

# Generalizing and Predicting Across Time: An Exploration of the Psychometric Adequacy of Data Collected from an Abbreviated Self-Report Rating Scale for Adolescents

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## Abstract

Many schools attempt to identify and service students at risk for poor mental health outcomes within a multi-tiered system of support (MTSS). Universal screening within a MTSS requires technically adequate tools. The self-report version of the Social, Academic, and Emotional Behavior Risk Screener (mySAEBRS) has been put forth as a technically adequate screener. Researchers have examined the factor structure, diagnostic accuracy, criterion validity, and internal consistency of my SAEBRS data. However, previous research has not examined its temporal stability or predictive validity with a high school aged sample. Reliability analyses resulted in significant test-retest reliability coefficients and non-significant paired samples t-tests. Validity analyses yielded significant predictive Pearson correlation coefficients with the SAT and important behavioral measures.

## Background Literature

- Prevalence rates for adolescents potentially range from 20% (National Institute of Mental Health, 2017) to 49.5% (Merikangas et al., 2010).
- In response to the adolescent specific prevalence rates and the potential negative impacts on students functioning, some public high schools have elected to provide students with mental health related services provided within a multi-tiered system of support ([MTSS] Whitley, 2019).
- A foundational requirement for adequate service provision within a MTSS is the implementation of a universal screener that allows personnel to collect psychometrically sound data for the purposes of identifying students in need of small-group or individualized mental health services (Glover & Albers, 2007).
- Previous research indicates that teachers provide accurate assessments of students' overt or externalized behavior (Dowdy & Kim, 2012), but may fail to accurately assess covert or internalized behavior.

### mySAEBRS Screener

- The mySAEBRS is a computerized abbreviated self-report rating scale for students in second through twelfth grade.
- It takes approximately five minutes to complete and consists of 20 items that are rated from zero to three on a four point Likert scale
- The mySAEBRS items are modified versions of those found on the teacher completed version of the SAEBRS in that they were rewritten in the first person (von der Embse, Iaccariano, Mankin, Kilgus, & Magen, 2017).
- Each item is related to one of three narrow factors including seven Social Behavior items, six Academic Behavior items, and seven Emotional Behavior items (Christ & Colleagues, 2018).
- All items are aggregated to obtain a Total Behavior score.
- Higher scores are indicative of more adaptive functioning in regards to both the narrow and broad factor scores.
- A limited number of studies have evaluated the self-report version of the SAEBRS. Studies that have been completed examining the mySAEBRS have typically utilized elementary or middle school aged samples (Christ & Colleagues, 2018; von der Embse, Jenkins, West, Eklund, Kilgus, & Morgan, 2019; von der Embse, Kilgus, Iaccariano, & Levi-Nielsen, 2017; von der Embse, Iaccariano, et al., 2017).
- Further, no estimates of mySAEBRS data's test-retest reliability or predictive validity when collected from a high school age sample were provided in the technical manual (Christ & Colleagues, 2018) or identified in the extant literature pertaining to the mySAEBRS.

## Research Questions and Hypotheses

- First, what is the test-retest reliability of all four scores obtained from SAEBRS self-report ratings of a high school aged sample? It was hypothesized that the mySAEBRS self-report data would evidence moderate to strong test-retest correlations between first and second ratings with concomitantly non-significant mean differences between all four behavior scores.
- Second, what is the relationship between SAEBRS self-report ratings obtained in October (mySAEBRS 1) and February (mySAEBRS 2) and the Total, Math, Verbal, Reading, and Writing scores of the Scholastic Assessment Test ([SAT] College Board, 2017)? It was also hypothesized that both of the mySAEBRS ratings would show significant positive correlations with all of the SAT scores.
- Finally, what is the relationship between SAEBRS self-report ratings obtained in October and February and the respective number of out of school suspensions (OOSs), total minor and major office discipline referrals (ODRs), and school absences? Finally, significant negative predictive correlations were predicted to exist between both the mySAEBRS self-report ratings and the number of OOSs, ODRs, and school absences.

## Method

### Setting and Participants

- Data were collected from 534 11<sup>th</sup> graders enrolled in three separate high schools in an urban school district located in the Midwest of the United States.
- Fifty six percent of the sample was designated as low income.
- The preponderance of the sample was comprised of male students (52%) without disabilities (86%).
- The sample was racially/ethnically diverse as White students represented 50% and Black students represented 34% of the total number of students, with Multi-Racial (10%), Hispanic (4%), and Asian (2%) students accounting for the remaining percentage of the study's sample.

