Differences between rod-and-frame test distributions of psychiatric inpatients and college students: A partial resolution

DALE T. JOHNSON and CHARLES W. NEVILLE, JR.
Highland Hospital Division, Duke University Medical Center
Asheville, N.C. 28801

and
LARRY E. BEUTLER
Stephen F. Austin University, Sherman, Tex. 75090

Comprehension of task instructions was evaluated as a possible causative factor for marked differences in previously reported distributions of RFT scores between psychiatric inpatient and college student samples. For 100 male and 118 female patients, RFT scores were examined as a function of errors on a simple four-item task instruction questionnaire. For both sexes, questionnaire errors resulted in increased field dependence, with males being significantly more field independent than females. Although RFT scores of error-free questionnaire patients more closely approximated those of college students, some differences apparently remain, requiring further empirical investigative efforts.

In a previous paper (Neville, Workman, & Johnson, 1969), the distributions of rod-and-frame test (RFT) scores for a sample of male and female psychiatric inpatients were contrasted with those reported for college students (Pressey, 1968; Vaught, 1968). Both patient groups were found to be highly field dependent, as contrasted with the strongly field independent college student groups, with the patient distributions being near mirror images of the student distributions. Vaught (1970), commenting on this disparity, suggested that the differences may have resulted from one or more methodological differences between the studies, including the Neville et al (1969) use of: (1) a head clamp, (2) an E-controlled rather than S-controlled adjustment procedure, and (3) a noncommercial, rather than commercial, apparatus, with resulting calibration differences. Responding to Vaught's (1970) comments, Johnson, Neville, & Workman (1970) argued that the differences probably stemmed from rather different causes, including such possibilities as direct effects of psychopathology, personality types, location (hospital) specific factors, medication effects, or self-selection by location interactions.

The present authors have remained puzzled and intrigued by the strong field dependence that has, to date, been displayed by Highland Hospital inpatients, and have investigated several possibilities in attempts to account for this phenomenon. The one reported here was suggested by one of the research technicians responsible for administering the RFT; she felt that perhaps not all the patients fully understood the task instructions. At

first this observation was discounted, since (1) the instructions used were the standard ones reported in Witkin, Lewis, Hertzman, Machover, Meissner, & Wapner (1954), and seemed extremely simplistic and self-evident; (2) no patient, after completing the RFT, had ever voluntarily reported not understanding the instructions; (3) all patients tested were, at the very least, in sufficient contact with reality to be given partial hospital grounds privileges by their therapists; and (4) no reports have apparently appeared in the literature concerning difficulties with clarity of RFT instructions. However, since none of the other possibilities investigated provided any kind of explanatory data, it was decided to evaluate the extent to which patients understood the RFT task instructions and to evaluate their performance in light of such understanding.

METHOD

A four-item multiple-choice test was developed as follows (correct responses italicized): 1—This was a _____ test: (a) Design, (b) Personality, (c) Perceptual, (d) Vocational; 2—We wanted to find out how well you could judge what was _____ under various conditions: (a) Horizontal, (b) Tilted, (c) Lateral, (d) Vertical; 3—When you opened your eyes, you saw a square frame and within this frame you saw a rod. Their positions were such that: (a) The frame was tilted and the rod was vertical, (b) The frame and the rod were both vertical, (c) The frame and rod were both tilted, (d) The frame was vertical and the rod was tilted; 4—In each trial, what were you supposed to do to the rod? (a) Make it vertical, which in some cases meant

leaving it where it was since it was already vertical, (b) Turn it to the left or the right to make it vertical to the top and bottom of the frame, (c) Turn it to the left or to the right to make it straight up and down like the walls of a room or a flagpole, (d) Turn it to the left or the right to make it vertical to the sides of the frame.

The questionnaire was administered to 100 male and 118 female inpatients, comprising essentially consecutive hospital admissions, immediately after they had completed the RFT. The procedure, including criteria for excluding patients from the study, are described in detail elsewhere (Neville et al, 1969). The dependent variable of RFT scores represent the degree of deviation of the rod from the vertical, regardless of direction, summed over the eight trials of Series 3, with an arbitrary maximum score of 45 deg for any given trial.

RESULTS

The effects of sex (male vs female) and number of questionnaire errors (0 vs 1 or more) on RFT scores were evaluated by a 2 by 2 unequal Ns, least-squares ANOVA. Both main effects were highly significant: sex ($F = 15.89$, $df = 1,214$, $p < .01$) and errors ($F = 32.46$, $df = 1,214$, $p < .01$).

Male patients with no questionnaire errors ($N = 78$) had an RFT mean of 6.19 deg/trial, male patients with one or more errors ($N = 22$), a mean of 11.89 deg/trial. Similar means for females ($N = 75$ and 43) were 10.27 and 19.00 deg/trial, respectively.

DISCUSSION

The results of the present study clearly indicate the validity of the technician's observation concerning the importance of determining whether patients understood the standardized RFT task instructions, since 22% of the males and 36% of the females made one or more errors on a simple four-item task-instructions questionnaire. Furthermore, the results clearly demonstrated the effects of such lack of comprehension on obtained RFT scores. However, the results also suggest that such comprehension, while playing an important role, apparently falls somewhat short of accounting for all differences between the RFT distributions of the Highland Hospital psychiatric inpatient sample and the previously reported college samples (Pressey, 1968; Vaught, 1968). The need for further empirical efforts to identify other factors which are seemingly contributing to such population differences seems evident.

REFERENCES

JOHNSON, D. T., NEVILLE, C. W., JR., &

- WORKMAN, S. N. Expected scores in the rod-and-frame test: Critiquing a revisit. *Psychonomic Science*, 1970, 20, 100-101.
- NEVILLE, C. W., JR., WORKMAN, S. N., & JOHNSON, D. T. Expected scores in the rod-and-frame test: Field dependence is where you find it. *Psychonomic Science*, 1969, 15, 321-322.
- PRESSEY, A. W. A reply to comments on "Figural aftereffects, illusions, and the dimension of field dependence." *Psychonomic Science*, 1968, 11, 364.
- VAUGHT, G. M. Expected scores in the rod-and-frame test: Fuel for the Immergluck-Pressey fire. *Psychonomic Science*, 1968, 13, 248.
- VAUGHT, G. M. Expected scores in the rod-and-frame test revisited. *Psychonomic Science*, 1970, 18, 111.
- WITKIN, H. A., LEWIS, H. B., HERTZMAN, M., MACHOVER, K., MEISSNER, P. B., & WAPNER, S. *Personality through perception*. New York: Harper, 1954.