or RIS (n=5, 3%). Age and clinical characteristics are shown in Table. 1. In addition, the sample was 59% female; 70% White, 20% African American, 3% Asian; and 27% Hispanic

***Table 1**. Clinical Features (n=156)*

	Mean ± SD	Range
Age (years)	14.8 ± 2.6	5 - 18
Disease duration (years)	1.8 ± 1.9	0.1 – 10
Age at symptom onset (years)	12.9 ± 3.5	2 to 17
	Median	**Range**
EDSS score	1.5	0 - 6.5

As shown in Figures 1 and 2, all mean BASC-2 scores for self- and parent-reported clinical and adaptive scales were within the average range, with mean t scores between 45 and 55.

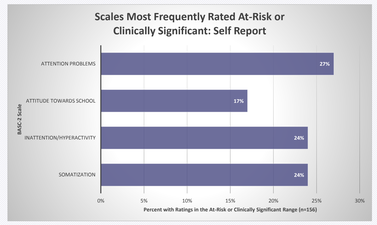


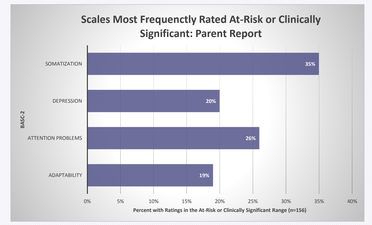


Figures 1 and 2: Summary profile of sample (n=156) of mean scores

However, based on self reports at least one scale was rated to be at risk or clinically impaired (t score>60) for 66% of the sample and 53% were clinically impaired on at least two scales. On the parent report, 75% were clinically impaired on one scale and 47% on two scales. As shown in Figures 3 and 4, no one clinical symptom emerged as the most frequently impaired. Elevation in symptom scales were variable across the sample and only included depression for the parent report.

Figures 3 and 4 show the scales that were most frequently rated in the At-Risk or Clinically Significant range for self- and parent-reports.





In addition, neither age, (r=0.05) disease duration (r=0.00) nor the EDSS (r = 0.01) were associated with behavioral impairment as measured by patient or parent self report., Similarly, these features did not significantly predict individual scales (at the p<0.001 level) on either self or parent report ratings (with all r values<2.5).

Consistent with the absence of relation to disease features, there was no difference found between the MS (n=119) vs. CIS (n=32) groups in terms of overall proportion of impairment or pattern, with the CIS group having slightly higher rates of impairment (58% vs. 50% for self reports, and 53% vs. 50% for parent reports).

Conclusion

- Over 50% of those with pediatric MS, CIS, or RIS have two or more behavioral symptoms (BASC-2) in a clinically impaired range.
- Reported behaviors falling in an impaired range varied greatly across individuals; no one dominant symptom emerged for the entire group.
- Age and disease features were not associated with any elevations in parent- or child-reported behavioral ratings.

References

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