

Volume I

September - October 1959

Number 1

# JOURNAL OF NEUROPSYCHIATRY

EDITOR IN CHIEF

L. J. MEDUNA, M.D.

EDITORS

A. I. JACKMAN, M.D.

A. A. LaVERNE, M.D.

## ADVISORY BOARD

Leo G. Abrod, Ph.D.  
Chicago, Illinois

Francis J. Gerty, M.D.  
Chicago, Illinois

Frederic A. Gibbs, M.D.  
Chicago, Illinois

Mario Gozzano, M.D.  
Rome, Italy

Robert G. Heath, M.D.  
New Orleans, La.

Harold Himwich, M.D.  
Galesburg, Illinois

Hans Hoff, M.D.  
Vienna, Austria

Gabriel Langfeldt, M.D.  
Oslo, Norway

Juan F. Lopez Ibor, M.D.  
Madrid, Spain

A. C. Pacheco e Silva, M.D.  
Sao Paulo, Brazil

Ernest H. Parsons, M.D.  
St. Louis, Missouri

William Sargent, M.D.  
London, England

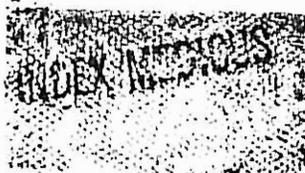
Yushi Uchimura, M.D.  
Tokyo, Japan

## CONSULTANT

Austin M. Davies, Ph.B.  
New York, N. Y.



Published six times yearly by JOURNAL OF NEUROPSYCHIATRY, INC., 277 Broadway, New York 7, New York



Subscription: Domestic \$10.00 — Foreign \$12.00

## Personality Factors in Behavioral Response to Electroshock Therapy

ROBERT L. KAHN, PH.D., and MAX FINK, M.D.

In previous studies<sup>1,2</sup> we found that patients who were most likely to improve from electroshock treatment exhibited persistent and relatively marked degrees of altered brain function, as measured by the electroencephalogram and the amobarbital test for brain disease.<sup>3</sup> We reported, furthermore,<sup>4</sup> that patients who improved with electroshock treatment had developed a language pattern similar to that previously described by Weinstein and Kahn<sup>5</sup> in their studies of neurological patients with cerebral dysfunction. Weinstein and Kahn described a language pattern which they called "language of denial" and demonstrated the relationship of this language pattern to the premorbid personality of the patient.

On the basis of these observations, we assumed that the patients most likely to benefit from electroshock treatment would be those who most closely approximated the "explicit verbal denial" personality.<sup>6</sup>

To test this hypothesis, we studied 63 consecutive patients referred for electroshock therapy. The selection of patients for treatment was made by the psychiatric staff, independent of the judgment of the authors. The patients ranged in age from 20 to 66, with a mean of 47, and included 21 men and 42 women. Prior to and during treatment each patient was evaluated according to the following methods:

1. *Structured Family Interviews:* Personality was evaluated in interviews with members of the patient's family. At the opening of the interview, the relative was asked to describe, in his own words, the patient's usual interests and attitudes. The relatives were encouraged to talk about any aspect they wished, and the interviewer followed the trend of their talk, rather than proceed-

ing in a serial fashion. The interviewer asked questions, however, to obtain information in 15 specific areas which have been described as characteristic of the "explicit verbal denial" personality. The number and type of questions required with each relative varied according to the degree of spontaneous production and the informant's capacity to comprehend and communicate. The informant was encouraged to give concrete examples of all statements.

The patients were evaluated as to the presence and extent of the following characteristics: whether they (1) stressed verbal symbols such as resolutions, homilies, clichés and rationalization; (2) were prestige and security conscious, and did not enjoy the intrinsic benefits of health, work, leisure, money and property; (3) regarded illness as an imperfection or disgrace, keeping it a secret from family and neighbors, and were reluctant to seek medical care; (4) tended to "shake off" their own troubles and to be regarded as practical persons who advise others; (5) possessed much drive and compulsive energy and felt guilty or uneasy if not occupied; (6) were conscientious, with a high sense of duty and responsibility; (7) were sensitive to criticism, regarding it as an attack on their integrity; (8) were proud and tended to avoid help from others; (9) were reserved rather than openly affectionate or emotional; (10) emphasized being correct; (11) lacked imaginativeness and creativity; (12) were not considered by their relatives as dependent; (13) did not discuss sex openly; (14) did not have temper outbursts; and (15) were not "ludic"—a term taken from Piaget<sup>7</sup> and used by Weinstein and Kahn<sup>8</sup> to denote comic, tragic or melodramatic behavior.

After the interview, each item was rated on a scale of 0, 1 or 2. A score of 0 was given if the aspect was noted to a minimal degree; a score of 1 indicated that the characteristic was moderately present; while a score of 2 indicated the definite and marked

From the Department of Experimental Psychiatry, Hillside Hospital, Glen Oaks, New York.

