Remote Administration:

WCST:CV4
Wisconsin Card Sorting Test:
Computer Version 4–Research Edition

WCST-64:CV2
WCST-64: Computer Version 2–
Research Edition

PAR Staff

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At PAR, we are committed to doing everything we can to help you serve your clients. With the evolving situation around COVID-19, you may need methods to conduct testing remotely. This paper describes how you can use a videoconferencing tool to remotely administer the WCST using desktop software. This is a living document and will be updated as needed. For additional guidance on preparing your clients for their telehealth appointments, visit parinc.com/Remote_Appointment_Checklist.

OVERVIEW OF THE WCST

The **Wisconsin Card Sorting Test (WCST)** is used primarily to assess perseveration and abstract thinking for individuals ages 7 to 89 years. The WCST is also considered a measure of executive function because of its reported sensitivity to frontal lobe dysfunction. The WCST: Computer Version 4–Research Edition (WCST:CV4) software provides unlimited scoring and reporting for administered WCST protocols and allows you to administer the WCST on-screen. The computer version of the WCST has been found to yield similar results to the pencil-and-paper version in normal and psychiatric samples (Artiola i Fortuny & Heaton, 1996; Feldstein et al., 1999; Hellman et al., 1992; Wagner & Trentini, 2009). Although the computer version has been used for more than 15 years, it is considered a research version because the norms were obtained using the paper-and-pencil version of the WCST.

TECHNICAL REQUIREMENTS

Software.

The WCST:CV4 is available for purchase at parinc.com/WCSTCV4. This software provides unlimited scoring and reporting for administered WCST protocols and allows you to administer the WCST on-screen. These remote administration guidelines can also be used with the WCST-64: Computer Version 2 Research Edition and Scoring Program (WCST-64:CV2). For the minimum requirements for successful operation of this software, please visit the PAR software FAQs at parinc.com/FAQ_software.

Hardware.

You and your client will each need a computer (laptop or desktop) with a webcam (built in or attached) to permit audio and video capabilities for two-way, real-time communication. Although laptops often have built-in microphones and cameras, desktop

computers may not, so it is recommended that you use headphones with an integrated microphone when on a desktop computer. This allows you to see that only the client and other appropriate individuals are present and that the testing environment is acceptable. The WCST software supports auditory feedback if the computer is equipped with a Windows Multimedia-compatible sound card. A smartphone or tablet may be used to verify the client's identity and the testing environment, but do not use a smartphone or tablet for WCST administration.

Videoconferencing software.

Videoconferencing technology with the ability to cede control during screen and audio sharing is necessary to remotely administer the WCST. The American Psychological Association (APA) recommends that you use a HIPAA-compliant videoconferencing platform offering secure, encrypted transmissions. The platform provider should be willing to sign a business associate agreement (BAA) developed either by the company or by the psychologist. We recommend you check with each platform provider to determine the specific tools and features available. Some platforms have different versions with different tools available to assist with remote administration.

Internet access.

We recommend both you and your client use a secure and private (i.e., not publicly accessible) internet connection. Hard-wiring via an Ethernet cable for internet access allows for the fastest and most stable connectivity. We also recommended that, while you administer the test, other individuals using the same internet connection refrain from using services that require considerable bandwidth (e.g., streaming video). If you choose to use Wi-Fi, we strongly recommend testing your connection while screen-sharing before beginning a remote testing session.

SPECIAL CONSIDERATIONS FOR REMOTE ADMINISTRATION

The decision to remotely administer the WCST or any other assessment instrument is dependent on a variety of client and provider variables. Distractions may be present, the client may have access to various forms of assistance, and the presence of third parties—for example, facilitators (test proctors or administrative supports) and observers (interns and attorneys)—may be unavoidable. The accuracy of results may be influenced by the quality of the technology used, the hardware specifications needed, the speed of the internet connection, and other technical factors. Finally, a client's cultural factors, socioeconomic background, and familiarity with computers may affect results.

You must describe and disclose any modifications or alterations made to the standardization procedures and consider the impact of these differences on the reliability, validity, and interpretability of the client's test scores. These deviations must be noted in your reports. Please be aware of the scientific literature of the assessment, have familiarity with relevant state laws and national practice standards, and abide by the guidance of APA and the American Telemedicine Association (Luxton et al., 2014). As always, your professional judgment, along with guidance from state, local, and other regulatory agencies, should determine whether you use available videoconferencing technology as part of your practice and if this mode of administration is appropriate for your client. For additional guidance on how you can use PAR products via telehealth technology, please visit parinc.com/Telehealth_Statement.

Reporting Telehealth Assessment Results

In your reporting, indicate whether the assessment was administered via telehealth. For example, "This assessment was conducted using telehealth methods, including remote observation of performance via audiovisual technologies." Record any technical issues or other problems that occurred during the assessment process, including loss of internet connection, video or audio lags, distractions, interruptions, and any equipment malfunctions.

