Journal of Consulting and Clinical Psychology
1975, Vol. 43, No. 3, 421–422

CASE STUDY

A Forced-Choice Technique to Evaluate Deafness in the Hysterical or Malingering Patient

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The two-alternative forced-choice technique, which has been used to examine hysterical blindness, was used to assess purported loss of hearing in a 27-year-old male. The patient was asked to guess which of two temporal intervals contained a sound. Significant findings were obtained to suggest that the patient heard sounds he claimed he was unable to hear. The results are discussed in terms of using the forced-choice technique as a strategy for assessing sensory deficits.

Grosz and Zimmerman (1965) and Theodor and Mandelcorn (1973) have used multialternative, forced-choice visual discrimination tasks for assessing the vision of patients whose blindness was considered hysterical or malingering. These techniques consist of the presentation of two or more well-defined temporal intervals with one containing a visual cue. On each trial the visual stimulus occurs randomly within the intervals; over a large number of trials the stimulus occurs an equal number of times in each temporal interval. The dependent measure is the number of correct intervals selected by the subject.

A blind person is expected to obtain a score of "chance" because he cannot perceive the visual stimulus. Significant variations from chance lead the investigator to search for alternative explanations. Superior performances, for example, probably indicate that the subject has some vision. Performances falling significantly below the expected value suggest that the subject saw the visual stimulus but consciously or unconsciously chose to deny it.

The present authors suggest that the multialternative, forced-choice task can be applied to sensory assessment in general. It is possible to use the paradigm to clarify the question of hysteria or malingering in other sensory modes. The present study provides an example of the two-alternative, forced-choice technique in the assessment of deafness.

Case

The patient was a 27-year-old male with a history of multiple hospitalizations for idiopathic convulsive disorder, functional disabilities, accidents, and personality problems. His hospital records indicated that he was manipulative, exaggerated his symptoms to his advantage, and that he was a generally disruptive patient. He made repeated attempts to obtain compensation for his disabilities.

During his present hospitalization he complained of bilateral hearing loss, left-sided weakness, left-sided numbness, intermittent speech difficulty, and memory deficit. There were few consistent or objective findings for these complaints. All of his symptoms disappeared quickly with the exception of the alleged hearing loss.

Method

Testing was conducted through earphones with the subject seated in a sound-treated audiologic testing chamber (Industrial Acoustics Company, Model 404). Pure-tone auditory stimuli was generated by a Grason-Stadler 1701 audiometer. Visual stimuli utilized during the investigation was produced by a red and a blue light bulb. These were mounted behind a one-way mirror so that the subject could see the bulbs only when they were illuminated by the examiner.

The subject was presented 100 trials on each of which the red and then the blue light were turned on consecutively for 2 sec each. On each trial, a 1,000-Hz tone was randomly paired with the illumination of either the blue or red visual stimulus, and the subject was instructed to indicate with which stimulus the tone was paired. All presentations of the 1,000-Hz stimulus were delivered to the left ear at 40-db. re 20 $\mu N/m^2$ hearing level (American National Standards Institute, 1969). During traditional audiologic assessment a threshold of 90-db. hearing level at 1,000 Hz was obtained for the left ear. Therefore,

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the intensity level of the 1,000-Hz tones used during the test trials were presented at a 50-db. hearing level below the subject's reported hearing threshold.

RESULTS

At 40-db. hearing level for a 1,000-Hz tone the patient correctly identified 36 of a possible 100 responses. With an expected score of 50 correct, the possibility of obtaining only 36 correct responses by chance alone is less than .004 calculated by the normal approximation to the binomial distribution (Siegel, 1956).

DISCUSSION

It appears probable that our patient heard the tone but selectively chose the wrong responses, which lowered his score. The tone was in a range that the patient purportedly did not hear in a traditional audiological exam.

These results suggest that the two-alternative forced-choice technique provides a method for assessing sensory deficits. No subject bias or strategy will have an effect on the outcome, provided it is not related to the target stimulus. The technique is economical and convenient because a large number of trials can be obtained in a brief time. It is not an invasive task that will "remove the defenses" or "expose the fraud" of a patient in a way that an amytal interview might.

The technique is powerful for the following reasons: First, although the patient may realize he can obtain correct responses by chance, there seems to be an intuitive perception that correctly answering half of the time is excessive for someone with a disability. Correctly answering every other response provides a feeling of success where the patient has been demonstrating failure. Second, even if the subject realizes that he should get about half correct, small variations from the expected value become statistically improbable. For example, using 100 trials, only 5 responses deviant from the expected value of 50 correct place the subject's performance 1 standard deviation from the mean. Future investigation with this technique should include several blocks of 100 trials over a period of days to increase the confidence in the validity of the procedure.

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(Received October 10, 1974)