Aided by grant M-927 of the National Institute of Mental Health, National Institutes of Health, United States Public Health Service.

Presented at a meeting of Electroshock Research Association, Chicago, 1957.

The use of Pentothal, convulsive stimulation, tetrazol or Megimide, antagonism does not stimulation of the central these analeptics. He chemical stimulation, physiologic circulatory, which are responsible, ages in the patient.<sup>3</sup> of patients reported, dly small, certain con. rom our observations, minimize or ignore the tions of the illnesses. was centered on only nd pharmacologic in- ions involved.

ical review of narco- This new non-convul- t as used in the pres- ents has not lived up LaVerne who intro- apetic medium. We orate the clinical re- ation therapy as re- l Padula. However, it that the type of case study represents a re- up of patients, about

a safe procedure and o patients who would s for the conventional

Megimide was supplied oratories, North Chicago.

### REFERENCES

- Padula, L. J.: Narco-Stimulation. *Am. J. of Psychiatry*, 29:1, Dec. 1958.
- Stimulation. *Am. J. of Psychiatry*, 1959.
- ential Narco-Stimulation. June 1959.

presence of the pattern. The scores for each item were added and the resultant score termed the "denial personality score."

2. *Clinical Evaluation:* Each patient was interviewed prior to treatment and at weekly intervals during and following the course of treatment. The clinical evaluation was determined by the patient's behavior in the few weeks following the end of the course of treatment, and was based on the evaluation of the patient's therapist, the therapist's supervising psychiatrist and the supervising psychiatrist in charge of the electroshock treatment unit. Patients were classed into three groups: much improved, moderately improved, or unimproved, following the criteria outlined previously.<sup>6</sup>

3. *Language Study:* In addition to the clinical interviews, each patient was examined with a standardized series of questions directed at determining his attitude toward his illness. Two of the questions asked were "What is your main trouble?" and "If you had one wish, what would you wish for?" The patients were tested before and during treatment, and the verbatim responses were analyzed for changes in language, according to the method previously described.<sup>7</sup>

Treatment for all patients consisted of grand mal electroshock, using a Reiter electrostimulator or a Medcraft alternating-current instrument, on a schedule of three treatments per week.

Of the 63 patients, we were able to interview the relatives of 47; and the present study refers to this group. The denial personality scores ranged from 0 to 25, with a median of 11. For statistical comparison the patients were divided into two groups. Patients with scores ranging from 11 to 25 were considered the "high denial" group, while those with scores from 0 to 10 were classed as low in denial tendencies.

*Personality Score and Clinical Response:* Patients with high denial personality scores in these family interviews were most likely to be rated as much improved, and only one case was considered unimproved (Table I). In patients with low scores, however, the clinical response rating occurred on a chance basis, with 30% of the patients being regarded as unimproved.

TABLE I  
*Relation of Denial Personality Scores to Clinical Response to Electroshock*

Denial Personality Score	Much Improved	Moderately Improved	Unimproved	Total
11 - 25	14	9	1	24
0 - 25	7	9	7	23
Total	21	18	8	47

The difference in the denial scores between the much and moderately improved patients when compared to the unimproved patients is statistically significant (at 1% level of confidence by Mann-Whitney U Test). Although the much improved patients have a higher mean score than the moderately improved group, this difference is not significant.

*Qualitative Observations:* Although there is a relationship between high personality scores and the clinical rating, 30 per cent of the patients with low denial scores were also evaluated as showing a marked improvement. While the group of seven patients is a small one, certain common characteristics can be described. Although these subjects lack the competitive drive, prestige and security needs of the high denial subjects, they show a similar lack of creative or imaginative capacity or ability to think critically of their own or others' feelings. They relate to the environment primarily by nonverbal forms of communication. They are described by their families as laughing or crying excessively and as showing anger by muteness—"going into a shell," "walking out of the room in a huff"—or by violent tempers with table-pounding, throwing objects or direct physical assault.