Testing Environment

Ideally, the testing environment should be a comfortable, well-lit room with adequate ventilation. If possible, the room should be free of noise to minimize distractions. All other electronic devices should be turned off, and the testing area should be clear of all items except those needed to participate in the session. The source of lighting should be overhead so that shadows are not cast on the computer screen. Glare from windows or from other sources should be prevented because it may obscure important aspects of the stimuli. The client should be seated at a desk or table with a full view of the device's screen. The height of the desk or table should allow the examinee to view and respond to the test stimuli easily from their seat. All other objects on the desk or table should be removed, if possible, to avoid distracting the client during testing.

A qualified examiner (Level C) must remotely administer the WCST. No other individuals should be present unless an observer or another facilitator is necessary. The client's activity should be closely monitored, and any attempts to open additional computer windows should be stopped immediately. If you fail to adequately monitor the client or bar access to restricted items during test administration, the client's performance may be artificially enhanced.

REMOTE ADMINISTRATION OF THE WCST

We strongly encourage you to review this procedure and test your setup with a remote videoconferencing platform prior to meeting with a client. To remotely proctor the WCST, you will need to use the WCST software in conjunction with a videoconferencing platform. To save time during remote administration, create a new client file with demographics for your client within the WCST software program prior to starting the meeting with your client. To familiarize yourself with this process, please refer to the software help menu.

Steps

1 Launch your selected videoconferencing platform and start the meeting with your client. Do not share your screen yet.

2 Once you and your client are ready to begin remote administration, open the WCST:CV4 software.

3 Launch the WCST using one of the following options:

   a. If you have already created a client file for your client, click "Open Client File" to find it. Select the appropriate client file and click "Open."
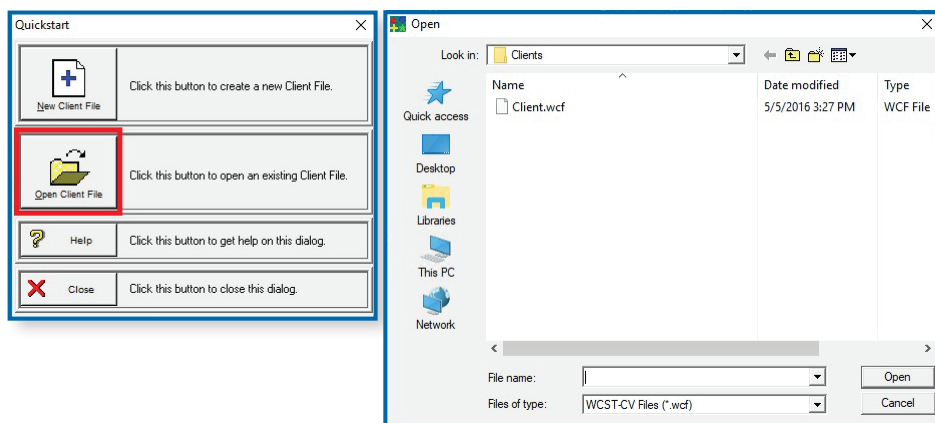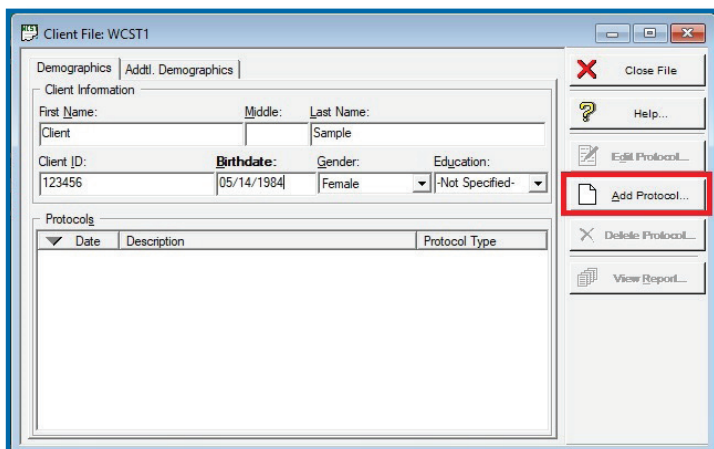
3 (cont.) b. If you have not created a client file, click "New Client File" and complete the demographic information.
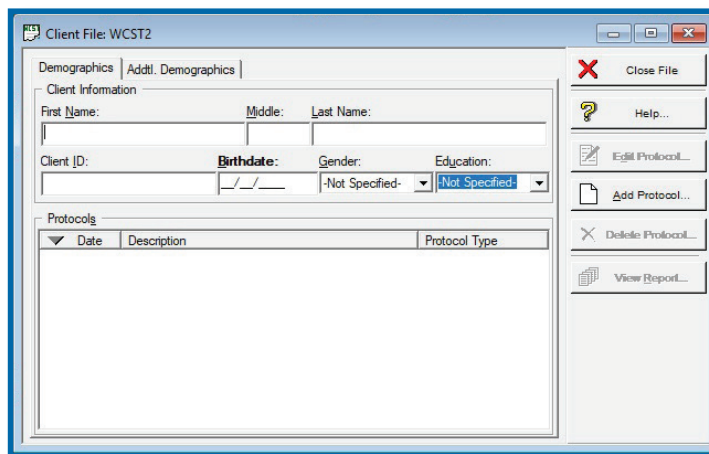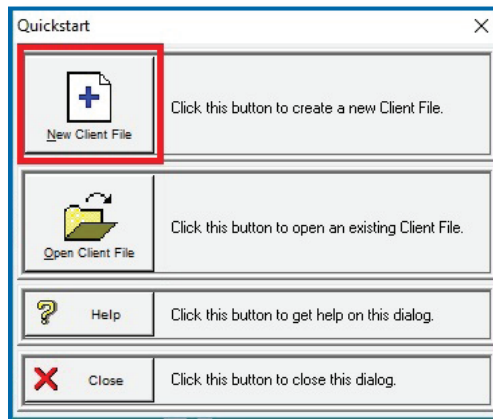
4 Once you are in the appropriate client file, click "Add Protocol."

