



Nonverbal Stroop Card Sorting Test Scoring Application Help Document

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I. App Introduction

The Nonverbal Stroop Card Sorting Test Scoring Application (Nonverbal Stroop Scoring App) will help clinicians generate scaled scores for raw scores they obtained administering the Nonverbal Stroop Card Sorting Test (Nonverbal Stroop), interpret those scores, and generate reports to communicate results.

The Nonverbal Stroop Scoring App helps clinicians by:

- Quickly and efficiently generating accurate scores
- Providing language for summarizing test results
- Providing reports that clearly communicate results
- Providing a way to store client information that can be later recalled and used to regenerate a report

II. Preparing to use the Nonverbal Stroop Scoring App

Prior to using the app, clinicians should have administered the Nonverbal Stroop test appropriately and have recorded the following raw scores:

- Color Congruent Time to Completion
- Color Congruent Number Correct
- Color Incongruent Time to Completion
- Color Incongruent Number Correct

In addition, the clinician should have recorded client demographic information that he or she wishes to include in the report. Client birthdate and test date is the only necessary demographic information that must be included to accurately score the test.

III. Overview of App

The Nonverbal Stroop Scoring App consists of three main areas, or pages. These pages are listed in the taps at the top of the page. A view of the tabs and their descriptions follow:

Nonverbal Stroop Card Sorting Test Score Report

Data

Interpretation

File Options

A) Data- On this page the clinician can input all demographic information and raw scores. The clinician can also view an overview of all the calculated raw scores and scaled scores and a graph of the scaled scores.

B) Interpretation- On this page, the clinician can view scaled scores and interpretation of those scores for each main measure, including:

- Score Validity
- Stroop Effect
- Color Congruent Ratio
- Color Incongruent Ratio
- Color Congruent Time
- Color Incongruent Time
- Color Congruent

C) File Options- On this page, the clinician can:

- Access the Help and Instructions Doc (this)
- Load Previous Client Data
- Save Current Client Data
- Generate Reports in:
 - PDF

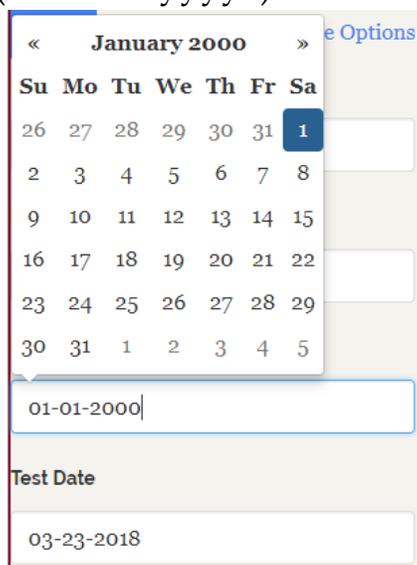
- Word (.docx)
- Excel (.csv)
- View client data as a dataframe

IV. Page Information

A) Input Information

1) **Input Data-** The clinician should input demographic information and raw scores. Mandatory information to calculate scaled scores is listed above. The clinician can input as much demographic information as he or she chooses. Demographic information includes:

- a. **Dates-** The test date and client birth date can be entered by choosing the date from the calendar that appears when selecting the field or numerically entering the date in the same format as is given (“dd-mm-yyyy”).



The screenshot shows a date selection interface. At the top, there is a calendar for January 2000. The calendar has a header with navigation arrows and the text "January 2000". Below the header, the days of the week are listed: Su, Mo, Tu, We, Th, Fr, Sa. The dates are arranged in a grid. The date 01-01-2000 is highlighted in a blue box. Below the calendar, there is a text input field containing "01-01-2000". Below this field, there is a label "Test Date" and another text input field containing "03-23-2018".

Client age will automatically be calculated after entering appropriate dates.

Examinee Age at Testing

18 years and 2 months

- b. Clinician Information-** The clinician can enter appellation and degree within the name fields.

Examiner First Name
Dr. Jane
Examiner Last Name
Doe, Ph.D.

- c. Optional Information-** All information except mandatory information specified above is optional. The app will accommodate entered information in the summary.

Location of Testing
classroom
Examiner First Name
Examiner Last Name
Smith, Ph.D.
Diagnoses
depression
Additional Information
examinee worked quickly

- d. Score Entry-** Enter the appropriate raw scores for Color Congruent and Color Incongruent Time and Number Correct.