*Personality Score and Changes in Language:* By means of the technique of language analysis described in a previous study,<sup>7</sup> the changes in language in clinical interviews were compared with the denial personality scores. Nine patterns of language change, such as explicit denial of illness or symptoms, displacement, qualification, etc., have been described as characteristically occurring after electroshock. As in the previous study, each patient was classified according to the dichotomy of whether

or not  
gauge  
perso:  
of lau  
denial  
coeffic  
sonali  
chang  
the 1

Relat  
Cli  
me  
D  
Person  
11 -  
0 -  
T

Case  
old ho  
15-mo  
fear o  
retard  
her st  
the w  
The  
consci  
much  
terests  
she bu  
"mort  
nesses  
band.  
emotic  
tempe  
if she  
bornna  
persor  
and w  
or tak  
Acc  
Aft  
phoric  
ance a  
tor ca  
luctan  
that s  
derful  
ered f  
chang  
"much  
Cas  
year-c  
with  
birth  
intere  
difficu

ality Scores to Electroshock

Unimproved	Total
1	24
7	23
—	—
8	47

l scores between improved patients, improved patients, at 1% level of U Test). All patients have a moderately im- e is not signifi-

Although there high personality ; 30 per cent of scores were also d improvement. ients is a small eristics can be bjects lack the and security ects, they show maginative catically of their y relate to the nverbal forms e described by crying exces- by muteness— g out of the : tempers with ects or direct

anges in Lan- nique of lan- a previous ge in clinical th the denial terns of lan- denial of ill- ent, qualifica- as character- shock. As in nt was classi- y of whether

or not he showed three or more explicit lan- guage changes. Patients with high denial personality scores showed a greater number of language changes than those with low denial personality scores (Table II). The coefficient of correlation between the per- sonality scores and the number of language changes is +.71, significant at better than the 1% level of confidence.

TABLE II

Relation of Denial Personality Scores to Clinical Language Changes During Treat- ment

Denial Personality Scores	No. Language Changes	
	0 - 2	3 or more
11 - 25 (20)	8	12
0 - 10 (20)	17	3
Total	25	15

Illustrative Cases

Case 1. High Denial Personality Score: A 61-year-old housewife was admitted to the hospital with a 15-month history of insomnia, abdominal pain and fear of cancer. On admission she was depressed, retarded and seclusive, evincing little interest in her surroundings and wandering aimlessly about the ward.

The patient was described by her husband as a conscientious, dependable, responsible person with much integrity. She had no hobbies or outside interests, and was unable to relax; as a consequence, she busied herself with chores at home. She was "mortally afraid" of doctors, minimized her ill- nesses and concealed ailments even from her hus- band. Very restrained, she showed no affection or emotion, never discussed sex and rarely lost her temper. She had "a long memory for little things if she felt that she was wronged," a "streak of stub- bornness," and would "just as soon hold another person responsible for her mistakes." She was proud and would "rather go without food" than borrow or take money from others.

According to the denial criteria, her score was 20. After 20 electroshock treatments, she became eu- phoric, took an interest in her personal appear- ance and participated in hospital activities. Her doc- tor called her a "model" patient who, "while re- luctant to discuss her personal feelings, asserted that she had no difficulties at home, had a won- derful husband who was very good to her, consid- ered herself lucky and eagerly anticipated her dis- charge." She was discharged with a rating of "much improved."

Case 2. Low Denial Personality Score: A 41- year-old housewife was admitted to the hospital with a two-year history of depression following the birth of her fourth child. She cried frequently, lost interest in social activities, found it increasingly difficult to take care of her baby and had suicidal

thoughts. On admission it was noted that the pa- tient paid little attention to her personal appear- ance, cried readily, showed psychomotor retarda- tion and was circumstantial in speech.

The patient was described by her husband as a "negative personality" with whom it was not easy to get along because she was opinionated and ar- gumentative. He regarded her as "completely im- practical, with no common sense." She was a poor housekeeper, constantly demanding help from other people, although not the kind of person who would put herself out for others. An excessively talkative person, she liked to engage in long, intellectual, pre- tentious conversations. When angry, however, she would become either completely mute or "very nasty, implying you just don't know any better." Although considered a "cold" person, she was able to talk freely about sex. She frequently com- plained of physical ailments and went to physicians readily. She was "naive" and "unrealistic," believ- ing, for example, that she had a flair for writing although others considered her amateurish.

Her personality score was rated as 4.

The patient received 18 electroshock treatments, which were terminated at her own insistence be- cause she was too frightened to take any more. At the time of her discharge her doctor noted her as "quite depressed," but felt it was doubtful that she could benefit from further treatment at the hospital. She was discharged with the recommendation for continued psychotherapy.

Discussion

The structured family interview was de- signed to test the specific hypothesis de- rived from earlier observations that patients with the "explicit verbal denial" personality are most likely, with electroshock therapy, to show both the language and behavioral changes which are rated as much improved by the examiner. The data support this hy- pothesis and are also consistent with the theory of the mode of action of electroshock therapy advanced by Weinstein, Linn and Kahn in 1952." They suggest that ". . . the therapeutic efficacy of electroconvulsive ther- apy . . . derives from the production of a state of brain function in which the mech- anism of denial is facilitated in charactero- logically disposed individuals."