### Measures

#### mySAEBRS.

- Little to no information is available concerning the psychometric characteristics of the mySAEBRS with high school students
- Teacher SAEBRS ratings have evidenced adequate internal consistency (IC) with coefficients  $\geq .89$  across the Social Behavior, Academic Behavior, and Total Behavior scores (Christ & Colleagues, 2018).
- mySAEBRS has the same factor structure as the teacher SAEBRS
- Initial evidence supports its internal consistency, predictive validity, and diagnostic accuracy with elementary school samples (von der Embse, Iaccariano, et al., 2017; von der Embse, Kilgus, et al., 2017)

### SAT

- Analyses included students' SAT Total, SAT Math, SAT Verbal, SAT Reading, and SAT Writing scores
- SAT scale scores have demonstrated acceptable internal consistency and standard errors of measurement (College Board, 2017)
- SAT scale scores from previous versions of the assessment have evidence adequate levels of predictive validity (College Board, 2017)
- All SAT data collected from the school-wide electronic database created and utilized by the local school district

### ODRs, OOSs, and Absences.

- The number of office discipline referrals (ODRs), out of school suspensions (OOSs), and absences per student at the EOY was the criterion measures for the research questions pertaining to the predictive validity of the mySAEBRS ratings and EOY ODRs, OOSs, and absences
- ODRs, OOSs, and absences were collected from the school-wide electronic database created and utilized by the local school district
- The ODRs included those referrals given for both minor (e.g. refusing to complete work) and major (e.g. physically assaulting another student) infractions

### Procedure

- All data used in this study were collected as part of the schools' standard educational practices during the 2018-2019 school year.
- All mySAEBRS 1 ratings were completed during the last week of September or the first week of October during the 2018-2019 school year.
- All mySAEBRS 2 ratings were completed during the last week of January or the first week of February
- All mySAEBRS data was compiled from the FASTBridge assessment system
- All ODR, OOS, absence, SAT and mySAEBRS data were compiled into an SPSS spreadsheet
- A research assistant double-checked each entry to ensure accurate data entry.
- Pearson's r and paired samples t-tests were conducted to evaluate both the pattern and level of the two self-report ratings in the manner explicated by Canivez and Watkins (1998) and previously applied to analyze the test-retest reliability of SAEBRS teacher ratings (Whitley & Cuenca-Carlino, 2019).
- Due to greater power than the traditional Bonferroni method, Holm's (1979) sequential Bonferroni correction for multiple comparisons was applied to maintain the experiment-wise error rate at .01.
- Pearson's r was also used to calculate the predictive validity coefficients between the mySAEBRS self-report ratings and the various academic and behavioral outcome measures.

## Results

### mySAEBRS Descriptive Statistics

#### *Descriptive Statistics for First and Second mySAEBRS Ratings*

Factor	<i>M</i>	<i>SD</i>
Social Behavior	534	16.13 (16.26)
Academic Behavior	534	11.96 (11.70)
Emotional Behavior	534	13.38 (13.68)
Total Behavior	534	41.47 (41.64)

*Note.* Means and standard deviations for second ratings in parenthesis.

### Test-Retest Reliability

- All correlations were statistically significant ( $p < .01$ ) and evidenced moderate to strong associations
- No significant mean differences were observed between mySAEBRS ratings one and two at any subscale

#### *Stability Coefficients, t-scores, and Significance Values for First and Second mySAEBRS Ratings*

Factor	<i>r</i>	<i>t</i>	<i>p</i>
Social Behavior	.59**	-1.17	.24
Academic Behavior	.67**	2.58	.01
Emotional Behavior	.60**	-2.05	.04
Total Behavior	.65**	-.62	.54

*Note.* Correlations significant at  $p < .01$ \*\*. With Holm's sequential Bonferroni correction for multiple comparisons,  $p$  significant at atleast.0025\*.

### Predictive Validity

#### *Predictive Validity Coefficients for mySAEBRS Rating 1, mySAEBRS Rating 2 and EOY SAT Scores*

mySAEBRS Ratings	Total	Math	Verbal	Reading	Writing
Social Behavior 1	.15**	.12**	.16**	.16**	.14**
Academic Behavior 1	.18**	.19**	.15**	.16**	.13**
Emotional Behavior 1	-.01	.03	-.04	-.03	-.04
Total Behavior 1	.12**	.13**	.10	.11	.08
Social Behavior 2	.20**	.17**	.22**	.22**	.20**
Academic Behavior 2	.27**	.27**	.26**	.26**	.23**
Emotional Behavior 2	.01	.03	-.01	.00	-.01
Total Behavior 2	.19**	.18**	.18**	.19**	.16**

*Note.* Correlations significant at  $p < .01$ \*\*.

#### *Predictive Validity Coefficients for mySAEBRS Rating 1, mySAEBRS Rating 2 and OOSs, ODRs, and Absences*

mySAEBRS Ratings	OOSs	ODRs	Absences
Social Behavior 1	-.17**	-.14**	-.15**
Academic Behavior 1	-.09	-.12**	-.15**
Emotional Behavior 1	.07	.08	-.06
Total Behavior 1	-.06	-.06	-.14**
Social Behavior 2	-.15**	-.19**	-.16**
Academic Behavior 2	-.08	-.15**	-.24**
Emotional Behavior 2	-.01	.06	-.07
Total Behavior 2	-.09	-.11	-.18**

*Note.* OOSs = Out of school suspensions. ODRs = Office discipline referrals. Correlations significant at  $p < .01$ \*\*.

## Discussion

- This study extends the current literature base by providing evidence supporting the test-retest reliability and predictive validity of mySAEBRS data from a high school age sample
- The present results show the alignment of mySAEBRS data with SAT total and subscale scores, ODRs, OOSs, and absences.
- Data derived from the Emotional Behavior scale may evidence less utility in predicting distal academic and behavioral outcomes than both the total score and the other subscale scores.