Color Congruent Time to Completion

Color Congruent Number Correct

Color Incongruent Time to Completion

Color Incongruent Number Correct

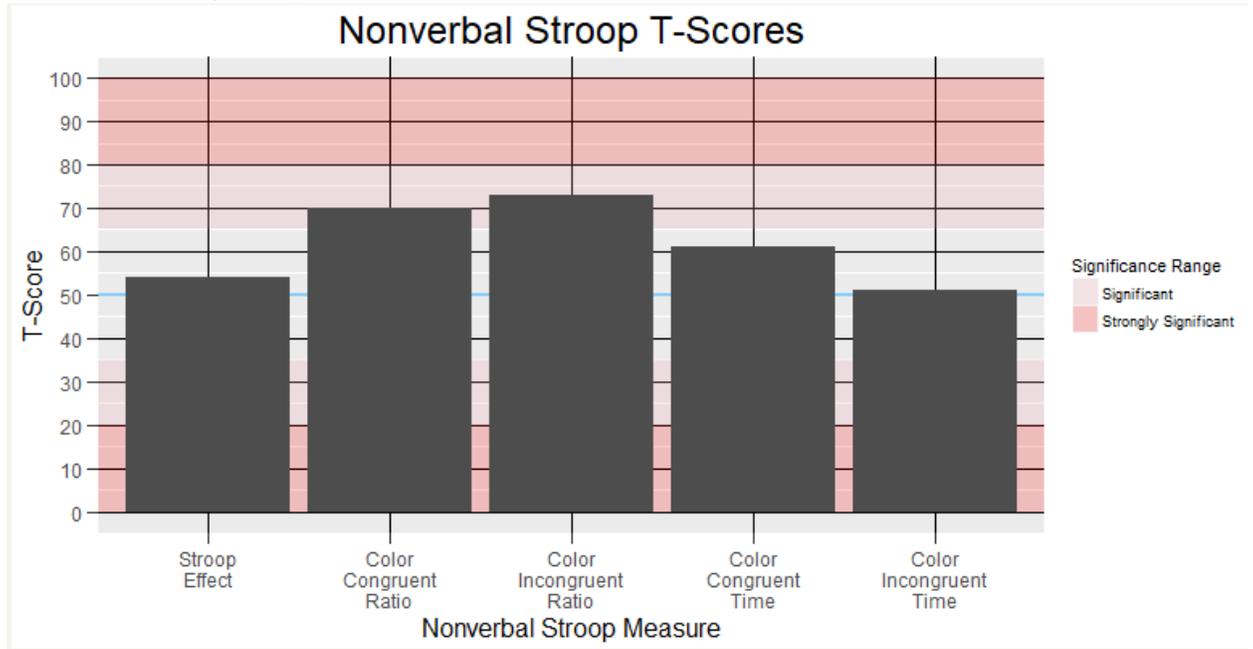
If an invalid score is listed an error will appear specifying the appropriate range of scores to enter.

Color Incongruent Number Correct Color Incongruent Correct Raw Score must be between 0 and 72

- 2) **Scaled/Calculated Scores-** Scaled Scores and Calculated Scores will automatically be calculated as raw scores are entered.

<i>Calculated Scores</i>				
Stroop Effect Raw Score	Color Congruent Ratio Raw Score		Color Incongruent Ratio Raw Score	
0.29	1.79		2.08	
Stroop Effect Scaled Score	Color Congruent Ratio Scaled Score	Color Incongruent Ratio Scaled Score	Color Congruent Time Scaled Score	Color Incongruent Time Scaled Score
54	70	73	61	51

- 3) **T-Score Plot-** A bar graph of T-Scores for all Scaled Scores will automatically be produced as scores are entered.



- 4) **Behavior Scales-** Enter Raw Scores for Behavior Scales if desired.

Behavior Scales Scores

Attention Subscale Total

Organization and Impulse Control Subscale

Activity Level Subscale

Anxiety Subscale

Sensory Reactivity Subscale

Any Behavior Scale can be left blank, which will produce "NA."

