PARiConnect™

Administration & Scoring

Iowa Gambling Task™, Version 2 (IGT™2)

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OVERVIEW

The Iowa Gambling Task, Version 2 (IGT2; Bechara, 2016), has been adapted to allow for use on PARiConnect, PAR's online assessment platform. The IGT2 on PARiConnect was developed with the intention that it closely mirror its software version. This technical paper describes how the IGT2 was adapted for PARiConnect and includes guidelines for setup, administration, and scoring. The information contained in this paper on the background of the IGT2 and procedures for use on PARiConnect should be used in conjunction with the detailed administrative, scoring, and interpretive procedures outlined in the IGT2 Professional Manual (Bechara, 2016).

The IGT2 is primarily used to assess impairments in real-life decision-making (e.g., personal and social decisions) in individuals ages 8 to 80+ years. Specifically, the IGT2 is used to detect and measure decision-making impairment that occurs in the absence of defects in language comprehension or expression, working memory, or attention. Its gambling task mimics real-life decision making in that it is carried out in real time and factors in reward and punishment in such a way that it creates a conflict between an immediate, luring reward and a delayed, probabilistic punishment. Completion of the IGT2 requires clients have the ability to make advantageous choices for the duration of the task through following their "hunches" and "gut feelings." Consequently, it has been used to detect decision-making impairment in patients with medial orbitofrontal cortex (mOFC) and ventromedial prefrontal cortex (vmPFC) damage.

BACKGROUND

The IGT2 is identical to the original IGT (Bechara, 2007), but extends the age range by including additional normative data for children and adolescents ages 8 to 17 years.

The original IGT and the IGT2 have been used in studies examining decision-making capacity in a variety of populations. Buelow and Barnhart (2018) called the IGT2 "the most common decision-making measure used by clinicians and researchers alike." The IGT2 has been used in research on Alzheimer's disease (Alameda-Bailén et al., 2017; Allain et al., 2013; Bayard et al., 2015; Ha et al., 2012; Hot et al., 2014; Jacus et al., 2018; Jacus et al., 2013; Sinz et al., 2008; de Siqueira et al., 2017; Wong et al., 2014), focal brain lesions (Kemp et al., 2013), substance addiction (Kornreich et al., 2013; Krmpotich et al., 2015; Leeman & Potenza, 2012; Marín-Navarrete et al., 2018; O'Brien et al., 2014), chronic pain (Hess et al., 2014), aggression disorders (Schutter et al., 2011), and Huntington's disease (Adjeroud et al., 2017; Brandt, 2009; Hoth et al., 2007).

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 lighting source should be overhead, and glare from windows or 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 client 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.

Any trained individual with a background in testing may proctor the administration of the IGT2; however, interpretation of IGT2 scores requires graduate training in neuropsychology, clinical psychology, counseling psychology, neuropsychiatry, behavioral neurology, or a closely related field (Level C). 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 browser windows should be stopped immediately. If clinicians fail to adequately monitor the client or bar access to restricted items during test administration, the client's performance may be artificially enhanced.

ADMINISTRATION

Online administration is available for the IGT2 on PARiConnect. Detailed information on the use of PARiConnect is available under the All Help Topics section within PARiConnect. Clinicians using PARiConnect to administer and score the IGT2 should have a thorough understanding of the IGT2. Please refer to the IGT2 Professional Manual (Bechara, 2016).

Technical Requirements

Before beginning administration, ensure the browser zoom level is set at a minimum of 100%. The recommended minimum screen resolution is 800 x 600. Your browser will automatically enter full-screen mode when you reach the Administration Instructions page.

Entering Client Demographic Information

Prior to administration, clinicians will either select a client whose profile already exists in PARiConnect or they will need to add a new client. To add a new client, the clinician

must enter the client's name and ID. When assigning the IGT2 assessment, age and grade/years of education are required; date of birth, sex, and ethnicity are optional. After completing the demographic information, the clinician can choose to launch the assessment immediately or delay the assessment for a later date.

Administration Options

After reviewing demographic information, clinicians are provided several administration options. Before administering the IGT2 on-screen, clinicians may set the number of trials (ranging from 1–100), the inter-trial interval (range is 500ms–1,800,000ms), and the amount of starting cash ($0, $2,000, or $4,000) the client has at the beginning of administration. Default administration options are 100 trials, a 500ms inter-trial interval, and a $2,000 starting cash amount.

Other options that can be adjusted are the currency symbol, feedback sound, and deck labels. The default currency is dollars ($) because the cases in the standardization sample were collected in the United States; however, the type of currency can be altered to make it more relevant to the client. Also, online administration via PARiConnect supports auditory feedback if the testing device is equipped with a sound device that is compatible with the web browser. Clinicians may choose whether to use auditory feedback from the Administration Options screen. The default is to have the sound on so that each time the client selects a card, the device generates a sound depending on gains or losses. (If the clinician opts to leave the sound on, the next screen provides an opportunity to test the volume of the sound on the device. Finally, each of the four decks is labeled as either Deck A', Deck B', Deck C', or Deck D' by default. Clinicians can choose to disable deck labels. All of the aforementioned administration changes are optional and do not need to be selected in order to administer the IGT2.