The degree of explicit verbal denial is, however, only one personality aspect affect- ing the behavioral response to treatment. On the basis of the present data and methods of analysis, a broader view of personality pat- terns in relation to improvement with EST is now possible. Those patients who are rated as clinically improved are character-



ial, as this problem  
 d with a specific hy-  
 raise questions con-  
 personality to type  
 vice of therapy. Clin-  
 rt the concept of a  
 l personality. Abra-  
 of depression occur  
 Arnot<sup>2</sup> described de-  
 g overconscientious  
 amilton and Mann,<sup>3</sup>  
 s of the personality  
 n, included such fea-  
 id pattern of beha-  
 of imagination . . .  
 . . . thorough, con-  
 vention to duty . . .  
 : of view of others  
 g drivers . . . over-  
 Cohen *et al.*,<sup>4</sup> in  
 manic-depressive psy-  
 patients as being  
 s; little concerned  
 rsonal relatedness;  
 l; having little ca-  
 e interchange; and  
 is' feelings toward  
 toward others. They  
 nability to commu-  
 ted that the thera-  
 l be in nonverbal  
 sizing the intellec-  
 ge.  
 personality back-  
 w a pattern that  
 ersonality aspects  
 d as the "explicit  
 r. The factor of  
 ain the fact that  
 on that responds  
 ment. The same  
 make a person  
 reaction are those  
 sive to nonverbal  
 actors enable him  
 litions of altered  
 se language and  
 which are evalu-  
 the same stere-  
 perfectionism and  
 h produce a cat-

astrophic response in the individual faced with the loss of a partner, job, business or loved one permit the development of denial, minimization and displacement under the conditions of altered brain function and are deemed "improved" by the family and the therapist.

**Summary and Conclusions**

To summarize, we believe that our results show that aspects of personality can be differentiated, which are significantly related to the response to treatment. The basic personality pattern of the patients who respond best to electroshock treatment can be characterized as (a) nonempathic, (b) nonintrospective, (c) communicating nonverbally and (d) highly conventional and stereotyped, with little imaginative or creative capacity. Within the context of this common core, there are two main subdivisions of improved patients. One group is comparable with the "explicit verbal denial" personality, showing such features as drive, conscientiousness, independence and emotional control. The other group consists of persons apt to be chronically inadequate and dependent, coming from deprived sociocultural backgrounds, who are affectively labile and ludic. The same personality factors which contribute to a depressive reaction contribute to a behavioral change, under the conditions of altered brain function following electroshock therapy, which is evaluated as improvement.

**REFERENCES**

1. Abraham, K.: Selected Papers on Psychoanalysis. (*The Hogarth Press Ltd.*, London, 1949.)
2. Arnot, R.: The Predepressed Personality. *Arch. Neurol. & Psychiat.*, 76:617-618 (1956).
3. Cohen, M. B., *et al.*: An Intensive Study of Twelve Cases of Manic-Depressive Psychosis. *Psychiatry*, 17:103-137 (1954).
4. Fink, M., and Kahn, R. L.: Relation of EEG Delta Activity to Behavioral Response in Electroshock. *Arch. Neurol. & Psychiat.*, 78:516-525, 1957.
5. Hamilton, D. M., and Mann, W. A.: The Hospital Treatment of Involutional Psychoses, in Hoch, P., and Zubin, J. (eds.), *Depression*, pp. 199-209 (*Grune & Stratton*, New York, 1954).
6. Kahn, R. L., Fink, M., and Weinstein, E. A.: Relation of Amobarbital Test to Clinical Improvement in Electroshock. *Arch. Neurol. & Psychiat.*, 76:23-29 (1956).
7. Kahn, R. L., and Fink, M.: Changes in Language During Electroshock Therapy, in Hoch, P., and Zubin, J. (eds.), *Psychopathology of Communication*, pp. 126.
8. Piaget, J.: *Play, Dreams and Imitation in Childhood* (*W. W. Norton*, New York, 1951).
9. Weinstein, E. A., Linn, L., and Kahn, R. L.: Psychosis During Electroshock Therapy: Its Relation to the Theory of Shock Therapy. *Am. J. Psychiat.*, 109:22-26 (1952).
10. Weinstein, E. A., *et al.*: Diagnostic Use of Amobarbital Sodium ("Amytal Sodium") in Organic Brain Disease. *Am. J. Psychiat.*, 112:889-894 (1953).
11. Weinstein, E. A., and Kahn, R. L.: Personality Factors in Denial of Illness. *Arch. Neurol. & Psychiat.*, 69:355-367 (1953).
12. Weinstein, E. A., Kahn, R. L., and Sugarman, L. A.: Ludic Behavior in Patients with Brain Disease. *J. Hillside Hosp.*, 3:98-106 (1954).
13. Weinstein, E. A., and Kahn, R. L.: Denial of Illness: Symbolic and Physiological Aspects. (*Charles C. Thomas*, Springfield, Ill., 1955.)