Attention Subscale	Organization Impulse Subscale	Activity Level Subscale	Anxiety Subscale	Sensory Reactivity Subscale
30	20	12	2	NA

B) Interpretation

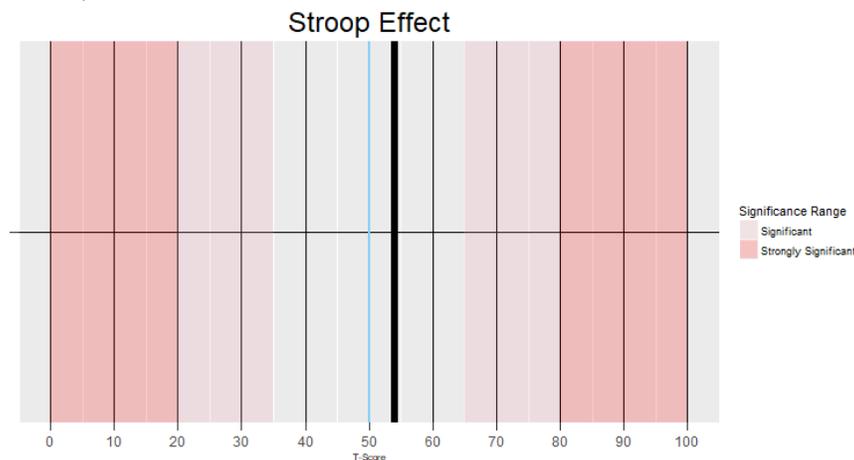
- 1) Validity Check-** The app will determine if the number incorrect for Color Congruent and Color Incongruent exceeds what has been found to be the acceptable level to be considered a valid test, 20 for Color Congruent and 50 for Color Incongruent. The app will produce output advising if the test is interpretable whether or not the numbers incorrect are valid.

Test Validity

Color Congruent Validity Check	Color Incongruent Validity Check
Color Congruent Incorrect: 2 Color Congruent Number Incorrect is a Valid Score	Color Incongruent Incorrect: 12 Color Incongruent Number Incorrect is a Valid Score
Number Incorrect of Color Congruent and Color Incongruent are valid. Proceed with interpretation	

- 2) Stroop Effect, Color Congruent Ratio, Color Incongruent Ratio, Color Congruent Time, Color Incongruent Time Interpretation-** For each of these measures the app will produce the following output, dynamically updating based on entered values:

A) T-Score Plot



B) Table with the Raw Score and Scaled Score

Stroop Effect Interpretation

Stroop Effect Raw Score	Stroop Effect Scaled Score
0.29	54

C) Interpretation of the T-Score meaning

Stroop Effect is statistically average

D) Interpretation of the measure in terms of functioning

Stroop Effect is average. This suggests that the examinee's performance on a task involving competing stimuli (Color Incongruent Condition) and on a task requiring attention to one type of stimuli only (Color Congruent Condition) was similar. This suggests that the examinee's ability to quickly and efficiently complete tasks demanding attention to multiple inputs and inhibiting impulses while doing so is about as equally developed his or her ability to quickly process information of one type, compared with similarly aged peers. While the examinee's abilities to perform tasks with congruent and incongruent stimuli were about evenly developed, other Stroop Composite scores should be further investigated to determine the examinee's abilities to perform each of those types of tasks relative to same-age peers.

- 3) **Number Incorrect Interpretation-** The app will calculate the number incorrect for Color Congruent and Color Incongruent, evaluate whether these values exceed the threshold to be considered significantly high, based on age, output these results in a table, and interpret these results with text.

Number Incorrect Interpretation

Color Congruent Incorrect	Color Incongruent Incorrect
2	12
Typical Number of Incorrect	Typical Number of Incorrect

The number of incorrect responses in both Color Congruent (CC) and Color Incongruent (CI) conditions was within the typical number of incorrect responses given by most similarly aged peers. This suggests that the examinee is able to work accurately, without making a great deal of mistakes, on tasks requiring basic categorization and matching.

- 4) **Behavior Scales Interpretation-** The app will produce a table with the value for each Behavior Scale with a value entered, along with whether or not that value is above or below the midpoint for that scale.

Behavior Scales Interpretation

Attention Subscale	Organization Impulse Subscale	Activity Level Subscale	Anxiety Subscale	Sensory Reactivity Subscale
30	20	4	2	NA
Above Midpoint	Above Midpoint	Below Midpoint	Below Midpoint	No Score

- 5) **Summary-** The app will produce a text summary of testing, dynamically rendering information supplied and accommodating omitted information.