5 Inform the examinee that you are setting up the test administration, that you will read the instructions shortly (Step 7), and to refrain from starting until instructed to do so.

6 Set up screen sharing using one of the following options:

a. If you are using a single monitor:

▶ Switch over to your videoconferencing platform.

▷ The WCST software was programmed to always appear if there is only one monitor. Therefore, you may not be able to access the videoconferencing platform or any other windows once administration is initiated.

▶ Take the necessary steps to share your computer audio and share your computer screen displaying the full-screen WCST:CV4 test stimuli window.

▷ To minimize distractions, we recommend turning off your video.

▶ Using the videoconferencing platform, give the client remote control (e.g., "Give mouse/keyboard control") of your screen.

▷ This will give the client the ability to respond on-screen. Most platforms will allow the individual to see only the screen you have chosen to share. At all times, there should be an option that allows you to resume control of the mouse (e.g., by moving your mouse).

▶ Click "Administer" to initiate on-screen administration.

b. If you are using dual monitors (recommended):

▶ Drag or move your videoconferencing platform window to the nonprimary monitor.

▷ For example, if your left monitor is the primary display, drag the videoconferencing platform window to the right display. This should allow you to see both the videoconferencing platform and the WCST:CV4 window at the same time.

▶ Click "Administer" to initiate on-screen administration.

▶ Take the necessary steps to share your computer audio and share your computer screen displaying the full-screen WCST:CV4 test stimuli window.

▷ To minimize distractions, we recommend turning off your video.

6 ▶ Using the videoconferencing platform, give the client remote control (e.g., "Give mouse/keyboard control") of your screen.

▷ This will give the client the ability to respond on-screen. Most platforms will allow the individual to see only the screen you have chosen to share. At all times, there should be an option that allows you to resume control of the mouse (e.g., by moving your mouse).

7 Read the on-screen administration instructions using the mouse response option.

8 The screen will indicate when the test is complete.

Test is complete.
Please wait for further instructions.

9 To exit the administration, press [Alt]+[F4] or [Fn]+[Alt]+[F4] (depending on your computer) and enter the password. You must click File>Save As to save the data. **The software does not automatically save.**

Note that the software will load onto the default display. When other programs are running via a second monitor, it is very easy to accidentally close another program with the [Alt]+[F4] exit keystroke or even to crash the software. Therefore, we recommend running minimal software during remote administration (i.e., close web browsers).
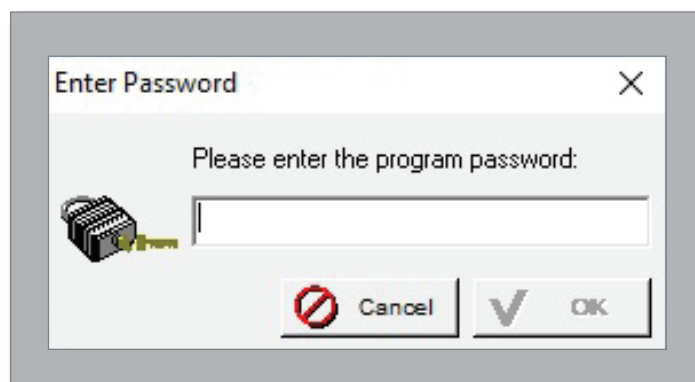
10 At this point, you may stop remote control, stop sharing your screen, turn on your camera, and proceed to the next part of your session.

a. We recommend saving the client file after screen sharing has ended. If you are using multiple monitors, you can stop sharing your screen before exiting the administration.

11 When your session has ended, you can easily return to the WCST:CV4 software to generate your report.

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