The administration instructions are customized based on these choices. **Once administration begins, these selections cannot be changed.**

Clinician Instructions

After client demographic information is entered and administration selections have been made, two screens displaying clinician instructions for proctoring will appear. After the clinician has finished reading these screens, the client should be seated comfortably in front of the device.

Administration Instructions

The Administration Instructions are customized depending on the selections made under

Administration Options and are read aloud by the clinician. Clinicians may use the show/hide toggle to hide the instructions from the client's view.

Clinicians will see the administration instructions and can choose to hide these instructions if they have access to the IGT2 instruction card, which is available on the PAR Training Portal or by contacting PAR Customer Support. The clinician must read the instructions aloud to the client regardless of whether or not the instructions are displayed on the screen. **The clinician should be present at all times during administration of the IGT2. The presence of the clinician in the room provides a social context that is important for performance; without the clinician's presence, the client may perform differently.** The test items are displayed after the Administration Instructions screen.

IGT2 Administration

When the client selects a card, a message is displayed on the screen that indicates the amount of money the client has won or lost. Specifically, after a card with a reward is selected, the message "You WON $X," is displayed. When the gain is followed by a loss/punishment, the gain message is displayed first and a few seconds later, the message "But LOST $X," is displayed. An image also appears to the left of the message—a win produces the image of a smiling face and a loss produces the image of a frowning face. The green bar (i.e., Cash Pile bar at the top of the screen) changes according to the amount of money won or lost after each selection. A gain is indicated by a proportionate increase in the length of the green bar, and a loss is indicated by a proportionate decrease in the length of the green bar. If feedback sound is enabled, a win is accompanied by varying slot machine sound effects, or a ringing bell. If the client loses money, the loss message is accompanied by a negative sound effect, such as a buzzer or descending tone. If the Cash Pile falls below zero, additional money is borrowed (as indicated by an increase in the length of the green bar and a decrease in the length of the red bar) and is added to the cash pile. Once the money is added or subtracted, the face of the card disappears, and the client can select another card.

As a reminder, **the clinician should be present at all times during administration of the IGT2. The presence of the clinician in the room provides a social context that is important for performance; without the clinician's presence, the client may perform differently.**

Most clients complete the IGT2 within 10–15 minutes. When all trials are completed, a screen displaying "End of Test" will show. The client should click "Finish," after which they will be informed that the test is complete and they should contact their clinician.

SCORING, REPORTING, AND INTERPRETATION

At the end of administration, the results will be uploaded to PARiConnect. If the internet connection is not active at that time, a warning message will appear. Do not exit the browser until the internet connection has been reestablished so the data can be saved. After the data have been saved, the clinician will be instructed to close the browser to end the session. The clinician must log back into PARiConnect to view the scores.

Clinicians will be able to review the responses to ensure the client spent adequate time and paid attention to each opportunity to select a card. This allows clinicians to determine if a complete administration was conducted. After completing this review, clinicians can generate an IGT2 Score Report.

Score Report

The IGT2 Score Report includes the following sections:

- Cover page with demographic information
- IGT2 Score Summary Table
- IGT2 Raw Score Profile
- IGT2 Demographically Corrected *T*-Score Profile
- IGT2 Census-Matched *T*-Score Profile (provided instead of the Demographically Corrected *T*-Score Profile if years of education is not provided for a client 18 years of age or older)
- Trial-by-Trial Summary

For complete administrations (i.e., 100 trials), the Score Summary Table will include raw scores, *T* scores, and percentile ranks. For individuals 18 years and older, demographically corrected (age and education) standardized scores as well as U.S. Census-matched standardized scores will be displayed. If years of education is not provided, only U.S. Census-matched standardized scores will be displayed. For individuals 17 years and younger, only demographically corrected (age) standardized scores will be displayed.

For incomplete administrations (i.e., less than 100 trials), the Score Summary Table will display raw scores only and no profiles will be provided.

Interpretation

The process for interpreting the IGT2 on PARiConnect and interpreting the results of the IGT2 software administration is the same. Clinicians should refer to Chapter 3 of the IGT2 Professional Manual (Bechara, 2016) for the clinical interpretation of the score report. Clinicians can also view sample reports for the IGT2 on parinc.com. Clinical interpretation of the IGT2 requires graduate training in neuropsychology, clinical psychology, counseling psychology, neuropsychiatry, behavioral neurology, or a closely related field, as well as relevant training or coursework in the interpretation of psychological tests at an accredited college or university. The utility and validity of the IGT2 as a clinical measure of decision-making ability are directly related to the professional's background and knowledge and, in particular, familiarity with the information contained in the IGT2 manual.

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