Summary Interpretation

Examinee, John Smith, was administered the Nonverbal Stroop Card Sorting Test by the examiner Smith, Ph.D. on 2018-03-24. John was 18 years and 2 months at the time of testing. Testing took place at classroom . There was a previous diagnosis of depression . It was noted that examinee worked quickly.

Number Incorrect of Color Congruent and Color Incongruent are valid. Proceed with interpretation

Stroop Effect is average. It was found that the examinee's ability to quickly and efficiently complete tasks demanding attention to multiple inputs and inhibiting impulses while doing so is about as developed as his or her ability to quickly process information of one type, compared with similarly aged peers. Further testing examined reasons for this result.

Color Congruent Ratio is significantly very low. The examinee very much excelled in completing a task involving stimuli in agreement, without distractors. Thus, the examinee could be expected to perform quickly and accurately on other tasks in which there are not distractions towards reaching the goal.

Color Incongruent Ratio is significantly very low. The examinee excelled at a task involving competing stimuli that can be distracting, which required quick processing speed and accuracy, and an ability to attend to target stimuli while ignoring distracting stimuli. Thus, this individual could be expected to perform quickly and accurately on other tasks where distractions may make it difficult to focus on the task-at-hand.

Color Congruent Time is average. On a task without competing stimuli, on a measure of processing speed without considering accuracy the examinee was able to work at about the same speed as others on tasks without the presence of distractors.

Color Incongruent Time is average. The examinee's processing speed when distractors are competing for examinee resources was about average, so it is likely that the examinee can work at about the same speed as others, even when there may be multiple inputs in the environment competing for his or her attention. The accuracy of the responses was next examined.

The number of incorrect responses in both Color Congruent (CC) and Color Incongruent (CI) conditions was within the typical number of incorrect responses given by most similarly aged peers. This suggests that the examinee is able to work accurately, without making a great deal of mistakes, on tasks requiring basic categorization and matching.

According to behavioral ratings of observations, Attention Subscale is Above Midpoint. Organization Impulse Subscale is Above Midpoint. Activity Level Subscale is in the Below Midpoint. Anxiety Subscale is Below Midpoint. Sensory Reactivity Subscale is No Score.

C) File Options

- 1) **Help/Instructions Document-** Clicking this button will render a .pdf of this help document.

- 2) **Load Client Data-** Clinicians can load previously saved client data that will populate the input fields. Clinicians can then update data if needed and produce reports and utilize all other functions of the app as if they were entering the data originally. Clinicians should not alter the saved data, so that the client data will load properly. Clinicians should choose the file in the folder where they have saved client data.

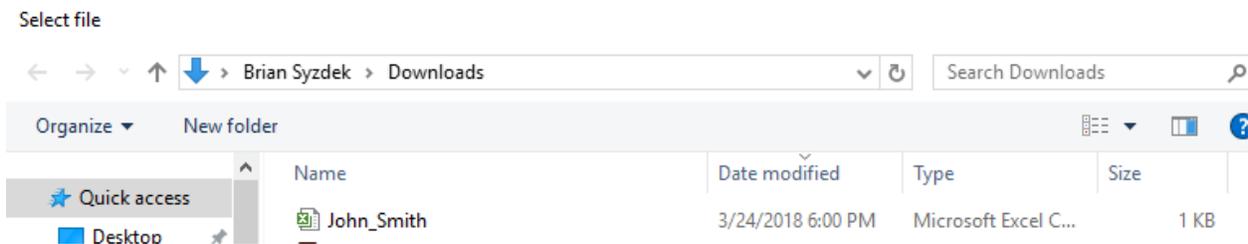
Clicking “Browse” will enable the file to be chosen.

Click 'Browse' to load previous client data

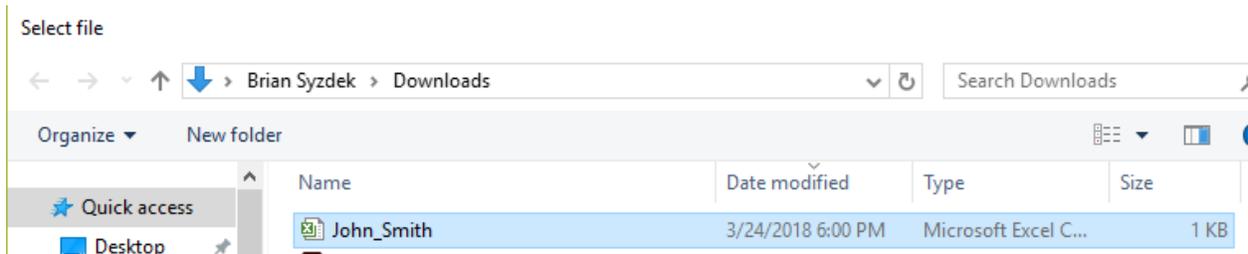
Load Client Data

Browse... No file selected

Clinicians should then choose where they have stored client data.



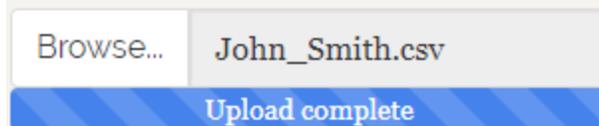
Double click on the client file and the content will load.



“Upload Complete” will display after the file is loaded.

Click 'Browse' to load previous client data

Load Client Data

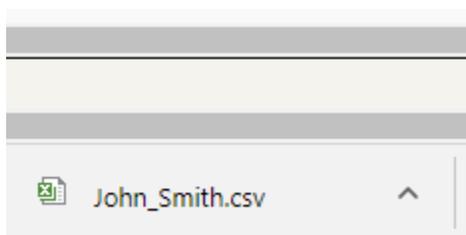


- 3) **Save Client Data-** Clinicians can save client data they have entered by clicking the “Save Client Data” button.

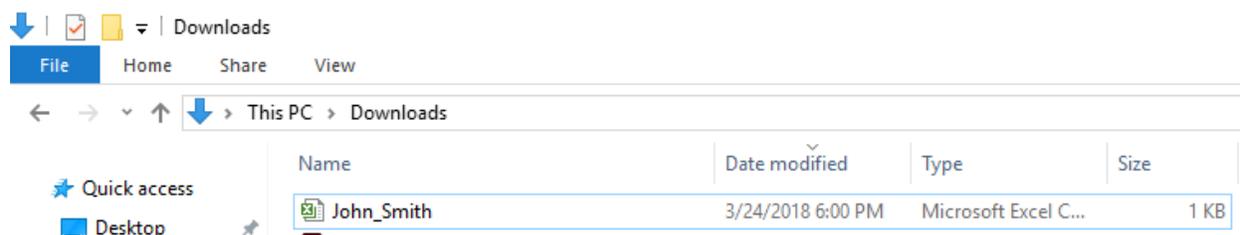
Click 'Save Client Data' to save current client data



Clinicians can then save a client file for which they have entered information. This file will be available to load later to conduct analyses and run reports. The file will be saved by the client name, typically in clinician’s “Download” folder or wherever they have chosen to have files automatically download on their computer.



Clinicians can choose to save a file to a particular folder after downloading by finding that folder where it has downloaded and saving to the desired folder.

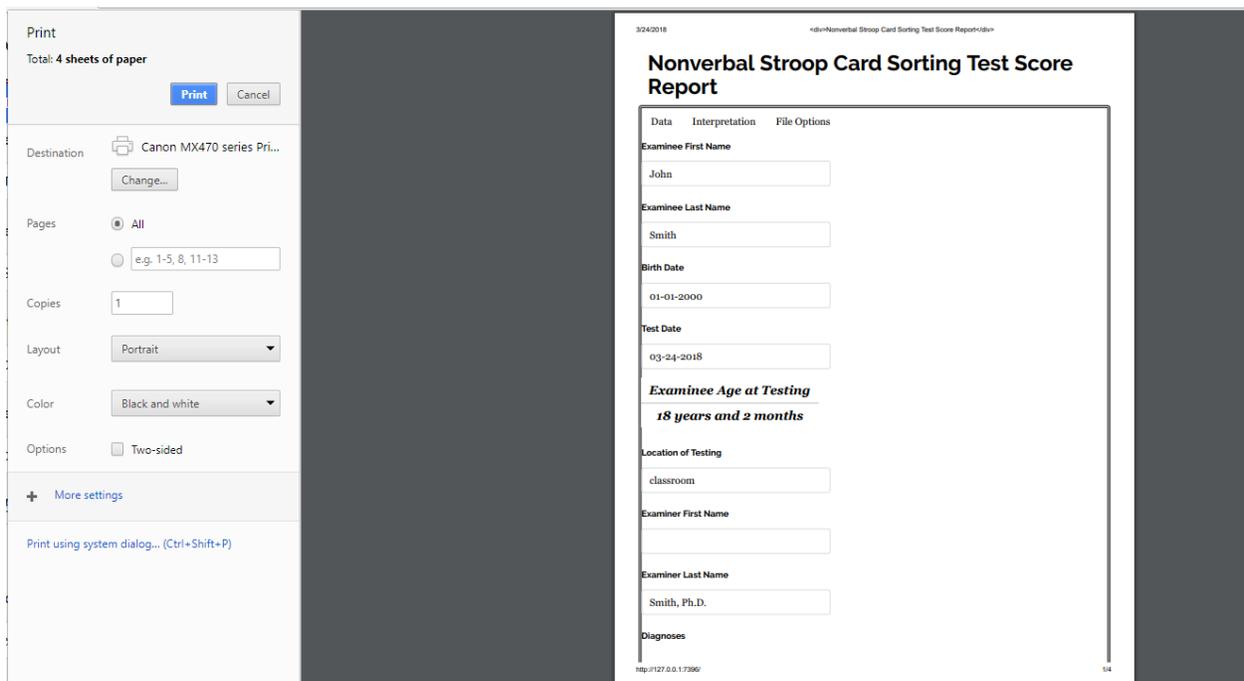


Typically, right click the file, choose “Copy” and then paste into the desired folder, for example a folder “Client Saved Data” that has been

created. That will be the location from which the client data can then be accessed and loaded into the app.

4) Reports- The app gives many options for producing client reports. The options are:

a. HTML Report- Clinicians can create a report, saving the screenshots of the app. To do so, right click on each page and choose “Print.” Clinicians will then be able to print the app screens to a printer or to a pdf. Clinicians will need to print each page, Data, Interpretation, and File Options to create a full report, or choose the pages they desire, such as only Data and Interpretation.



b. PDF- To generate a PDF report, clinicians should select the “PDF” option and then click “Download.” This will generate a “.pdf” report, typically saved to their “Downloads” folder.

Choose format and click 'Download' to download an interpretive report

Document format

PDF Word CSV

 Download



Nonverbal Stroop Card Sorting Test Score Report

Demographic Information

Examinee First Name	Examinee Last Name	Birth Date	Test Date	Age at Testing
John	Smith	2000-01-01	2018-03-24	18 years and 2 months

Location of Testing	Examiner First Name	Examiner Last Name	Previous Diagnoses	Additional Information
classroom		Smith, Ph.D.	depression	examinee worked quickly

Raw Scores

Stroop Effect Raw Score	Color Congruent Ratio Raw Score	Color Incongruent Ratio Raw Score	Color Congruent Time	Color Congruent Correct	Color Incongruent Time	Color Incongruent Correct
0.29	1.79	2.08	50	30	100	60

Scaled Scores

Stroop Effect Scaled Score	Color Congruent Ratio Scaled Score	Color Incongruent Ratio Scaled Score	Color Congruent Time Scaled Score	Color Incongruent Time Scaled Score
54	70	73	61	51

- c. **Word-** Clinicians can generate a Word (.docx) report. To do so, select the “Word” option and click “Download.” This will generate a “.docx” report, typically to the “Download” folder.

Choose format and click 'Download' to download an interpretive report

Document format

PDF Word CSV

 Download



Nonverbal Stroop Card Sorting Test Scoring Report

Demographic Information

Examinee First Name	Examinee Last Name	Birth Date	Test Date	Age at Testing
John	Smith	2000-01-01	2018-03-24	18 years and 2 months
Location of Testing	Examiner First Name	Examiner Last Name	Previous Diagnoses	Additional Information
classroom		Smith, Ph.D.	depression	examinee worked quickly

Scaled Scores

Stroop Effect Scaled Score	Color Congruent Ratio Scaled Score	Color Incongruent Ratio Scaled Score	Color Congruent Time Scaled Score	Color Incongruent Time Scaled Score
54	70	73	61	51

- d. **CSV-** Clinicians can download a “.csv” or Excel report. This will contain all the information entered and scaled scores. Clinicians can retain this information for use in research or analysis. **Clinicians should not load this type of file when they seek to load client data, as this file has been customized for easy interpretation and will not load client**

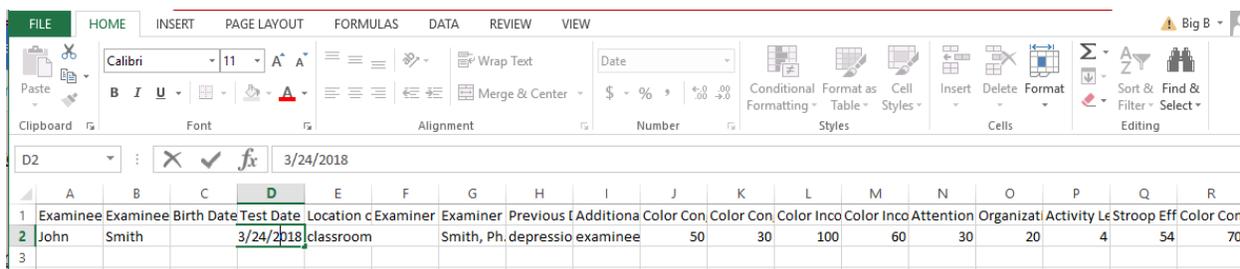
data appropriately. To download a .csv file, choose that option and click “Download.”

Choose format and click 'Download' to download an interpretive report

Document format

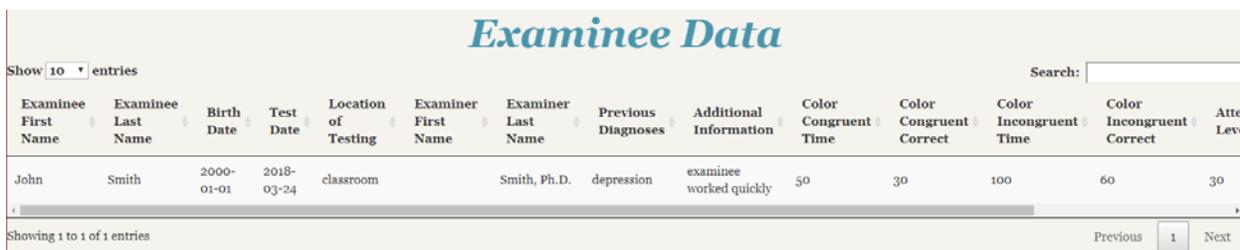
PDF Word CSV

 Download



Examinee First Name	Examinee Last Name	Birth Date	Test Date	Location of Testing	Examiner First Name	Examiner Last Name	Previous Diagnoses	Additional Information	Color Congruent Time	Color Congruent Correct	Color Incongruent Time	Color Incongruent Correct	Attention	Organizational	Activity Level	Stroop Eff	Color Cong
John	Smith	2000-01-01	2018-03-24	classroom	Smith, Ph.D.		depression	examinee worked quickly	50	30	100	60	30	20	4	54	70

- 5) **Examinee Data-** Clinicians can view an overview of all examinee data, including calculated scores in the dataframe on this page. This is the same structure for the data that will be saved in a .csv file.



Examinee First Name	Examinee Last Name	Birth Date	Test Date	Location of Testing	Examiner First Name	Examiner Last Name	Previous Diagnoses	Additional Information	Color Congruent Time	Color Congruent Correct	Color Incongruent Time	Color Incongruent Correct	Attention	Organizational	Activity Level	Stroop Eff	Color Cong
John	Smith	2000-01-01	2018-03-24	classroom	Smith, Ph.D.		depression	examinee worked quickly	50	30	100	60	30	20	4	54	70

V. Additional help

That concludes the Nonverbal Stroop Scoring App help document. If clinicians need further help using the app or have any questions about the test or any other matters, they are directed to contact Stoelting, publisher of the app and Nonverbal Stroop test at:

Stoelting- www.stoeltingco.com

620 Wheat Lane | Wood Dale, IL 60191

Email: bsyzdek@stoeltingco.com

Created by: Brian Syzdek, Psy.D. | Product Manager- Psychology

